OCCULTATIONS OF PLANETS AND BRIGHT STARS BY THE MOON

November 13, 2017

The moon, as our nearest neighbor, sometimes blocks the light coming from a planet, a star, or the sun. Occultations are listed below for November, 2017 through 2021. The name of the planet or star, along with its visual magnitude, is listed along with the percentage of the moon's disk that is illuminated at the time, and the phase of the moon. The date and time (MST) when the geocentric angle between the center of the moon and the center of the planet or star is minimal (mid-point of the occultation), and the angle of separation are the next items listed.

The date and times (MST) when the occultation first commences, and last ends, for the first and last observations on earth are listed, followed by the latitude and longitude of the location where the line from the object's center through the moon's center strikes the surface of the earth at mid-occultation.

If the occultation is visible, in whole or in part, from the **Hidden Valley Observatory**, the times (MST) of the various stages are listed along with the altitude above the horizon of the object, the moon (with azimuth), and the sun respectively. For occultations, when the moon is above the horizon, but not the sun, this is noted with three asterisks (***). If, on the other hand, the Moon is visible at HVO when the object in question is closest to the Moon, but the planet or star is not occulted because of perspective, then the angle between the edge of the Moon and the edge of the object (the miss angle) is listed.

Note: the data listed below depend on estimates of DUT1 and DUTC. Also, a number of other factors are involved in the computation of an occultation, and the results given here can easily be off by a few seconds. In addition, direct visual observation can be uncertain in terms of reaction time, and in establishing the accuracy of the clock you use.

N.B. This edition replaces all previous editions.

Selected stars are magnitude 5.0 or brighter.
Lunar occultations of planets and bright stars.
Dates and times in MST.
When MDT (Summer Time) is required add one hour.

Reference location: **HVO** 44.1082 -103.2975

Occultation of 106 nu Psc 4.44 by moon 98% illuminated at phase= 165 degrees
11/02/2017 19:44:48.1 Geocentric minimum 0.1 degrees
Global start/end: 11/02/2017 17:39:12.2 and 11/02/2017 21:50:21.8
Mid-occultation observing point (lat., long.) 13.6 -61.0
At HVO the miss angle is 1363.1 arc-sec at 11/02/2017 19:19:16.4

Occultation of 65 xi^1 Cet 4.37 by moon 100% illuminated at phase= 173 degrees
11/03/2017 09:48:39.6 Geocentric minimum 0.5 degrees
Global start/end: 11/03/2017 07:55:05.7 and 11/03/2017 11:42:10.1
Mid-occultation observing point (lat., long.) -22.5 108.7

Occultation of 73 xi^2 Cet 4.28 by moon 100% illuminated at phase= 176 degrees
11/03/2017 15:28:31.3 Geocentric minimum 1.0 degrees
Global start/end: 11/03/2017 14:07:13.0 and 11/03/2017 16:49:47.4
Mid-occultation observing point (lat., long.) 72.3 -54.6

Occultation of 87 mu Cet 4.27 by moon 100% illuminated at phase= 180 degrees
11/03/2017 22:44:19.6 Geocentric minimum 0.6 degrees
Global start/end: 11/03/2017 20:54:30.5   and   11/04/2017 00:34:06.1
Mid-occultation observing point (lat., long.) 45.8 -102.7

---For observations at HVO:
11/03/2017 22:05:08.6 Start Total 49.87 49.9 (az141) -55.4 ***
11/03/2017 22:41:29.7 OCCULTATION MID-POINT 53.46 53.48 (az153) -59.0 ***
11/03/2017 23:18:38.4 End Total 55.64 55.73 (az168) -61.1 ***

Occultation of 5 Tau 4.11 by moon 99% illuminated at phase= 191 degrees
11/04/2017 17:32:13.6 Geocentric minimum 0.9 degrees
Global start/end: 11/04/2017 16:05:02.2   and   11/04/2017 18:59:24.2
Mid-occultation observing point (lat., long.) 72.5 -47.1

Occultation of 54 gamma Tau 3.63 by moon 96% illuminated at phase= 202 degrees
11/05/2017 13:06:57.4 Geocentric minimum 0.9 degrees
Global start/end: 11/05/2017 11:39:10.3   and   11/05/2017 14:34:44.8
Mid-occultation observing point (lat., long.) 75.9 33.4

Occultation of 61 delta Tau 3.76 by moon 96% illuminated at phase= 203 degrees
11/05/2017 14:53:32.6 Geocentric minimum 0.8 degrees
Global start/end: 11/05/2017 13:18:15.1   and   11/05/2017 16:28:50.4
Mid-occultation observing point (lat., long.) -36.4 63.2

Occultation of 68v776 Tau 4.29 by moon 96% illuminated at phase= 204 degrees
11/05/2017 15:58:13.9 Geocentric minimum 1.1 degrees
Global start/end: 11/05/2017 14:52:13.5   and   11/05/2017 17:04:14.6
Mid-occultation observing point (lat., long.) -70.5 69.9

Occultation of 71v777 Tau 4.49 by moon 96% illuminated at phase= 204 degrees
11/05/2017 15:36:22.4 Geocentric minimum 1.2 degrees
Global start/end: 11/05/2017 14:56:10.8   and   11/05/2017 16:16:34.2
Mid-occultation observing point (lat., long.) 70.2 -105.1

Occultation of 77 theta^1 Tau 3.84 by moon 96% illuminated at phase= 204 degrees
11/05/2017 16:33:22.1 Geocentric minimum 1.0 degrees
Global start/end: 11/05/2017 15:12:36.3   and   11/05/2017 17:54:08.1
Mid-occultation observing point (lat., long.) 79.8 -71.0

Occultation of 78 theta^2 Tau 3.4 by moon 96% illuminated at phase= 204 degrees
11/05/2017 16:33:45.4 Geocentric minimum 1.1 degrees
Global start/end: 11/05/2017 15:24:57.3   and   11/05/2017 17:42:33.7
Mid-occultation observing point (lat., long.) 70.1 -119.7

Occultation of Aldebaran 0.85 by moon 95% illuminated at phase= 206 degrees
11/05/2017 19:30:17.1 Geocentric minimum 0.8 degrees
Global start/end: 11/05/2017 17:49:30.5   and   11/05/2017 21:11:04.4
Mid-occultation observing point (lat., long.) 63.6 -30.4

---For observations at HVO:
11/05/2017 18:12:02.5 Start Total -0.96 -0.9 (az65) -17.4
11/05/2017 18:35:17.5 OCCULTATION MID-POINT 2.58 2.52 (az69) -21.5 ***
11/05/2017 18:59:10.6 End Total 6.52 6.32 (az73) -25.8 ***

Occultation of 119 CE Tau 4.38 by moon 89% illuminated at phase= 219 degrees
11/06/2017 17:24:01.4 Geocentric minimum 0.5 degrees
Global start/end: 11/06/2017 15:29:18.3   and   11/06/2017 19:18:46.7
Mid-occultation observing point (lat., long.) 48.6 26.8

Occultation of 54 chi^1 Ori 4.41 by moon 86% illuminated at phase= 224 degrees
11/07/2017 02:04:06.3 Geocentric minimum 0.8 degrees
Global start/end: 11/07/2017 00:22:48.7   and   11/07/2017 03:45:26.3
Mid-occultation observing point (lat., long.) -28.0 -90.9
At HVO the miss angle is 3265.9 arc-sec at 11/07/2017 02:00:01.5

Occultation of 62 chi^2 Ori 4.63 by moon 85% illuminated at phase= 226 degrees
11/07/2017 05:41:28.3 Geocentric minimum 0.5 degrees
Global start/end: 11/07/2017 03:45:38.7   and   11/07/2017 07:37:20.6
Mid-occultation observing point (lat., long.) -8.7 -144.7
At HVO the miss angle is 2542.1 arc-sec at 11/07/2017 06:33:37.5

Occultation of 18 nu Gem 4.15 by moon 82% illuminated at phase= 231 degrees
11/07/2017 15:17:21.4 Geocentric minimum 0.4 degrees
Global start/end: 11/07/2017 13:17:06.7   and   11/07/2017 17:17:39.1
Mid-occultation observing point (lat., long.) -1.3 76.1

Occultation of 43 zeta Gem 3.79 by moon 76% illuminated at phase= 239 degrees
11/08/2017 04:50:23.7 Geocentric minimum 0.8 degrees
Global start/end: 11/08/2017 03:14:14.8   and   11/08/2017 06:26:36.0
Mid-occultation observing point (lat., long.) -35.2 -121.5
At HVO the miss angle is 3558.2 arc-sec at 11/08/2017 05:04:30.3

Occultation of 81 Gem 4.88 by moon 69% illuminated at phase= 248 degrees
11/08/2017 21:31:49.1 Geocentric minimum 0.6 degrees
Global start/end: 11/08/2017 19:37:27.7   and   11/08/2017 23:26:14.7
Mid-occultation observing point (lat., long.) 52.3 5.5

Occultation of Asellus Australis 3.94 by moon 58% illuminated at phase= 261 degrees
11/09/2017 20:57:49.1 Geocentric minimum 1.0 degrees
Global start/end: 11/09/2017 19:44:10.5   and   11/09/2017 22:11:30.2
Mid-occultation observing point (lat., long.) -70.4 -9.8

Occultation of Regulus 1.35 by moon 41% illuminated at phase= 281 degrees
11/11/2017 09:45:02.0 Geocentric minimum 0.4 degrees
Global start/end: 11/11/2017 07:42:27.4   and   11/11/2017 11:47:39.9
Mid-occultation observing point (lat., long.) 37.5 -141.2
At HVO the miss angle is 61.9 arc-sec at 11/11/2017 10:24:24.7

Occultation of 63 chi Leo 4.63 by moon 30% illuminated at phase= 294 degrees
11/12/2017 12:11:53.5 Geocentric minimum 0.8 degrees
Global start/end: 11/12/2017 10:30:51.9   and   11/12/2017 13:52:58.1
Mid-occultation observing point (lat., long.) 58.2 -144.6

Occultation of 77 sigma Leo 4.05 by moon 27% illuminated at phase= 298 degrees
11/12/2017 19:53:22.9 Geocentric minimum 0.8 degrees
Global start/end: 11/12/2017 18:09:50.1   and   11/12/2017 21:36:58.7
Mid-occultation observing point (lat., long.) 54.8 100.9

Occultation of Porrima 3.48 by moon 13% illuminated at phase= 318 degrees
11/14/2017 11:47:01.3 Geocentric minimum 1.1 degrees
Global start/end: 11/14/2017 10:55:03.0   and   11/14/2017 12:39:00.4
Mid-occultation observing point (lat., long.) 70.3 -56.0
At HVO the miss angle is 177.9 arc-sec at 11/14/2017 12:19:26.8

Occultation of 29 gamma^2 Vir 3.5 by moon 13% illuminated at phase= 318 degrees
11/14/2017 11:46:59.2 Geocentric minimum 1.1 degrees
Global start/end: 11/14/2017 10:54:47.2   and   11/14/2017 12:39:12.0
Mid-occultation observing point (lat., long.) 70.3 -56.0
At HVO the miss angle is 174.9 arc-sec at 11/14/2017 12:19:23.5

Occultation of BSC6196 4.96 by moon 1% illuminated at phase= 14 degrees
11/19/2017 11:00:52.2 Geocentric minimum 0.2 degrees
Global start/end: 11/19/2017 08:43:53.6   and   11/19/2017 13:17:52.4
Mid-occultation observing point (lat., long.) -6.8 -76.7
At HVO the miss angle is 856.8 arc-sec at 11/19/2017 09:43:51.3

Occultation of 43 Sgr 4.96 by moon 16% illuminated at phase= 48 degrees
11/22/2017 13:55:43.8 Geocentric minimum 0.8 degrees
Global start/end: 11/22/2017 12:12:13.8   and   11/22/2017 15:39:13.9
Mid-occultation observing point (lat., long.) -77.7 -72.8
At HVO the miss angle is 4781.3 arc-sec at 11/22/2017 13:14:45.8

Occultation of 56 Sgr 4.86 by moon 21% illuminated at phase= 54 degrees
11/23/2017 03:30:46.2 Geocentric minimum 0.6 degrees
Global start/end: 11/23/2017 01:28:37.2   and   11/23/2017 05:32:54.8
Mid-occultation observing point (lat., long.) 18.4 72.9

Occultation of 23 theta Cap 4.07 by moon 34% illuminated at phase= 71 degrees
11/24/2017 17:47:32.6 Geocentric minimum 0.9 degrees
Global start/end: 11/24/2017 16:24:14.3   and   11/24/2017 19:10:49.0
Mid-occultation observing point (lat., long.) 70.4 -156.3

---For observations at HVO:
11/24/2017 18:27:43.7 Start Total 24.29 24.43 (az208) -22.7 ***
11/24/2017 18:39:12.1 OCCULTATION MID-POINT 23.3 23.47 (az210) -24.7 ***
11/24/2017 18:50:32.4 End Total 22.23 22.45 (az213) -26.8 ***

Occultation of 33 iota Aqr 4.27 by moon 46% illuminated at phase= 85 degrees
11/25/2017 23:14:20.6 Geocentric minimum 1.1 degrees
Global start/end: 11/25/2017 22:29:16.6   and   11/25/2017 23:59:23.6
Mid-occultation observing point (lat., long.) 70.3 121.0

Occultation of 57 sigma Aqr 4.82 by moon 51% illuminated at phase= 91 degrees
11/26/2017 11:55:37.3 Geocentric minimum 0.3 degrees
Global start/end: 11/26/2017 09:44:10.4   and   11/26/2017 14:07:00.2
Mid-occultation observing point (lat., long.) -29.4 -5.5

Occultation of Neptune 7.9 by moon 56% illuminated at phase= 96 degrees
11/26/2017 22:58:22.6 Geocentric minimum 1.1 degrees
Global start/end: 11/26/2017 22:05:33.4   and   11/26/2017 23:51:10.1
Mid-occultation observing point (lat., long.) -70.1 -55.8

Occultation of 27 Psc 4.86 by moon 69% illuminated at phase= 112 degrees
11/28/2017 06:48:56.9 Geocentric minimum 0.2 degrees
Global start/end: 11/28/2017 04:37:47.5   and   11/28/2017 09:00:02.5
Mid-occultation observing point (lat., long.) -13.1 88.5

Occultation of 106 nu Psc 4.44 by moon 87% illuminated at phase= 137 degrees
11/30/2017 06:30:29.5 Geocentric minimum 0.0 degrees
Global start/end: 11/30/2017 04:22:50.2   and   11/30/2017 08:38:07.4
Mid-occultation observing point (lat., long.) 6.1 113.2

Occultation of 65 xi^1 Cet 4.37 by moon 91% illuminated at phase= 145 degrees
11/30/2017 20:45:23.0 Geocentric minimum 0.6 degrees
Global start/end: 11/30/2017 18:56:37.5   and   11/30/2017 22:34:02.9
Mid-occultation observing point (lat., long.) -29.6 -79.5
At HVO the miss angle is 3422.2 arc-sec at 11/30/2017 21:17:17.9

Occultation of 73 xi^2 Cet 4.28 by moon 93% illuminated at phase= 148 degrees
12/01/2017 02:27:24.6 Geocentric minimum 0.9 degrees
Global start/end: 12/01/2017 00:56:37.1   and   12/01/2017 03:58:07.6
Mid-occultation observing point (lat., long.) 64.7 146.5
At HVO the miss angle is 600.3 arc-sec at 12/01/2017 03:57:58.9

Occultation of 87 mu Cet 4.27 by moon 94% illuminated at phase= 153 degrees
12/01/2017 09:45:36.1 Geocentric minimum 0.5 degrees
Global start/end: 12/01/2017 07:52:02.4   and   12/01/2017 11:39:04.9
Mid-occultation observing point (lat., long.) 41.3 67.3

Occultation of 5 Tau 4.11 by moon 98% illuminated at phase= 163 degrees
12/02/2017 04:31:53.3 Geocentric minimum 0.9 degrees
Global start/end: 12/02/2017 03:02:53.2   and   12/02/2017 06:00:50.4
Mid-occultation observing point (lat., long.) 70.5 127.0

Occultation of 54 gamma Tau 3.63 by moon 100% illuminated at phase= 175 degrees
12/02/2017 23:53:44.1 Geocentric minimum 0.9 degrees
Global start/end: 12/02/2017 22:29:33.1   and   12/03/2017 01:17:53.6
Mid-occultation observing point (lat., long.) 78.1 -171.5
At HVO the miss angle is 820.2 arc-sec at 12/03/2017 00:14:47.8

Occultation of 61 delta Tau 3.76 by moon 100% illuminated at phase= 176 degrees
12/03/2017 01:39:19.3 Geocentric minimum 0.8 degrees
Global start/end: 12/03/2017 00:01:09.2   and   12/03/2017 03:17:27.6
Mid-occultation observing point (lat., long.) -32.0 -126.2
At HVO the miss angle is 3337.5 arc-sec at 12/03/2017 02:35:28.8

Occultation of 68v776 Tau 4.29 by moon 100% illuminated at phase= 176 degrees
12/03/2017 02:43:02.5 Geocentric minimum 1.0 degrees
Global start/end: 12/03/2017 01:30:04.8   and   12/03/2017 03:55:59.0
Mid-occultation observing point (lat., long.) -70.3 -117.7
At HVO the miss angle is 4389.8 arc-sec at 12/03/2017 03:46:06.6

Occultation of 71v777 Tau 4.49 by moon 100% illuminated at phase= 176 degrees
12/03/2017 02:20:35.7 Geocentric minimum 1.3 degrees
Global start/end: 12/03/2017 01:51:39.1   and   12/03/2017 02:49:32.1
Mid-occultation observing point (lat., long.) 70.1 67.4

Occultation of 77 theta^1 Tau 3.84 by moon 100% illuminated at phase= 177 degrees
12/03/2017 03:16:42.2 Geocentric minimum 1.0 degrees
Global start/end: 12/03/2017 02:01:03.1   and   12/03/2017 04:32:20.1
Mid-occultation observing point (lat., long.) 69.9 53.0

Occultation of 78 theta^2 Tau 3.4 by moon 100% illuminated at phase= 177 degrees
12/03/2017 03:17:02.9 Geocentric minimum 1.1 degrees
Global start/end: 12/03/2017 02:14:28.0   and   12/03/2017 04:19:37.1
Mid-occultation observing point (lat., long.) 70.0 53.0

Occultation of Aldebaran 0.85 by moon 100% illuminated at phase= 178 degrees
12/03/2017 06:10:31.0 Geocentric minimum 0.8 degrees
Global start/end: 12/03/2017 04:34:06.1   and   12/03/2017 07:46:54.5
Mid-occultation observing point (lat., long.) 67.4 138.1

Occultation of 119 CE Tau 4.38 by moon 99% illuminated at phase= 191 degrees
12/04/2017 03:33:42.6 Geocentric minimum 0.6 degrees
Global start/end: 12/04/2017 01:45:26.5   and   12/04/2017 05:21:59.0
Mid-occultation observing point (lat., long.) 55.6 -154.6

---For observations at HVO:
12/04/2017 04:12:36.5 Start Total 37.79 37.67 (az259) -31.4 ***
12/04/2017 04:40:58.4 OCCULTATION MID-POINT 32.74 32.82 (az265) -26.3 ***
12/04/2017 05:08:17.4 End Total 27.84 28.11 (az269) -21.5 ***

Occultation of 54 chi^1 Ori 4.41 by moon 98% illuminated at phase= 196 degrees
12/04/2017 11:59:10.6 Geocentric minimum 0.6 degrees
Global start/end: 12/04/2017 10:10:59.2   and   12/04/2017 13:47:23.1
Mid-occultation observing point (lat., long.) -17.0 92.7

Occultation of 62 chi^2 Ori 4.63 by moon 98% illuminated at phase= 198 degrees
12/04/2017 15:29:42.9 Geocentric minimum 0.3 degrees
Global start/end: 12/04/2017 13:31:03.4   and   12/04/2017 17:28:23.9
Mid-occultation observing point (lat., long.) 0.6 40.9
Occultation of 18 nu Gem 4.15 by moon 96% illuminated at phase= 204 degrees
12/05/2017 00:46:45.1 Geocentric minimum 0.2 degrees
Global start/end: 12/04/2017 22:45:01.3   and   12/05/2017 02:48:30.4
Mid-occultation observing point (lat., long.) 8.7 -93.3
At HVO the miss angle is 1263.0 arc-sec at 12/05/2017 00:34:02.9

Occultation of 43 zeta Gem 3.79 by moon 93% illuminated at phase= 211 degrees
12/05/2017 13:51:28.8 Geocentric minimum 0.6 degrees
Global start/end: 12/05/2017 12:03:33.8   and   12/05/2017 15:39:27.0
Mid-occultation observing point (lat., long.) -18.1 77.2

Occultation of 81 Gem 4.88 by moon 88% illuminated at phase= 221 degrees
12/06/2017 05:55:48.4 Geocentric minimum 0.8 degrees
Global start/end: 12/06/2017 04:16:07.1   and   12/06/2017 07:35:33.8
Mid-occultation observing point (lat., long.) 68.1 -141.3

---For observations at HVO:
12/06/2017 06:29:20.5 Start Total 35.73 35.71 (az262) -8.0 ***
12/06/2017 06:55:20.7 OCCULTATION MID-POINT 31.08 31.2 (az266) -3.4 ***
12/06/2017 07:20:27.6 End Total 26.57 26.83 (az270) 0.6

Occultation of Asellus Australis 3.94 by moon 80% illuminated at phase= 233 degrees
12/07/2017 04:31:10.2 Geocentric minimum 0.8 degrees
Global start/end: 12/07/2017 02:51:13.8   and   12/07/2017 06:11:11.5
Mid-occultation observing point (lat., long.) -32.4 -127.2
At HVO the miss angle is 3563.1 arc-sec at 12/07/2017 04:26:44.3

Occultation of Regulus 1.35 by moon 65% illuminated at phase= 253 degrees
12/08/2017 16:10:05.7 Geocentric minimum 0.7 degrees
Global start/end: 12/08/2017 14:23:11.6   and   12/08/2017 17:57:05.4
Mid-occultation observing point (lat., long.) 55.2 106.5

Occultation of 63 chi Leo 4.63 by moon 53% illuminated at phase= 267 degrees
12/09/2017 18:03:42.8 Geocentric minimum 1.0 degrees
Global start/end: 12/09/2017 16:55:32.2   and   12/09/2017 19:11:56.1
Mid-occultation observing point (lat., long.) 70.1 -174.1

Occultation of 77 sigma Leo 4.05 by moon 50% illuminated at phase= 270 degrees
12/10/2017 01:38:26.0 Geocentric minimum 1.0 degrees
Global start/end: 12/10/2017 00:25:25.0   and   12/10/2017 02:51:29.9
Mid-occultation observing point (lat., long.) 70.1 72.0

Occultation of 38 gamma Lib 3.91 by moon 6% illuminated at phase= 332 degrees
12/15/2017 08:55:28.9 Geocentric minimum 0.6 degrees
Global start/end: 12/15/2017 07:01:01.0   and   12/15/2017 10:49:57.9
Mid-occultation observing point (lat., long.) 29.6 -77.6

Occultation of 48 FX Lib 4.88 by moon 4% illuminated at phase= 336 degrees
12/15/2017 19:20:50.9 Geocentric minimum 1.1 degrees
Global start/end: 12/15/2017 19:05:44.3   and   12/15/2017 19:35:57.5
Mid-occultation observing point (lat., long.) -70.1 -19.8

Occultation of 8 phi Oph 4.28 by moon 2% illuminated at phase= 344 degrees
12/16/2017 11:55:44.7 Geocentric minimum 0.5 degrees
Global start/end: 12/16/2017 09:50:05.8   and   12/16/2017 14:01:24.2
Mid-occultation observing point (lat., long.) -48.9 -130.2
At HVO the miss angle is 3780.6 arc-sec at 12/16/2017 11:56:50.4

Occultation of BSC6196 4.96 by moon 1% illuminated at phase= 346 degrees
12/16/2017 17:16:40.3 Geocentric minimum 0.2 degrees
Global start/end: 12/16/2017 14:59:29.9   and   12/16/2017 19:33:50.7
Mid-occultation observing point (lat., long.) -6.5 162.6

Occultation of 37 xi^2 Sgr 3.51 by moon 2% illuminated at phase= 16 degrees
12/19/2017 10:31:45.7 Geocentric minimum 1.1 degrees
Global start/end: 12/19/2017 09:41:45.2   and   12/19/2017 11:21:46.1
Mid-occultation observing point (lat., long.) 70.1 -71.0

Occultation of 41 pi Sgr 2.89 by moon 3% illuminated at phase= 18 degrees
12/19/2017 16:13:41.6 Geocentric minimum 1.1 degrees
Global start/end: 12/19/2017 15:26:14.0   and   12/19/2017 17:01:09.1
Mid-occultation observing point (lat., long.) 70.1 -156.7

Occultation of 43 Sgr 4.96 by moon 3% illuminated at phase= 20 degrees
12/19/2017 20:10:20.9 Geocentric minimum 0.9 degrees
Global start/end: 12/19/2017 18:45:05.9   and   12/19/2017 21:35:35.9
Mid-occultation observing point (lat., long.) -69.8 -35.9
Occultation of 56 Sgr 4.86 by moon 5% illuminated at phase= 26 degrees

12/20/2017 09:44:32.4 Geocentric minimum 0.4 degrees
Global start/end: 12/20/2017 07:34:09.0   and   12/20/2017 11:54:55.9
Mid-occultation observing point (lat., long.) 6.7 -46.2

Occultation of 23 theta Cap 4.07 by moon 14% illuminated at phase= 44 degrees
12/22/2017 00:04:56.5 Geocentric minimum 0.7 degrees
Global start/end: 12/21/2017 22:17:00.5   and   12/22/2017 01:52:51.3
Mid-occultation observing point (lat., long.) 35.1 108.1

Occultation of 32 iota Cap 4.28 by moon 16% illuminated at phase= 47 degrees
12/22/2017 07:52:02.6 Geocentric minimum 1.2 degrees
retry= 6565.120024951227 6565.1202751516375 6565.120525808421
Global start/end: 12/22/2017 07:51:41.0   and   12/22/2017 07:52:24.2
Mid-occultation observing point (lat., long.) 0.0 0.0

Occultation of 33 iota Aqr 4.27 by moon 23% illuminated at phase= 57 degrees
12/23/2017 05:48:11.0 Geocentric minimum 0.9 degrees
Global start/end: 12/23/2017 04:18:22.0   and   12/23/2017 07:17:58.1
Mid-occultation observing point (lat., long.) 57.9 18.7

Occultation of 57 sigma Aqr 4.82 by moon 28% illuminated at phase= 63 degrees
12/23/2017 18:41:25.1 Geocentric minimum 0.5 degrees
Global start/end: 12/23/2017 16:39:47.5   and   12/23/2017 20:42:59.9
Mid-occultation observing point (lat., long.) -45.0 -126.3
At HVO the miss angle is 2826.3 arc-sec at 12/23/2017 20:24:36.7

Occultation of 27 Psc 4.86 by moon 45% illuminated at phase= 84 degrees
12/25/2017 14:38:36.1 Geocentric minimum 0.4 degrees
Global start/end: 12/25/2017 12:31:49.8   and   12/25/2017 16:45:18.0
Mid-occultation observing point (lat., long.) -27.2 -50.0
At HVO the miss angle is 3467.2 arc-sec at 12/25/2017 14:19:52.3

Occultation of 106 nu Psc 4.44 by moon 67% illuminated at phase= 109 degrees
12/27/2017 15:59:39.6 Geocentric minimum 0.2 degrees
Global start/end: 12/27/2017 13:50:57.6   and   12/27/2017 18:08:17.8
Mid-occultation observing point (lat., long.) -4.9 -52.3
At HVO the miss angle is 2559.9 arc-sec at 12/27/2017 15:36:11.1

Occultation of 65 xi^1 Cet 4.37 by moon 73% illuminated at phase= 117 degrees
12/28/2017 06:44:54.5 Geocentric minimum 0.8 degrees
Global start/end: 12/28/2017 05:07:49.2   and   12/28/2017 08:21:54.1
Mid-occultation observing point (lat., long.) -44.6 111.9

Occultation of 73 xi^2 Cet 4.28 by moon 76% illuminated at phase= 120 degrees
12/28/2017 12:38:01.1 Geocentric minimum 0.7 degrees
Global start/end: 12/28/2017 10:52:44.1   and   12/28/2017 14:23:12.0
Mid-occultation observing point (lat., long.) 52.2 -15.8

Occultation of 87 mu Cet 4.27 by moon 79% illuminated at phase= 125 degrees
12/28/2017 20:10:25.8 Geocentric minimum 0.4 degrees
Global start/end: 12/28/2017 18:09:04.8   and   12/28/2017 22:11:41.4
Mid-occultation observing point (lat., long.) 32.3 -111.7

---For observations at HVO:
12/28/2017 20:01:37.3 Start Total 56.06 55.86 (az177) -38.4 ***
12/28/2017 20:36:45.6 OCCULTATION MID-POINT 55.52 55.43 (az192) -44.6 ***
12/28/2017 21:11:46.2 End Total 53.38 53.47 (az207) -50.7 ***

Occultation of 5 Tau 4.11 by moon 86% illuminated at phase= 135 degrees
12/29/2017 15:28:25.8 Geocentric minimum 0.8 degrees
Global start/end: 12/29/2017 13:48:54.3   and   12/29/2017 17:07:52.2
Mid-occultation observing point (lat., long.) 61.4 -46.9

Occultation of 54 gamma Tau 3.63 by moon 92% illuminated at phase= 147 degrees
12/30/2017 11:14:03.5 Geocentric minimum 0.9 degrees
Global start/end: 12/30/2017 09:42:22.9   and   12/30/2017 12:45:40.4
Mid-occultation observing point (lat., long.) 72.1 18.9

Occultation of 61 delta Tau 3.76 by moon 92% illuminated at phase= 148 degrees
12/30/2017 13:01:51.9 Geocentric minimum 0.9 degrees
Global start/end: 12/30/2017 11:28:59.7   and   12/30/2017 14:34:40.5
Mid-occultation observing point (lat., long.) -39.3 38.4

Occultation of 68v776 Tau 4.29 by moon 93% illuminated at phase= 148 degrees
12/30/2017 14:06:37.3 Geocentric minimum 1.1 degrees
Global start/end: 12/30/2017 13:04:20.1   and   12/30/2017 15:08:52.6
Mid-occultation observing point (lat., long.) -70.2 44.9

Occultation of 71v777 Tau 4.49 by moon 93% illuminated at phase= 148 degrees
12/30/2017 13:43:03.8 Geocentric minimum 1.2 degrees
Global start/end: 12/30/2017 12:55:13.2   and   12/30/2017 14:30:53.3
Mid-occultation observing point (lat., long.) 70.0 -129.9

Occultation of 77 theta^1 Tau 3.84 by moon 93% illuminated at phase= 149 degrees
12/30/2017 14:40:02.9 Geocentric minimum 1.0 degrees
Global start/end: 12/30/2017 13:16:34.0   and   12/30/2017 16:03:28.6
Mid-occultation observing point (lat., long.) 79.3 -68.9

Occultation of 78 theta^2 Tau 3.4 by moon 93% illuminated at phase= 149 degrees
12/30/2017 14:40:22.2 Geocentric minimum 1.0 degrees
Global start/end: 12/30/2017 13:28:03.2   and   12/30/2017 15:52:39.0
Mid-occultation observing point (lat., long.) 69.9 -144.4

Occultation of Aldebaran 0.85 by moon 94% illuminated at phase= 151 degrees
12/30/2017 17:36:14.9 Geocentric minimum 0.7 degrees
Global start/end: 12/30/2017 15:54:55.7   and   12/30/2017 19:17:30.3
Mid-occultation observing point (lat., long.) 62.6 -55.9

---For observations at HVO:
12/30/2017 16:12:22.7 Start Total 15.12 15.26 (az82) 1.3
12/30/2017 16:39:36.4 OCCULTATION MID-POINT 19.97 19.97 (az86) -2.8
12/30/2017 17:07:52.0 End Total 25.05 24.89 (az91) -7.9 ***

Occultation of 119 CE Tau 4.38 by moon 98% illuminated at phase= 163 degrees
12/31/2017 15:08:12.5 Geocentric minimum 0.6 degrees
Global start/end: 12/31/2017 13:19:10.1   and   12/31/2017 16:57:12.8
Mid-occultation observing point (lat., long.) 54.6 4.8

Occultation of 54 chi^1 Ori 4.41 by moon 99% illuminated at phase= 168 degrees
12/31/2017 23:33:19.8 Geocentric minimum 0.6 degrees
Global start/end: 12/31/2017 21:44:59.3   and   01/01/2018 01:21:38.7
Mid-occultation observing point (lat., long.) -16.5 -107.8
At HVO the miss angle is 2695.9 arc-sec at 12/31/2017 23:49:38.1

Occultation of 62 chi^2 Ori 4.63 by moon 99% illuminated at phase= 170 degrees
01/01/2018 03:02:44.5 Geocentric minimum 0.3 degrees
Global start/end: 01/01/2018 01:04:03.7   and   01/01/2018 05:01:24.4
Mid-occultation observing point (lat., long.) 1.4 -159.4
At HVO the miss angle is 2188.8 arc-sec at 01/01/2018 04:03:29.1

Occultation of 18 nu Gem 4.15 by moon 100% illuminated at phase= 176 degrees
01/01/2018 12:15:04.4 Geocentric minimum 0.2 degrees
Global start/end: 01/01/2018 10:13:33.8   and   01/01/2018 14:16:34.7
Mid-occultation observing point (lat., long.) 10.7 67.5

Occultation of 43 zeta Gem 3.79 by moon 100% illuminated at phase= 183 degrees
01/02/2018 01:08:47.1 Geocentric minimum 0.6 degrees
Global start/end: 01/01/2018 23:18:33.5   and   01/02/2018 02:59:01.5
Mid-occultation observing point (lat., long.) -13.4 -118.9
At HVO the miss angle is 2631.8 arc-sec at 01/02/2018 01:23:44.7

Occultation of 81 Gem 4.88 by moon 99% illuminated at phase= 193 degrees
01/02/2018 16:52:14.2 Geocentric minimum 0.9 degrees
Global start/end: 01/02/2018 15:20:33.6   and   01/02/2018 18:23:57.0
Mid-occultation observing point (lat., long.) 76.0 35.4

Occultation of Asellus Australis 3.94 by moon 95% illuminated at phase= 206 degrees
01/03/2018 14:49:06.0 Geocentric minimum 0.6 degrees
Global start/end: 01/03/2018 13:01:35.9   and   01/03/2018 16:36:40.1
Mid-occultation observing point (lat., long.) -20.9 53.8

Occultation of Regulus 1.35 by moon 85% illuminated at phase= 225 degrees
01/05/2018 01:12:11.1 Geocentric minimum 0.9 degrees
Global start/end: 01/04/2018 23:40:46.9   and   01/05/2018 02:43:40.3
Mid-occultation observing point (lat., long.) 68.5 -35.8
At HVO the miss angle is 692.5 arc-sec at 01/05/2018 00:11:03.8

Occultation of 63 chi Leo 4.63 by moon 76% illuminated at phase= 239 degrees
01/06/2018 02:09:37.4 Geocentric minimum 1.2 degrees
Global start/end: 01/06/2018 01:59:01.5   and   01/06/2018 02:20:13.4
Mid-occultation observing point (lat., long.) 70.2 37.6

Occultation of 77 sigma Leo 4.05 by moon 73% illuminated at phase= 243 degrees
01/06/2018 09:28:51.4 Geocentric minimum 1.2 degrees
Global start/end: 01/06/2018 09:02:12.0   and   01/06/2018 09:55:31.4
Mid-occultation observing point (lat., long.) 70.2 -72.4

Occultation of 16 Vir 4.96 by moon 62% illuminated at phase= 256 degrees
01/07/2018 11:52:03.5 Geocentric minimum 1.1 degrees
Global start/end: 01/07/2018 11:05:42.0   and   01/07/2018 12:38:26.6
Mid-occultation observing point (lat., long.) -70.0 70.3

Occultation of 38 gamma Lib 3.91 by moon 22% illuminated at phase= 304 degrees
01/11/2018 14:52:14.6 Geocentric minimum 0.8 degrees
Global start/end: 01/11/2018 13:09:13.2   and   01/11/2018 16:35:17.8
Mid-occultation observing point (lat., long.) 42.0 171.3

Occultation of 48 FX Lib 4.88 by moon 19% illuminated at phase= 309 degrees
01/12/2018 01:18:34.0 Geocentric minimum 1.0 degrees
Global start/end: 01/12/2018 00:16:00.3   and   01/12/2018 02:21:08.2
Mid-occultation observing point (lat., long.) -70.0 -135.7

Occultation of 8 phi Oph 4.28 by moon 14% illuminated at phase= 316 degrees
01/12/2018 17:57:02.4 Geocentric minimum 0.4 degrees
Global start/end: 01/12/2018 15:46:03.8   and   01/12/2018 20:08:01.1
Mid-occultation observing point (lat., long.) -42.1 115.0

Occultation of BSC6196 4.96 by moon 13% illuminated at phase= 319 degrees
01/12/2018 23:19:23.2 Geocentric minimum 0.3 degrees
Global start/end: 01/12/2018 21:03:44.1   and   01/13/2018 01:35:01.5
Mid-occultation observing point (lat., long.) -0.8 46.0

Occultation of 23 theta Cap 4.07 by moon 2% illuminated at phase= 16 degrees
01/18/2018 05:57:31.3 Geocentric minimum 0.7 degrees
Global start/end: 01/18/2018 04:04:16.6   and   01/18/2018 07:50:44.6
Mid-occultation observing point (lat., long.) 28.8 -5.1

Occultation of 32 iota Cap 4.28 by moon 3% illuminated at phase= 19 degrees
01/18/2018 13:42:03.7 Geocentric minimum 1.1 degrees
Global start/end: 01/18/2018 12:54:00.0   and   01/18/2018 14:30:07.0
Mid-occultation observing point (lat., long.) 70.2 -147.8
At HVO the miss angle is 372.7 arc-sec at 01/18/2018 14:13:17.4

Occultation of 33 iota Aqr 4.27 by moon 7% illuminated at phase= 29 degrees
01/19/2018 11:32:17.5 Geocentric minimum 0.8 degrees
Global start/end: 01/19/2018 09:51:53.8   and   01/19/2018 13:12:39.7
Mid-occultation observing point (lat., long.) 44.3 -84.1

Occultation of 57 sigma Aqr 4.82 by moon 9% illuminated at phase= 35 degrees
01/20/2018 00:23:53.1 Geocentric minimum 0.6 degrees
Global start/end: 01/19/2018 22:29:33.8   and   01/20/2018 02:18:10.5
Mid-occultation observing point (lat., long.) -52.5 126.5

Occultation of 27 Psc 4.86 by moon 23% illuminated at phase= 56 degrees
01/21/2018 20:35:36.7 Geocentric minimum 0.5 degrees
Global start/end: 01/21/2018 18:34:06.2   and   01/21/2018 22:37:04.5
Mid-occultation observing point (lat., long.) -35.2 -162.2

Occultation of 106 nu Psc 4.44 by moon 43% illuminated at phase= 82 degrees
01/23/2018 23:01:23.3 Geocentric minimum 0.3 degrees
Global start/end: 01/23/2018 20:53:25.8   and   01/24/2018 01:09:17.6
Mid-occultation observing point (lat., long.) -12.0 177.9

Occultation of 65 xi^1 Cet 4.37 by moon 50% illuminated at phase= 89 degrees
01/24/2018 14:15:47.3 Geocentric minimum 0.9 degrees
Global start/end: 01/24/2018 12:50:43.5   and   01/24/2018 15:40:47.5
Mid-occultation observing point (lat., long.) -60.9 -10.5
At HVO the miss angle is 5234.2 arc-sec at 01/24/2018 13:53:53.9

Occultation of 73 xi^2 Cet 4.28 by moon 52% illuminated at phase= 93 degrees
01/24/2018 20:21:19.9 Geocentric minimum 0.6 degrees
Global start/end: 01/24/2018 18:27:29.9   and   01/24/2018 22:15:05.0
Mid-occultation observing point (lat., long.) 45.0 -153.1

---For observations at HVO:
01/24/2018 21:13:28.4 Start Total 35.87 35.82 (az244) -46.3 ***
01/24/2018 21:36:14.2 OCCULTATION MID-POINT 32.13 32.22 (az249) -50.1 ***
01/24/2018 21:58:21.9 End Total 28.37 28.61 (az253) -53.5 ***

Occultation of 87 mu Cet 4.27 by moon 56% illuminated at phase= 97 degrees
01/25/2018 04:10:31.6 Geocentric minimum 0.3 degrees
Global start/end: 01/25/2018 02:03:52.3   and   01/25/2018 06:17:07.2
Mid-occultation observing point (lat., long.) 26.3 103.7

Occultation of 5 Tau 4.11 by moon 65% illuminated at phase= 108 degrees
01/26/2018 00:13:28.0 Geocentric minimum 0.7 degrees
Global start/end: 01/25/2018 22:25:53.2   and   01/26/2018 02:00:57.6
Mid-occultation observing point (lat., long.) 55.1 161.1

---For observations at HVO:
01/26/2018 01:23:35.3 Start Total 5.48 5.44 (az283) -59.8 ***
01/26/2018 01:42:10.4 OCCULTATION MID-POINT 2.37 2.47 (az286) -57.6 ***
01/26/2018 02:00:19.6 End Total -0.44 -0.18 (az289) -55.1

Occultation of 54 gamma Tau 3.63 by moon 74% illuminated at phase= 119 degrees
01/26/2018 20:45:28.6 Geocentric minimum 0.8 degrees
Global start/end: 01/26/2018 19:06:18.5   and   01/26/2018 22:24:34.2
Mid-occultation observing point (lat., long.) 66.3 -140.7
At HVO the miss angle is 364.2 arc-sec at 01/26/2018 21:21:42.3

Occultation of 61 delta Tau 3.76 by moon 75% illuminated at phase= 120 degrees
01/26/2018 22:37:38.6 Geocentric minimum 0.9 degrees
Global start/end: 01/26/2018 21:12:06.0   and   01/27/2018 00:03:07.5
Mid-occultation observing point (lat., long.) -51.2 -127.7
At HVO the miss angle is 3917.6 arc-sec at 01/26/2018 23:40:44.1

Occultation of 68v776 Tau 4.29 by moon 76% illuminated at phase= 121 degrees
01/26/2018 23:44:53.4 Geocentric minimum 1.2 degrees
Global start/end: 01/26/2018 23:02:10.0   and   01/27/2018 00:27:35.8
Mid-occultation observing point (lat., long.) -70.1 -126.5

Occultation of 71v777 Tau 4.49 by moon 75% illuminated at phase= 120 degrees
01/26/2018 23:20:06.2 Geocentric minimum 1.1 degrees
Global start/end: 01/26/2018 22:19:13.5   and   01/27/2018 00:20:56.9
Mid-occultation observing point (lat., long.) 70.0 59.1

Occultation of 77 theta^1 Tau 3.84 by moon 76% illuminated at phase= 121 degrees
01/27/2018 00:19:16.0 Geocentric minimum 0.9 degrees
Global start/end: 01/26/2018 22:47:49.0   and   01/27/2018 01:50:39.1
Mid-occultation observing point (lat., long.) 74.5 152.9
At HVO the miss angle is 363.7 arc-sec at 01/27/2018 01:44:53.2

Occultation of 78 theta^2 Tau 3.4 by moon 76% illuminated at phase= 121 degrees
01/27/2018 00:19:35.4 Geocentric minimum 1.0 degrees
Global start/end: 01/26/2018 22:58:08.1   and   01/27/2018 01:40:59.5
Mid-occultation observing point (lat., long.) 78.9 82.6

Occultation of Aldebaran 0.85 by moon 77% illuminated at phase= 123 degrees
01/27/2018 03:22:04.7 Geocentric minimum 0.7 degrees
Global start/end: 01/27/2018 01:34:37.7   and   01/27/2018 05:09:27.0
Mid-occultation observing point (lat., long.) 57.9 134.0

Occultation of 119 CE Tau 4.38 by moon 86% illuminated at phase= 135 degrees
01/28/2018 01:38:20.7 Geocentric minimum 0.5 degrees
Global start/end: 01/27/2018 23:45:15.9   and   01/28/2018 03:31:21.6
Mid-occultation observing point (lat., long.) 51.5 -179.0

---For observations at HVO:
01/28/2018 02:27:41.1 Start Total 17.88 17.65 (az279) -50.6 ***
01/28/2018 02:54:54.9 OCCULTATION MID-POINT 13.09 13.07 (az283) -46.3 ***
01/28/2018 03:21:10.9 End Total 8.57 8.74 (az288) -41.8 ***

Occultation of 54 chi^1 Ori 4.41 by moon 89% illuminated at phase= 140 degrees
01/28/2018 10:18:26.1 Geocentric minimum 0.7 degrees
Global start/end: 01/28/2018 08:31:23.9   and   01/28/2018 12:05:25.0
Mid-occultation observing point (lat., long.) -20.4 64.2

Occultation of 62 chi^2 Ori 4.63 by moon 90% illuminated at phase= 142 degrees
01/28/2018 13:53:24.5 Geocentric minimum 0.4 degrees
Global start/end: 01/28/2018 11:54:18.8   and   01/28/2018 15:52:27.3
Mid-occultation observing point (lat., long.) -1.4 11.1

Occultation of 18 nu Gem 4.15 by moon 92% illuminated at phase= 148 degrees
01/28/2018 23:18:55.8 Geocentric minimum 0.2 degrees
Global start/end: 01/28/2018 21:16:29.0   and   01/29/2018 01:21:20.6
Mid-occultation observing point (lat., long.) 8.7 -125.4
At HVO the miss angle is 1321.9 arc-sec at 01/28/2018 23:51:28.3

Occultation of 43 zeta Gem 3.79 by moon 96% illuminated at phase= 155 degrees
01/29/2018 12:27:02.9 Geocentric minimum 0.6 degrees
Global start/end: 01/29/2018 10:37:03.3   and   01/29/2018 14:17:00.9
Mid-occultation observing point (lat., long.) -15.0 44.5

Occultation of 81 Gem 4.88 by moon 98% illuminated at phase= 165 degrees
01/30/2018 04:20:35.8 Geocentric minimum 0.9 degrees
Global start/end: 01/30/2018 02:48:34.1   and   01/30/2018 05:52:37.2
Mid-occultation observing point (lat., long.) 75.9 -164.1

---For observations at HVO:
01/30/2018 05:00:43.9 Start Total 12.97 12.9 (az284) -23.9 ***
01/30/2018 05:24:26.0 OCCULTATION MID-POINT 8.88 8.97 (az287) -19.6 ***
01/30/2018 05:47:28.1 End Total 5.03 5.26 (az291) -15.5 ***

Occultation of Asellus Australis 3.94 by moon 100% illuminated at phase= 178 degrees
01/31/2018 02:18:23.1 Geocentric minimum 0.6 degrees
Global start/end: 01/31/2018 00:30:17.1   and   01/31/2018 04:06:30.5
Mid-occultation observing point (lat., long.) -19.6 -145.3
At HVO the miss angle is 3400.7 arc-sec at 01/31/2018 02:41:03.1

Occultation of Regulus 1.35 by moon 98% illuminated at phase= 197 degrees
02/01/2018 12:12:52.8 Geocentric minimum 0.9 degrees
Global start/end: 02/01/2018 10:45:59.1   and   02/01/2018 13:39:49.9
Mid-occultation observing point (lat., long.) 71.5 142.2

Occultation of 3 nu Vir 4.03 by moon 88% illuminated at phase= 220 degrees
02/03/2018 05:16:13.2 Geocentric minimum 1.2 degrees
Global start/end: 02/03/2018 04:44:10.9   and   02/03/2018 05:48:16.2
Mid-occultation observing point (lat., long.) -70.0 143.2
At HVO the miss angle is 6083.6 arc-sec at 02/03/2018 05:10:28.6

Occultation of 16 Vir 4.96 by moon 83% illuminated at phase= 228 degrees
02/03/2018 21:11:46.6 Geocentric minimum 1.1 degrees
Global start/end: 02/03/2018 20:07:54.1   and   02/03/2018 22:15:42.1
Mid-occultation observing point (lat., long.) -70.0 -96.7

Occultation of 38 gamma Lib 3.91 by moon 45% illuminated at phase= 276 degrees
02/07/2018 21:47:44.4 Geocentric minimum 0.8 degrees
Global start/end: 02/07/2018 20:10:23.8   and   02/07/2018 23:25:08.1
Mid-occultation observing point (lat., long.) 47.8 43.5

Occultation of 48 FX Lib 4.88 by moon 41% illuminated at phase= 281 degrees
02/08/2018 08:07:35.3 Geocentric minimum 1.0 degrees
Global start/end: 02/08/2018 06:53:26.3   and   02/08/2018 09:21:46.0
Mid-occultation observing point (lat., long.) -69.9 95.2
At HVO the miss angle is 5558.4 arc-sec at 02/08/2018 08:02:49.4

Occultation of 8 phi Oph 4.28 by moon 34% illuminated at phase= 288 degrees
02/09/2018 00:39:29.1 Geocentric minimum 0.3 degrees
Global start/end: 02/08/2018 22:26:38.3   and   02/09/2018 02:52:21.1
Mid-occultation observing point (lat., long.) -39.1 -11.5

Occultation of BSC6196 4.96 by moon 32% illuminated at phase= 291 degrees
02/09/2018 06:00:32.1 Geocentric minimum 0.3 degrees
Global start/end: 02/09/2018 03:46:03.9   and   02/09/2018 08:15:01.1
Mid-occultation observing point (lat., long.) 1.9 -80.7
At HVO the miss angle is 463.2 arc-sec at 02/09/2018 04:51:47.8

Occultation of 37 xi^2 Sgr 3.51 by moon 12% illuminated at phase= 320 degrees
02/11/2018 23:22:45.0 Geocentric minimum 1.1 degrees
Global start/end: 02/11/2018 22:40:13.9   and   02/12/2018 00:05:15.9
Mid-occultation observing point (lat., long.) 70.1 43.1

Occultation of 41 pi Sgr 2.89 by moon 10% illuminated at phase= 323 degrees
02/12/2018 05:04:10.1 Geocentric minimum 1.1 degrees
Global start/end: 02/12/2018 04:21:20.4   and   02/12/2018 05:46:59.6
Mid-occultation observing point (lat., long.) 70.2 -42.5

Occultation of 43 Sgr 4.96 by moon 9% illuminated at phase= 325 degrees
02/12/2018 08:59:31.7 Geocentric minimum 0.9 degrees
Global start/end: 02/12/2018 07:32:19.8   and   02/12/2018 10:26:42.4
Mid-occultation observing point (lat., long.) -76.3 74.6
At HVO the miss angle is 5259.4 arc-sec at 02/12/2018 08:38:19.9

Occultation of 56 Sgr 4.86 by moon 6% illuminated at phase= 331 degrees
02/12/2018 22:30:43.8 Geocentric minimum 0.4 degrees
Global start/end: 02/12/2018 20:20:10.9   and   02/13/2018 00:41:14.0
Mid-occultation observing point (lat., long.) 6.0 68.6

Eclipse of the Sun by moon 0% illuminated at phase= 360 degrees
02/15/2018 13:51:23.4 Geocentric minimum 1.1 degrees
Global start/end: 02/15/2018 11:55:22.3   and   02/15/2018 15:47:19.5
Mid-occultation observing point (lat., long.) -70.4 3.3

Occultation of 27 Psc 4.86 by moon 6% illuminated at phase= 29 degrees
02/18/2018 02:14:39.7 Geocentric minimum 0.5 degrees
Global start/end: 02/18/2018 00:13:20.1 and 02/18/2018 04:15:57.2
Mid-occultation observing point (lat., long.) -34.3 85.7

Occultation of 106 nu Psc 4.44 by moon 21% illuminated at phase= 54 degrees
02/20/2018 04:30:45.1 Geocentric minimum 0.3 degrees
Global start/end: 02/20/2018 02:22:14.3 and 02/20/2018 06:39:14.7
Mid-occultation observing point (lat., long.) -10.9 68.3

Occultation of 65 xi^1 Cet 4.37 by moon 27% illuminated at phase= 62 degrees
02/20/2018 19:51:56.2 Geocentric minimum 0.9 degrees
Global start/end: 02/20/2018 18:24:23.7 and 02/20/2018 21:19:26.7
Mid-occultation observing point (lat., long.) -57.8 -126.1

Occultation of 73 xi^2 Cet 4.28 by moon 29% illuminated at phase= 65 degrees
02/21/2018 02:01:41.9 Geocentric minimum 0.6 degrees
Global start/end: 02/21/2018 00:09:08.3 and 02/21/2018 03:54:12.9
Mid-occultation observing point (lat., long.) 47.1 93.5

Occultation of 87 mu Cet 4.27 by moon 32% illuminated at phase= 69 degrees
02/21/2018 09:57:42.4 Geocentric minimum 0.3 degrees
Global start/end: 02/21/2018 07:50:56.1 and 02/21/2018 12:04:27.1
Mid-occultation observing point (lat., long.) 28.0 -10.6

Occultation of 5 Tau 4.11 by moon 41% illuminated at phase= 80 degrees
02/22/2018 06:24:47.4 Geocentric minimum 0.7 degrees
Global start/end: 02/22/2018 04:38:39.7 and 02/22/2018 08:10:52.1
Mid-occultation observing point (lat., long.) 58.0 38.8

Occultation of 54 gamma Tau 3.63 by moon 51% illuminated at phase= 91 degrees
02/23/2018 03:30:54.0 Geocentric minimum 0.8 degrees
Global start/end: 02/23/2018 01:53:53.9 and 02/23/2018 05:07:51.3
Mid-occultation observing point (lat., long.) 70.1 84.9

Occultation of 61 delta Tau 3.76 by moon 52% illuminated at phase= 92 degrees
02/23/2018 05:26:35.2 Geocentric minimum 0.9 degrees
Global start/end: 02/23/2018 03:57:42.9 and 02/23/2018 06:55:24.8
Mid-occultation observing point (lat., long.) -48.5 101.9

Occultation of 68v776 Tau 4.29 by moon 53% illuminated at phase= 93 degrees
02/23/2018 06:35:57.7 Geocentric minimum 1.2 degrees
Global start/end: 02/23/2018 05:48:46.8 and 02/23/2018 07:23:07.9
Mid-occultation observing point (lat., long.) -70.1 103.8

Occultation of 71v777 Tau 4.49 by moon 52% illuminated at phase= 93 degrees
02/23/2018 06:10:22.5 Geocentric minimum 1.1 degrees
Global start/end: 02/23/2018 05:18:38.1 and 02/23/2018 07:02:06.0
Mid-occultation observing point (lat., long.) 70.0 -70.3

Occultation of 77 theta^1 Tau 3.84 by moon 53% illuminated at phase= 93 degrees
02/23/2018 07:11:26.1 Geocentric minimum 0.9 degrees
Global start/end: 02/23/2018 05:43:09.6 and 02/23/2018 08:39:40.1
Mid-occultation observing point (lat., long.) 78.3 1.7

Occultation of 78 theta^2 Tau 3.4 by moon 53% illuminated at phase= 93 degrees
02/23/2018 07:11:46.0 Geocentric minimum 1.0 degrees
Global start/end: 02/23/2018 05:55:01.4 and 02/23/2018 08:28:28.5
Mid-occultation observing point (lat., long.) 69.9 -85.9

Occultation of Aldebaran 0.85 by moon 54% illuminated at phase= 95 degrees
02/23/2018 10:20:11.3 Geocentric minimum 0.7 degrees
Global start/end: 02/23/2018 08:33:44.2 and 02/23/2018 12:06:35.2
Mid-occultation observing point (lat., long.) 61.1 0.3

Occultation of 119 CE Tau 4.38 by moon 65% illuminated at phase= 108 degrees
02/24/2018 09:23:28.9 Geocentric minimum 0.6 degrees
Global start/end: 02/24/2018 07:30:14.0   and   02/24/2018 11:16:40.6
Mid-occultation observing point (lat., long.) 54.3 37.0

Occultation of 54 chi^1 Ori 4.41 by moon 69% illuminated at phase= 113 degrees
02/24/2018 18:22:56.3 Geocentric minimum 0.6 degrees
Global start/end: 02/24/2018 16:32:39.1   and   02/24/2018 20:13:10.6
Mid-occultation observing point (lat., long.) -18.9 -84.0
At HVO the miss angle is 2883.3 arc-sec at 02/24/2018 18:10:03.3

Occultation of 62 chi^2 Ori 4.63 by moon 71% illuminated at phase= 115 degrees
02/24/2018 22:05:59.5 Geocentric minimum 0.3 degrees
Global start/end: 02/24/2018 20:03:50.4   and   02/25/2018 00:08:05.9
Mid-occultation observing point (lat., long.) 0.1 -139.1
At HVO the miss angle is 1924.3 arc-sec at 02/24/2018 22:56:26.4

Occultation of 18 nu Gem 4.15 by moon 75% illuminated at phase= 120 degrees
02/25/2018 07:52:42.7 Geocentric minimum 0.2 degrees
Global start/end: 02/25/2018 05:47:28.6   and   02/25/2018 09:57:54.8
Mid-occultation observing point (lat., long.) 10.2 79.1

Occultation of 43 zeta Gem 3.79 by moon 81% illuminated at phase= 128 degrees
02/25/2018 21:29:36.7 Geocentric minimum 0.6 degrees
Global start/end: 02/25/2018 19:36:45.1   and   02/25/2018 23:22:25.8
Mid-occultation observing point (lat., long.) -13.9 -118.1
At HVO the miss angle is 2590.4 arc-sec at 02/25/2018 21:43:54.7

Occultation of 81 Gem 4.88 by moon 87% illuminated at phase= 137 degrees
02/26/2018 13:55:30.8 Geocentric minimum 0.9 degrees
Global start/end: 02/26/2018 12:24:54.7   and   02/26/2018 15:26:05.6
Mid-occultation observing point (lat., long.) 79.3 32.8

Occultation of Asellus Australis 3.94 by moon 93% illuminated at phase= 150 degrees
02/27/2018 12:30:09.4 Geocentric minimum 0.6 degrees
Global start/end: 02/27/2018 10:40:30.8   and   02/27/2018 14:19:47.4
Mid-occultation observing point (lat., long.) -19.3 34.8

Occultation of Regulus 1.35 by moon 99% illuminated at phase= 169 degrees
02/28/2018 22:57:40.7 Geocentric minimum 0.9 degrees
Global start/end: 02/28/2018 21:30:06.9   and   03/01/2018 00:25:16.0
Mid-occultation observing point (lat., long.) 71.1 -47.2
At HVO the miss angle is 630.9 arc-sec at 02/28/2018 22:31:19.9

Occultation of 77 sigma Leo 4.05 by moon 100% illuminated at phase= 187 degrees
03/02/2018 06:24:33.7 Geocentric minimum 1.2 degrees
Global start/end: 03/02/2018 06:05:11.4   and   03/02/2018 06:43:56.2
Mid-occultation observing point (lat., long.) 70.1 -80.5

Occultation of 3 nu Vir 4.03 by moon 99% illuminated at phase= 192 degrees
03/02/2018 15:56:56.2 Geocentric minimum 1.2 degrees
Global start/end: 03/02/2018 15:41:06.3   and   03/02/2018 16:12:46.3
Mid-occultation observing point (lat., long.) -70.0 -44.1

Occultation of 16 Vir 4.96 by moon 97% illuminated at phase= 201 degrees
03/03/2018 07:39:42.3 Geocentric minimum 1.1 degrees
Global start/end: 03/03/2018 06:43:56.9   and   03/03/2018 08:35:29.5
Mid-occultation observing point (lat., long.) -70.0 79.2

Occultation of 38 gamma Lib 3.91 by moon 68% illuminated at phase= 248 degrees
03/07/2018 06:07:34.4 Geocentric minimum 0.7 degrees
Global start/end: 03/07/2018 04:21:12.4   and   03/07/2018 07:54:01.3
Mid-occultation observing point (lat., long.) 36.8 -113.6

---For observations at HVO:
03/07/2018 05:39:16.9 Start Total 28.93 28.87 (az200) -8.2 ***
03/07/2018 06:19:29.7 OCCULTATION MID-POINT 25.91 25.83 (az210) -0.3
03/07/2018 06:58:30.3 End Total 21.93 21.89 (az219) 6.2

Occultation of 48 FX Lib 4.88 by moon 64% illuminated at phase= 253 degrees
03/07/2018 16:15:42.5 Geocentric minimum 1.1 degrees
Global start/end: 03/07/2018 15:20:23.1   and   03/07/2018 17:11:02.9
Mid-occultation observing point (lat., long.) -69.9 -53.7

Occultation of 8 phi Oph 4.28 by moon 58% illuminated at phase= 261 degrees
03/08/2018 08:32:03.0 Geocentric minimum 0.4 degrees
Global start/end: 03/08/2018 06:24:00.9   and   03/08/2018 10:40:08.8
Mid-occultation observing point (lat., long.) -45.2 -158.6
At HVO the miss angle is 3545.3 arc-sec at 03/08/2018 09:37:28.8

Occultation of BSC6196 4.96 by moon 56% illuminated at phase= 263 degrees
03/08/2018 13:48:55.7 Geocentric minimum 0.2 degrees
Global start/end: 03/08/2018 11:32:35.5   and   03/08/2018 16:05:18.2
Mid-occultation observing point (lat., long.) -4.3 134.3

Occultation of 13 mu Sgr 3.86 by moon 39% illuminated at phase= 283 degrees
03/10/2018 10:02:23.6 Geocentric minimum 1.1 degrees
Global start/end: 03/10/2018 09:15:28.5   and   03/10/2018 10:49:18.7
Mid-occultation observing point (lat., long.) 70.1 -143.0

Occultation of 37 xi^2 Sgr 3.51 by moon 31% illuminated at phase= 293 degrees
03/11/2018 06:51:21.8 Geocentric minimum 1.0 degrees
Global start/end: 03/11/2018 05:44:30.2   and   03/11/2018 07:58:13.0
Mid-occultation observing point (lat., long.) 70.1 -96.2

Occultation of 41 pi Sgr 2.89 by moon 29% illuminated at phase= 295 degrees
03/11/2018 12:33:10.5 Geocentric minimum 1.0 degrees
Global start/end: 03/11/2018 11:26:43.4   and   03/11/2018 13:39:37.1
Mid-occultation observing point (lat., long.) 70.1 178.1

Occultation of 43 Sgr 4.96 by moon 27% illuminated at phase= 297 degrees
03/11/2018 16:29:07.9 Geocentric minimum 1.0 degrees
Global start/end: 03/11/2018 15:14:49.2   and   03/11/2018 17:43:26.0
Mid-occultation observing point (lat., long.) -69.8 -60.9

Occultation of 56 Sgr 4.86 by moon 23% illuminated at phase= 303 degrees
03/12/2018 06:01:54.3 Geocentric minimum 0.3 degrees
Global start/end: 03/12/2018 03:47:59.6   and   03/12/2018 08:15:46.4
Mid-occultation observing point (lat., long.) 1.0 -70.7
At HVO the miss angle is 768.6 arc-sec at 03/12/2018 05:06:57.3

Occultation of 23 theta Cap 4.07 by moon 11% illuminated at phase= 321 degrees
03/13/2018 20:04:20.8 Geocentric minimum 0.6 degrees
Global start/end: 03/13/2018 18:08:02.4   and   03/13/2018 22:00:35.4
Mid-occultation observing point (lat., long.) 25.2 90.2

Occultation of 32 iota Cap 4.28 by moon 9% illuminated at phase= 324 degrees
03/14/2018 03:45:09.5 Geocentric minimum 1.1 degrees
Global start/end: 03/14/2018 02:46:38.7   and   03/14/2018 04:43:38.8
Mid-occultation observing point (lat., long.) 70.1 -52.6

Occultation of 33 iota Aqr 4.27 by moon 5% illuminated at phase= 334 degrees
03/15/2018 01:19:30.0 Geocentric minimum 0.8 degrees
Global start/end: 03/14/2018 23:37:55.7   and   03/15/2018 03:01:00.5
Mid-occultation observing point (lat., long.) 42.2 16.3

Occultation of 57 sigma Aqr 4.82 by moon 3% illuminated at phase= 340 degrees
03/15/2018 13:58:15.9 Geocentric minimum 0.6 degrees
Global start/end: 03/15/2018 12:04:39.3 and 03/15/2018 15:51:48.3
Mid-occultation observing point (lat., long.) -52.0 -131.1
At HVO the miss angle is 3056.3 arc-sec at 03/15/2018 15:42:31.9

Occultation of 106 nu Psc 4.44 by moon 5% illuminated at phase= 27 degrees
03/19/2018 10:33:38.3 Geocentric minimum 0.2 degrees
Global start/end: 03/19/2018 08:24:24.3 and 03/19/2018 12:42:51.8
Mid-occultation observing point (lat., long.) -5.0 -51.3
At HVO the miss angle is 2551.0 arc-sec at 03/19/2018 10:09:34.6

Occultation of 65 xi^1 Cet 4.37 by moon 9% illuminated at phase= 35 degrees
03/20/2018 01:39:52.4 Geocentric minimum 0.8 degrees
Global start/end: 03/20/2018 00:00:53.4 and 03/20/2018 03:18:49.8
Mid-occultation observing point (lat., long.) -43.7 107.1

Occultation of 73 xi^2 Cet 4.28 by moon 11% illuminated at phase= 38 degrees
03/20/2018 07:43:58.0 Geocentric minimum 0.7 degrees
Global start/end: 03/20/2018 06:00:47.4 and 03/20/2018 09:27:07.0
Mid-occultation observing point (lat., long.) 55.7 -26.8

Occultation of 87 mu Cet 4.27 by moon 13% illuminated at phase= 42 degrees
03/20/2018 15:33:46.2 Geocentric minimum 0.4 degrees
Global start/end: 03/20/2018 13:32:11.2 and 03/20/2018 17:35:20.3
Mid-occultation observing point (lat., long.) 35.5 -124.7

Occultation of 5 Tau 4.11 by moon 20% illuminated at phase= 53 degrees
03/21/2018 11:49:16.2 Geocentric minimum 0.9 degrees
Global start/end: 03/21/2018 10:15:44.4 and 03/21/2018 13:22:46.8
Mid-occultation observing point (lat., long.) 69.6 -88.6

Occultation of 54 gamma Tau 3.63 by moon 28% illuminated at phase= 64 degrees
03/22/2018 08:52:18.8 Geocentric minimum 1.0 degrees
Global start/end: 03/22/2018 07:32:07.2 and 03/22/2018 10:12:29.6
Mid-occultation observing point (lat., long.) 72.5 -131.4

Occultation of 61 delta Tau 3.76 by moon 29% illuminated at phase= 65 degrees
03/22/2018 10:48:19.9 Geocentric minimum 0.8 degrees
Global start/end: 03/22/2018 09:05:29.1 and 03/22/2018 12:31:09.6
Mid-occultation observing point (lat., long.) -31.7 -11.0
At HVO the miss angle is 4593.8 arc-sec at 03/22/2018 10:03:13.9

Occultation of 68v776 Tau 4.29 by moon 29% illuminated at phase= 66 degrees
03/22/2018 11:57:53.6 Geocentric minimum 1.0 degrees
Global start/end: 03/22/2018 10:42:10.8 and 03/22/2018 13:13:35.6
Mid-occultation observing point (lat., long.) -70.1 -3.5
At HVO the miss angle is 5289.2 arc-sec at 03/22/2018 11:19:56.9

Occultation of 77 theta^1 Tau 3.84 by moon 30% illuminated at phase= 66 degrees
03/22/2018 12:33:21.4 Geocentric minimum 1.1 degrees
Global start/end: 03/22/2018 11:26:15.8 and 03/22/2018 13:40:26.4
Mid-occultation observing point (lat., long.) 69.8 166.9
At HVO the miss angle is 324.4 arc-sec at 03/22/2018 11:32:53.5

Occultation of 78 theta^2 Tau 3.4 by moon 30% illuminated at phase= 66 degrees
03/22/2018 12:33:40.8 Geocentric minimum 1.2 degrees
Global start/end: 03/22/2018 11:45:56.8 and 03/22/2018 13:21:24.4
Mid-occultation observing point (lat., long.) 69.9 166.9

Occultation of Aldebaran 0.85 by moon 31% illuminated at phase= 68 degrees
03/22/2018 15:42:50.3 Geocentric minimum 0.9 degrees
Global start/end: 03/22/2018 14:09:19.7 and 03/22/2018 17:16:19.9
Mid-occultation observing point (lat., long.) 74.7 -128.3
At HVO the miss angle is 402.0 arc-sec at 03/22/2018 15:28:23.5

Occultation of 119 CE Tau 4.38 by moon 42% illuminated at phase= 80 degrees
03/23/2018 14:58:45.2 Geocentric minimum 0.7 degrees
Global start/end: 03/23/2018 13:15:04.3   and   03/23/2018 16:42:25.0
Mid-occultation observing point (lat., long.) 66.9 -79.1

Occultation of 54 chi^1 Ori 4.41 by moon 46% illuminated at phase= 85 degrees
03/24/2018 00:06:36.1 Geocentric minimum 0.5 degrees
Global start/end: 03/23/2018 22:07:46.1   and   03/24/2018 02:05:25.1
Mid-occultation observing point (lat., long.) -8.1 162.5

Occultation of 62 chi^2 Ori 4.63 by moon 48% illuminated at phase= 87 degrees
03/24/2018 03:53:41.9 Geocentric minimum 0.2 degrees
Global start/end: 03/24/2018 01:47:01.0   and   03/24/2018 06:00:22.2
Mid-occultation observing point (lat., long.) 9.5 106.6

Occultation of 18 nu Gem 4.15 by moon 53% illuminated at phase= 93 degrees
03/24/2018 13:52:28.0 Geocentric minimum 0.0 degrees
Global start/end: 03/24/2018 11:44:35.6   and   03/24/2018 16:00:20.4
Mid-occultation observing point (lat., long.) 19.2 -37.9
At HVO the miss angle is 1346.2 arc-sec at 03/24/2018 12:49:31.2

Occultation of 43 zeta Gem 3.79 by moon 59% illuminated at phase= 101 degrees
03/25/2018 03:49:12.5 Geocentric minimum 0.4 degrees
Global start/end: 03/25/2018 01:48:42.6   and   03/25/2018 05:49:41.3
Mid-occultation observing point (lat., long.) -4.4 120.3

Occultation of 81 Gem 4.88 by moon 67% illuminated at phase= 110 degrees
03/25/2018 20:43:08.0 Geocentric minimum 1.0 degrees
Global start/end: 03/25/2018 19:28:21.2   and   03/25/2018 21:57:54.5
Mid-occultation observing point (lat., long.) 69.7 41.6
At HVO the miss angle is 994.1 arc-sec at 03/25/2018 21:17:56.3

Occultation of Asellus Australis 3.94 by moon 77% illuminated at phase= 123 degrees
03/26/2018 19:59:39.2 Geocentric minimum 0.5 degrees
Global start/end: 03/26/2018 18:02:54.5   and   03/26/2018 21:56:23.3
Mid-occultation observing point (lat., long.) -12.0 -103.2
At HVO the miss angle is 2322.9 arc-sec at 03/26/2018 19:32:24.3

Occultation of Regulus 1.35 by moon 90% illuminated at phase= 142 degrees
03/28/2018 07:30:03.7 Geocentric minimum 1.0 degrees
Global start/end: 03/28/2018 06:10:07.0   and   03/28/2018 08:50:00.8
Mid-occultation observing point (lat., long.) 73.7 -143.0

Occultation of 16 Vir 4.96 by moon 100% illuminated at phase= 173 degrees
03/30/2018 17:14:40.9 Geocentric minimum 1.1 degrees
Global start/end: 03/30/2018 16:27:23.1   and   03/30/2018 18:01:59.6
Mid-occultation observing point (lat., long.) -69.8 -91.5

Occultation of 38 gamma Lib 3.91 by moon 88% illuminated at phase= 221 degrees
04/03/2018 15:07:42.6 Geocentric minimum 0.6 degrees
Global start/end: 04/03/2018 13:09:12.6   and   04/03/2018 17:06:17.9
Mid-occultation observing point (lat., long.) 22.1 79.6

Occultation of 8 phi Oph 4.28 by moon 80% illuminated at phase= 234 degrees
04/04/2018 17:08:28.3 Geocentric minimum 0.6 degrees
Global start/end: 04/04/2018 15:13:05.8   and   04/04/2018 19:03:56.3
Mid-occultation observing point (lat., long.) -59.1 38.0

Occultation of BSC6196 4.96 by moon 78% illuminated at phase= 236 degrees
04/04/2018 22:21:06.2 Geocentric minimum 0.0 degrees
Global start/end: 04/04/2018 20:03:34.2   and   04/05/2018 00:38:40.0
Mid-occultation observing point (lat., long.) -16.5 -22.8

Occultation of 13 mu Sgr 3.86 by moon 62% illuminated at phase= 256 degrees
04/06/2018 18:07:31.6 Geocentric minimum 0.9 degrees
Global start/end: 04/06/2018 16:36:27.6   and   04/06/2018 19:38:37.3
Mid-occultation observing point (lat., long.) 54.1 65.6

Occultation of 37 xi^2 Sgr 3.51 by moon 54% illuminated at phase= 266 degrees
04/07/2018 14:51:48.1 Geocentric minimum 0.8 degrees
Global start/end: 04/07/2018 13:11:18.5 and 04/07/2018 16:32:18.3
Mid-occultation observing point (lat., long.) 41.6 119.0

Occultation of 41 pi Sgr 2.89 by moon 52% illuminated at phase= 268 degrees
04/07/2018 20:33:18.2 Geocentric minimum 0.8 degrees
Global start/end: 04/07/2018 18:53:10.0 and 04/07/2018 22:13:26.6
Mid-occultation observing point (lat., long.) 42.1 35.2

Occultation of 56 Sgr 4.86 by moon 45% illuminated at phase= 276 degrees
04/08/2018 14:03:34.5 Geocentric minimum 0.1 degrees
Global start/end: 04/08/2018 11:44:29.2 and 04/08/2018 16:22:39.2
Mid-occultation observing point (lat., long.) -12.2 143.1

Occultation of 23 theta Cap 4.07 by moon 30% illuminated at phase= 294 degrees
04/10/2018 04:18:25.1 Geocentric minimum 0.4 degrees
Global start/end: 04/10/2018 02:10:37.8 and 04/10/2018 06:26:08.6
Mid-occultation observing point (lat., long.) 11.9 -57.4
At HVO the miss angle is 332.0 arc-sec at 04/10/2018 03:21:54.7

Occultation of 32 iota Cap 4.28 by moon 27% illuminated at phase= 297 degrees
04/10/2018 12:02:22.2 Geocentric minimum 0.9 degrees
Global start/end: 04/10/2018 10:33:06.6 and 04/10/2018 13:31:35.1
Mid-occultation observing point (lat., long.) 57.8 172.4

Occultation of 33 iota Aqr 4.27 by moon 20% illuminated at phase= 307 degrees
04/11/2018 09:45:23.7 Geocentric minimum 0.6 degrees
Global start/end: 04/11/2018 07:50:51.1 and 04/11/2018 11:39:51.6
Mid-occultation observing point (lat., long.) 29.0 -131.7

Occultation of 57 sigma Aqr 4.82 by moon 16% illuminated at phase= 313 degrees
04/11/2018 22:28:32.5 Geocentric minimum 0.8 degrees
Global start/end: 04/11/2018 20:44:46.7 and 04/12/2018 00:12:13.7
Mid-occultation observing point (lat., long.) -61.7 85.9

Occultation of 91 psi^1 Aqr 4.21 by moon 10% illuminated at phase= 324 degrees
04/12/2018 19:35:31.9 Geocentric minimum 1.2 degrees
Global start/end: 04/12/2018 19:05:22.1 and 04/12/2018 20:05:41.3
Mid-occultation observing point (lat., long.) 69.8 40.7

Occultation of 27 Psc 4.86 by moon 5% illuminated at phase= 334 degrees
04/13/2018 17:39:45.2 Geocentric minimum 0.5 degrees
Global start/end: 04/13/2018 15:39:36.8 and 04/13/2018 19:39:48.5
Mid-occultation observing point (lat., long.) -34.2 160.8

Occultation of 87 mu Cet 4.27 by moon 2% illuminated at phase= 15 degrees
04/16/2018 22:49:57.5 Geocentric minimum 0.5 degrees
Global start/end: 04/16/2018 20:54:35.8 and 04/17/2018 00:45:17.0
Mid-occultation observing point (lat., long.) 42.2 95.8

Occultation of 5 Tau 4.11 by moon 5% illuminated at phase= 26 degrees
04/17/2018 18:36:13.3 Geocentric minimum 1.0 degrees
Global start/end: 04/17/2018 17:19:48.2 and 04/17/2018 19:52:37.6
Mid-occultation observing point (lat., long.) 69.5 50.1

Occultation of 54 gamma Tau 3.63 by moon 10% illuminated at phase= 37 degrees
04/18/2018 15:09:22.0 Geocentric minimum 1.2 degrees
Global start/end: 04/18/2018 14:19:03.5 and 04/18/2018 15:59:40.2
Mid-occultation observing point (lat., long.) 69.6 101.3
At HVO the miss angle is 1696.0 arc-sec at 04/18/2018 15:36:51.2

Occultation of 61 delta Tau 3.76 by moon 11% illuminated at phase= 38 degrees
04/18/2018 17:03:11.4 Geocentric minimum 0.6 degrees
Global start/end: 04/18/2018 15:09:41.4   and   04/18/2018 18:56:40.8
Mid-occultation observing point (lat., long.) -16.9 -135.0
At HVO the miss angle is 2548.1 arc-sec at 04/18/2018 18:06:46.0

Occultation of 68v776 Tau 4.29 by moon 11% illuminated at phase= 39 degrees
04/18/2018 18:11:15.1 Geocentric minimum 0.8 degrees
Global start/end: 04/18/2018 16:35:07.1   and   04/18/2018 19:47:22.6
Mid-occultation observing point (lat., long.) -37.6 -146.4
At HVO the miss angle is 3617.3 arc-sec at 04/18/2018 19:20:22.9

Occultation of 77 theta^1 Tau 3.84 by moon 11% illuminated at phase= 39 degrees
04/18/2018 18:45:26.3 Geocentric minimum 1.2 degrees
Global start/end: 04/18/2018 18:30:14.7   and   04/18/2018 19:00:37.9
Mid-occultation observing point (lat., long.) 69.7 47.3

Occultation of Aldebaran 0.85 by moon 12% illuminated at phase= 41 degrees
04/18/2018 21:50:49.4 Geocentric minimum 1.0 degrees
Global start/end: 04/18/2018 20:40:13.7   and   04/18/2018 23:01:24.8
Mid-occultation observing point (lat., long.) 69.5 0.6

Occultation of 119 CE Tau 4.38 by moon 20% illuminated at phase= 54 degrees
04/19/2018 20:40:03.0 Geocentric minimum 1.0 degrees
Global start/end: 04/19/2018 19:16:54.7   and   04/19/2018 22:03:11.6
Mid-occultation observing point (lat., long.) 83.3 59.6
At HVO the miss angle is 307.5 arc-sec at 04/19/2018 22:01:43.7

Occultation of 54 chi^1 Ori 4.41 by moon 24% illuminated at phase= 59 degrees
04/20/2018 05:39:57.5 Geocentric minimum 0.2 degrees
Global start/end: 04/20/2018 03:35:15.9   and   04/20/2018 07:44:40.1
Mid-occultation observing point (lat., long.) 6.0 51.4

Occultation of 62 chi^2 Ori 4.63 by moon 25% illuminated at phase= 61 degrees
04/20/2018 09:24:07.7 Geocentric minimum 0.0 degrees
Global start/end: 04/20/2018 07:17:03.2   and   04/20/2018 11:31:13.3
Mid-occultation observing point (lat., long.) 22.7 -3.6

Occultation of 18 nu Gem 4.15 by moon 30% illuminated at phase= 66 degrees
04/20/2018 19:16:40.9 Geocentric minimum 0.2 degrees
Global start/end: 04/20/2018 17:11:15.9   and   04/20/2018 21:22:07.1
Mid-occultation observing point (lat., long.) 32.8 -146.1
At HVO the miss angle is 59.4 arc-sec at 04/20/2018 20:15:07.0

Occultation of 43 zeta Gem 3.79 by moon 36% illuminated at phase= 74 degrees
04/21/2018 09:08:30.6 Geocentric minimum 0.2 degrees
Global start/end: 04/21/2018 07:02:22.5   and   04/21/2018 11:14:39.7
Mid-occultation observing point (lat., long.) 10.2 14.1

Occultation of 81 Gem 4.88 by moon 44% illuminated at phase= 83 degrees
04/22/2018 02:02:39.3 Geocentric minimum 1.3 degrees
Global start/end: 04/22/2018 01:55:58.9   and   04/22/2018 02:09:19.7
Mid-occultation observing point (lat., long.) 0.0 0.0

Occultation of Asellus Australis 3.94 by moon 55% illuminated at phase= 96 degrees
04/23/2018 01:30:23.3 Geocentric minimum 0.3 degrees
Global start/end: 04/22/2018 23:25:22.4   and   04/23/2018 03:35:24.9
Mid-occultation observing point (lat., long.) 2.0 149.6

Occultation of Regulus 1.35 by moon 72% illuminated at phase= 115 degrees
04/24/2018 13:38:29.9 Geocentric minimum 1.2 degrees
Global start/end: 04/24/2018 12:52:53.9   and   04/24/2018 14:24:06.3
Mid-occultation observing point (lat., long.) 69.6 118.7

Occultation of 3 nu Vir 4.03 by moon 87% illuminated at phase= 138 degrees
04/26/2018 08:27:56.7 Geocentric minimum 1.1 degrees
Global start/end: 04/26/2018 07:37:10.6   and   04/26/2018 09:18:43.5
Mid-occultation observing point (lat., long.) -69.6 14.0

Occultation of 16 Vir 4.96 by moon 92% illuminated at phase= 147 degrees
04/27/2018 00:42:49.2 Geocentric minimum 1.1 degrees
Global start/end: 04/26/2018 23:39:29.1   and   04/27/2018 01:46:10.2
Mid-occultation observing point (lat., long.) -69.6 129.5
At HVO the miss angle is 5737.8 arc-sec at 04/27/2018 00:44:17.5

Occultation of 38 gamma Lib 3.91 by moon 98% illuminated at phase= 195 degrees
04/30/2018 23:33:33.6 Geocentric minimum 0.4 degrees
Global start/end: 04/30/2018 21:28:40.3   and   05/01/2018 01:38:30.8
Mid-occultation observing point (lat., long.) 13.3 -76.1

---For observations at HVO:
04/30/2018 21:57:24.8 Start Total 18.76 18.8 (az135) -25.5 ***
04/30/2018 22:23:20.1 OCCULTATION MID-POINT 21.89 21.78 (az141) -27.6 ***
04/30/2018 22:50:06.4 End Total 24.73 24.48 (az147) -29.3 ***

Occultation of 8 phi Oph 4.28 by moon 95% illuminated at phase= 207 degrees
05/02/2018 01:27:53.9 Geocentric minimum 0.8 degrees
Global start/end: 05/01/2018 23:48:25.4   and   05/02/2018 03:07:25.9
Mid-occultation observing point (lat., long.) -74.1 -136.5
At HVO the miss angle is 4674.6 arc-sec at 05/02/2018 00:17:21.9

Occultation of BSC6196 4.96 by moon 94% illuminated at phase= 209 degrees
05/02/2018 06:38:56.3 Geocentric minimum 0.2 degrees
Global start/end: 05/02/2018 04:23:20.6   and   05/02/2018 08:54:34.7
Mid-occultation observing point (lat., long.) -27.5 -176.4

Occultation of 13 mu Sgr 3.86 by moon 83% illuminated at phase= 230 degrees
05/04/2018 02:08:36.1 Geocentric minimum 0.6 degrees
Global start/end: 05/04/2018 00:13:16.9   and   05/04/2018 04:03:58.0
Mid-occultation observing point (lat., long.) 24.2 -83.7

---For observations at HVO:
05/04/2018 00:50:25.8 Start Total 16.52 16.53 (az144) -28.4 ***
05/04/2018 01:25:13.7 OCCULTATION MID-POINT 19.85 19.73 (az152) -26.1 ***
05/04/2018 02:01:26.7 End Total 22.49 22.28 (az160) -22.9 ***

Occultation of 37 xi^2 Sgr 3.51 by moon 76% illuminated at phase= 239 degrees
05/04/2018 22:47:26.8 Geocentric minimum 0.6 degrees
Global start/end: 05/04/2018 20:45:08.8   and   05/05/2018 00:49:46.7
Mid-occultation observing point (lat., long.) 16.8 -26.0

Occultation of 41 pi Sgr 2.89 by moon 74% illuminated at phase= 242 degrees
05/05/2018 04:28:07.5 Geocentric minimum 0.6 degrees
Global start/end: 05/05/2018 02:25:42.8   and   05/05/2018 06:30:33.9
Mid-occultation observing point (lat., long.) 16.8 -109.1
At HVO the miss angle is 39.0 arc-sec at 05/05/2018 04:45:34.5

Occultation of 56 Sgr 4.86 by moon 68% illuminated at phase= 250 degrees
05/05/2018 21:58:05.3 Geocentric minimum 0.1 degrees
Global start/end: 05/05/2018 19:39:15.0   and   05/06/2018 00:16:56.4
Mid-occultation observing point (lat., long.) -28.6 -0.7

Occultation of 23 theta Cap 4.07 by moon 53% illuminated at phase= 267 degrees
05/07/2018 12:25:21.1 Geocentric minimum 0.2 degrees
Global start/end: 05/07/2018 10:07:56.4   and   05/07/2018 14:42:44.6
Mid-occultation observing point (lat., long.) -5.1 157.3

Occultation of 32 iota Cap 4.28 by moon 50% illuminated at phase= 270 degrees
05/07/2018 20:13:50.2 Geocentric minimum 0.6 degrees
Global start/end: 05/07/2018 18:17:27.1   and   05/07/2018 22:10:10.7
Mid-occultation observing point (lat., long.) 26.6 36.4

Occultation of 33 iota Aqr 4.27 by moon 41% illuminated at phase= 281 degrees
05/08/2018 18:12:36.0 Geocentric minimum 0.4 degrees
Global start/end: 05/08/2018 16:03:01.4   and   05/08/2018 20:22:06.9
Mid-occultation observing point (lat., long.) 11.5 79.9

Occultation of 57 sigma Aqr 4.82 by moon 36% illuminated at phase= 287 degrees
05/09/2018 07:06:37.4 Geocentric minimum 1.0 degrees
Global start/end: 05/09/2018 05:52:58.4   and   05/09/2018 08:20:14.0
Mid-occultation observing point (lat., long.) -69.4 22.5

Occultation of 91 psi^1 Aqr 4.21 by moon 28% illuminated at phase= 297 degrees
05/10/2018 04:30:53.2 Geocentric minimum 1.0 degrees
Global start/end: 05/10/2018 03:11:06.1   and   05/10/2018 05:50:37.0
Mid-occultation observing point (lat., long.) 69.7 -120.3

---For observations at HVO:
05/10/2018 03:22:39.9 Start Total 8.69 8.88 (az112) -11.5 ***
05/10/2018 03:52:49.1 OCCULTATION MID-POINT 13.59 13.7 (az117) -7.1 ***
05/10/2018 04:24:15.6 End Total 18.46 18.51 (az123) -1.6

Occultation of 27 Psc 4.86 by moon 19% illuminated at phase= 308 degrees
05/11/2018 02:52:12.5 Geocentric minimum 0.7 degrees
Global start/end: 05/11/2018 01:01:53.1   and   05/11/2018 04:42:25.8
Mid-occultation observing point (lat., long.) -46.1 3.7

Occultation of 106 nu Psc 4.44 by moon 5% illuminated at phase= 333 degrees
05/13/2018 03:53:05.6 Geocentric minimum 0.2 degrees
Global start/end: 05/13/2018 01:45:17.2   and   05/13/2018 06:00:50.4
Mid-occultation observing point (lat., long.) -5.6 -4.8

Occultation of 65 xi^1 Cet 4.37 by moon 3% illuminated at phase= 341 degrees
05/13/2018 18:36:52.9 Geocentric minimum 0.7 degrees
Global start/end: 05/13/2018 16:54:01.6   and   05/13/2018 20:19:39.4
Mid-occultation observing point (lat., long.) -37.9 155.9

Occultation of 73 xi^2 Cet 4.28 by moon 2% illuminated at phase= 344 degrees
05/14/2018 00:28:33.3 Geocentric minimum 0.8 degrees
Global start/end: 05/13/2018 22:52:43.4   and   05/14/2018 02:04:19.1
Mid-occultation observing point (lat., long.) 60.9 20.1

Occultation of Aldebaran 0.85 by moon 2% illuminated at phase= 14 degrees
05/16/2018 06:06:46.6 Geocentric minimum 1.2 degrees
Global start/end: 05/16/2018 05:15:08.0   and   05/16/2018 06:58:24.7
Mid-occultation observing point (lat., long.) 69.4 -149.9

Occultation of 119 CE Tau 4.38 by moon 5% illuminated at phase= 27 degrees
05/17/2018 04:18:08.1 Geocentric minimum 1.1 degrees
Global start/end: 05/17/2018 03:17:01.8   and   05/17/2018 05:19:14.3
Mid-occultation observing point (lat., long.) 69.3 -123.5

Occultation of 54 chi^1 Ori 4.41 by moon 8% illuminated at phase= 32 degrees
05/17/2018 13:02:42.7 Geocentric minimum 0.1 degrees
Global start/end: 05/17/2018 10:57:47.6   and   05/17/2018 15:07:38.8
Mid-occultation observing point (lat., long.) 16.5 -87.0
At HVO the miss angle is 844.5 arc-sec at 05/17/2018 12:45:18.1

Occultation of 62 chi^2 Ori 4.63 by moon 9% illuminated at phase= 34 degrees
05/17/2018 16:40:15.9 Geocentric minimum 0.2 degrees
Global start/end: 05/17/2018 14:37:08.0   and   05/17/2018 18:43:25.2
Mid-occultation observing point (lat., long.) 33.4 -140.4

Occultation of 18 nu Gem 4.15 by moon 11% illuminated at phase= 40 degrees
05/18/2018 02:15:38.6 Geocentric minimum 0.4 degrees
Global start/end: 05/18/2018 00:17:07.3   and   05/18/2018 04:14:11.5
Mid-occultation observing point (lat., long.) 44.7 81.8

Occultation of 43 zeta Gem 3.79 by moon 16% illuminated at phase= 47 degrees
05/18/2018 15:44:23.2 Geocentric minimum 0.0 degrees
Global start/end: 05/18/2018 13:38:52.6   and   05/18/2018 17:49:55.2
Mid-occultation observing point (lat., long.) 22.9 -111.3
At HVO the miss angle is 341.6 arc-sec at 05/18/2018 15:54:48.7

Occultation of Asellus Australis 3.94 by moon 33% illuminated at phase= 69 degrees
05/20/2018 07:12:19.8 Geocentric minimum 0.0 degrees
Global start/end: 05/20/2018 05:05:15.8   and   05/20/2018 09:19:24.7
Mid-occultation observing point (lat., long.) 16.7 39.9

Occultation of 3 nu Vir 4.03 by moon 69% illuminated at phase= 112 degrees
05/23/2018 13:58:40.2 Geocentric minimum 0.9 degrees
Global start/end: 05/23/2018 12:32:55.1   and   05/23/2018 15:24:27.5
Mid-occultation observing point (lat., long.) -60.7 -61.6

Occultation of 16 Vir 4.96 by moon 75% illuminated at phase= 120 degrees
05/24/2018 06:25:27.3 Geocentric minimum 0.9 degrees
Global start/end: 05/24/2018 04:55:19.6   and   05/24/2018 07:55:37.1
Mid-occultation observing point (lat., long.) -58.3 63.6

Occultation of 38 gamma Lib 3.91 by moon 99% illuminated at phase= 168 degrees
05/28/2018 06:38:54.9 Geocentric minimum 0.4 degrees
Global start/end: 05/28/2018 04:33:19.6   and   05/28/2018 08:44:32.4
Mid-occultation observing point (lat., long.) 13.1 150.7

Occultation of 7 chi Oph 4.42 by moon 100% illuminated at phase= 180 degrees
05/29/2018 07:33:41.6 Geocentric minimum 1.1 degrees
Global start/end: 05/29/2018 07:06:59.0   and   05/29/2018 08:00:24.4
Mid-occultation observing point (lat., long.) 69.4 175.9

Occultation of 8 phi Oph 4.28 by moon 100% illuminated at phase= 181 degrees
05/29/2018 08:43:27.4 Geocentric minimum 0.9 degrees
Global start/end: 05/29/2018 07:10:59.3   and   05/29/2018 10:15:57.4
Mid-occultation observing point (lat., long.) -78.9 53.8

Occultation of BSC6196 4.96 by moon 100% illuminated at phase= 183 degrees
05/29/2018 13:56:03.2 Geocentric minimum 0.2 degrees
Global start/end: 05/29/2018 11:41:41.1   and   05/29/2018 16:10:27.2
Mid-occultation observing point (lat., long.) -31.8 46.3

Occultation of 13 mu Sgr 3.86 by moon 96% illuminated at phase= 203 degrees
05/31/2018 09:27:56.0 Geocentric minimum 0.5 degrees
Global start/end: 05/31/2018 07:23:08.2   and   05/31/2018 11:32:46.4
Mid-occultation observing point (lat., long.) 12.5 139.2

Occultation of 37 xi^2 Sgr 3.51 by moon 92% illuminated at phase= 213 degrees
06/01/2018 06:04:42.4 Geocentric minimum 0.4 degrees
Global start/end: 06/01/2018 03:53:29.1   and   06/01/2018 08:15:57.8
Mid-occultation observing point (lat., long.) 3.9 -161.9

Occultation of 39 o Sgr 3.77 by moon 91% illuminated at phase= 214 degrees
06/01/2018 09:18:49.4 Geocentric minimum 1.1 degrees
Global start/end: 06/01/2018 08:23:03.4   and   06/01/2018 10:14:35.8
Mid-occultation observing point (lat., long.) 69.5 146.7

Occultation of 41 pi Sgr 2.89 by moon 91% illuminated at phase= 215 degrees
06/01/2018 11:44:51.2 Geocentric minimum 0.4 degrees
Global start/end: 06/01/2018 09:33:11.7   and   06/01/2018 13:56:32.8
Mid-occultation observing point (lat., long.) 3.4 115.4

Occultation of 56 Sgr 4.86 by moon 87% illuminated at phase= 223 degrees
06/02/2018 05:13:44.6 Geocentric minimum 0.3 degrees
Global start/end: 06/02/2018 03:00:24.6   and   06/02/2018 07:27:06.3
Mid-occultation observing point (lat., long.) -41.9 -134.8
At HVO the miss angle is 2725.7 arc-sec at 06/02/2018 06:45:04.4

Occultation of 23 theta Cap 4.07 by moon 75% illuminated at phase= 241 degrees
06/03/2018 19:47:33.3 Geocentric minimum 0.0 degrees
Global start/end: 06/03/2018 17:28:00.5 and 06/03/2018 22:07:07.4
Mid-occultation observing point (lat., long.) -19.5 22.9

Occultation of 32 iota Cap 4.28 by moon 72% illuminated at phase= 244 degrees
06/04/2018 03:39:24.5 Geocentric minimum 0.4 degrees
Global start/end: 06/04/2018 01:28:37.9 and 06/04/2018 05:50:10.5
Mid-occultation observing point (lat., long.) 9.0 -97.6
At HVO the miss angle is 505.4 arc-sec at 06/04/2018 03:55:04.4

Occultation of Deneb Algedi 2.87 by moon 68% illuminated at phase= 250 degrees
06/04/2018 15:37:36.5 Geocentric minimum 1.1 degrees
Global start/end: 06/04/2018 15:05:13.2 and 06/04/2018 16:09:59.5
Mid-occultation observing point (lat., long.) 69.5 49.0

Occultation of 33 iota Aqr 4.27 by moon 64% illuminated at phase= 254 degrees
06/05/2018 01:51:52.4 Geocentric minimum 0.2 degrees
Global start/end: 06/04/2018 23:34:22.8 and 06/05/2018 04:09:21.4
Mid-occultation observing point (lat., long.) -3.7 -57.7
At HVO the miss angle is 1463.6 arc-sec at 06/05/2018 01:06:51.0

Occultation of 91 psi^1 Aqr 4.21 by moon 50% illuminated at phase= 271 degrees
06/06/2018 12:43:45.6 Geocentric minimum 0.7 degrees
Global start/end: 06/06/2018 10:56:09.2 and 06/06/2018 14:31:17.9
Mid-occultation observing point (lat., long.) 40.2 138.5

Occultation of 93 psi^2 Aqr 4.39 by moon 49% illuminated at phase= 271 degrees
06/06/2018 13:34:44.6 Geocentric minimum 1.0 degrees
Global start/end: 06/06/2018 12:19:05.5 and 06/06/2018 14:50:21.1
Mid-occultation observing point (lat., long.) 69.5 77.3

Occultation of 27 Psc 4.86 by moon 40% illuminated at phase= 282 degrees
06/07/2018 11:33:10.5 Geocentric minimum 0.9 degrees
Global start/end: 06/07/2018 10:03:50.1 and 06/07/2018 13:02:26.7
Mid-occultation observing point (lat., long.) -66.4 -118.8

Occultation of 106 nu Psc 4.44 by moon 20% illuminated at phase= 307 degrees
06/09/2018 13:34:34.0 Geocentric minimum 0.4 degrees
Global start/end: 06/09/2018 11:29:08.4 and 06/09/2018 15:39:53.8
Mid-occultation observing point (lat., long.) -14.6 -173.7

Occultation of 65 xi^1 Cet 4.37 by moon 15% illuminated at phase= 315 degrees
06/10/2018 04:32:11.5 Geocentric minimum 0.9 degrees
Global start/end: 06/10/2018 03:00:07.7 and 06/10/2018 06:04:10.1
Mid-occultation observing point (lat., long.) -50.3 -10.8
At HVO the miss angle is 5171.6 arc-sec at 06/10/2018 04:00:39.4

Occultation of 73 xi^2 Cet 4.28 by moon 13% illuminated at phase= 318 degrees
06/10/2018 10:27:42.1 Geocentric minimum 0.7 degrees
Global start/end: 06/10/2018 08:41:58.7 and 06/10/2018 12:13:19.3
Mid-occultation observing point (lat., long.) 52.0 -145.7
At HVO the miss angle is 72.4 arc-sec at 06/10/2018 11:23:32.8

Occultation of 87 mu Cet 4.27 by moon 11% illuminated at phase= 322 degrees
06/10/2018 18:06:30.2 Geocentric minimum 0.4 degrees
Global start/end: 06/10/2018 16:06:39.7 and 06/10/2018 20:06:14.8
Mid-occultation observing point (lat., long.) 35.8 115.7

Occultation of 5 Tau 4.11 by moon 6% illuminated at phase= 333 degrees
06/11/2018 13:39:32.5 Geocentric minimum 1.0 degrees
Global start/end: 06/11/2018 12:21:10.9 and 06/11/2018 14:57:50.8
Mid-occultation observing point (lat., long.) 69.3 71.0

Occultation of 54 gamma Tau 3.63 by moon 2% illuminated at phase= 344 degrees
06/12/2018 09:42:02.4 Geocentric minimum 1.2 degrees
Global start/end: 06/12/2018 09:11:10.0   and   06/12/2018 10:12:54.3
Mid-occultation observing point (lat., long.) 69.4 130.1
At HVO the miss angle is 1568.1 arc-sec at 06/12/2018 09:15:37.6

Occultation of 61 delta Tau 3.76 by moon 2% illuminated at phase= 345 degrees
06/12/2018 11:33:25.0 Geocentric minimum 0.5 degrees
Global start/end: 06/12/2018 09:37:19.6   and   06/12/2018 13:29:26.8
Mid-occultation observing point (lat., long.) -10.2 -107.7
At HVO the miss angle is 2196.4 arc-sec at 06/12/2018 12:09:00.6

Occultation of 68v776 Tau 4.29 by moon 2% illuminated at phase= 346 degrees
06/12/2018 12:39:25.9 Geocentric minimum 0.7 degrees
Global start/end: 06/12/2018 10:56:33.7   and   06/12/2018 14:22:14.4
Mid-occultation observing point (lat., long.) -27.6 -119.7
At HVO the miss angle is 3059.2 arc-sec at 06/12/2018 13:31:42.1

Occultation of 18 nu Gem 4.15 by moon 1% illuminated at phase= 13 degrees
06/14/2018 11:31:03.4 Geocentric minimum 0.5 degrees
Global start/end: 06/14/2018 09:37:18.3   and   06/14/2018 13:24:48.5
Mid-occultation observing point (lat., long.) 50.2 -84.4

Occultation of 43 zeta Gem 3.79 by moon 3% illuminated at phase= 21 degrees
06/15/2018 00:37:50.8 Geocentric minimum 0.2 degrees
Global start/end: 06/14/2018 22:35:07.1   and   06/15/2018 02:40:35.4
Mid-occultation observing point (lat., long.) 29.5 88.6

Occultation of Asellus Australis 3.94 by moon 14% illuminated at phase= 43 degrees
06/16/2018 14:52:06.1 Geocentric minimum 0.1 degrees
Global start/end: 06/16/2018 12:48:00.7   and   06/16/2018 16:56:13.8
Mid-occultation observing point (lat., long.) 26.5 -100.1

Occultation of 3 nu Vir 4.03 by moon 47% illuminated at phase= 86 degrees
06/19/2018 19:41:55.6 Geocentric minimum 0.7 degrees
Global start/end: 06/19/2018 17:56:30.2   and   06/19/2018 21:27:25.7
Mid-occultation observing point (lat., long.) -38.8 -151.2
At HVO the miss angle is 4151.5 arc-sec at 06/19/2018 19:27:45.9

Occultation of 16 Vir 4.96 by moon 54% illuminated at phase= 94 degrees
06/20/2018 11:58:08.0 Geocentric minimum 0.7 degrees
Global start/end: 06/20/2018 10:09:55.3   and   06/20/2018 13:46:25.1
Mid-occultation observing point (lat., long.) -39.7 -27.5

Occultation of 38 gamma Lib 3.91 by moon 89% illuminated at phase= 142 degrees
06/24/2018 12:34:17.4 Geocentric minimum 0.5 degrees
Global start/end: 06/24/2018 10:32:27.8   and   06/24/2018 14:36:08.9
Mid-occultation observing point (lat., long.) 19.2 36.8

Occultation of 8 phi Oph 4.28 by moon 95% illuminated at phase= 155 degrees
06/25/2018 14:53:06.8 Geocentric minimum 0.8 degrees
Global start/end: 06/25/2018 13:14:54.1   and   06/25/2018 16:31:20.9
Mid-occultation observing point (lat., long.) -75.4 -38.6

Occultation of BSC6196 4.96 by moon 96% illuminated at phase= 157 degrees
06/25/2018 20:08:32.8 Geocentric minimum 0.2 degrees
Global start/end: 06/25/2018 17:52:43.8   and   06/25/2018 22:24:22.2
Mid-occultation observing point (lat., long.) -29.4 -73.1
At HVO the miss angle is 1971.2 arc-sec at 06/25/2018 18:36:00.4

Occultation of 13 mu Sgr 3.86 by moon 100% illuminated at phase= 177 degrees
06/27/2018 15:55:27.5 Geocentric minimum 0.5 degrees
Global start/end: 06/27/2018 13:49:10.3   and   06/27/2018 18:01:45.9
Mid-occultation observing point (lat., long.) 10.6 15.4

Occultation of 37 xi^2 Sgr 3.51 by moon 100% illuminated at phase= 187 degrees
06/28/2018 12:34:32.8 Geocentric minimum 0.3 degrees
Global start/end: 06/28/2018 10:21:22.5   and   06/28/2018 14:47:44.4
Mid-occultation observing point (lat., long.) 0.2 73.9

Occultation of 39 o Sgr 3.77 by moon 100% illuminated at phase= 188 degrees
06/28/2018 15:49:01.8 Geocentric minimum 1.0 degrees
Global start/end: 06/28/2018 14:39:54.4   and   06/28/2018 16:58:09.8
Mid-occultation observing point (lat., long.) 69.5 22.7

Occultation of 41 pi Sgr 2.89 by moon 99% illuminated at phase= 189 degrees
06/28/2018 18:14:55.5 Geocentric minimum 0.3 degrees
Global start/end: 06/28/2018 16:01:09.5   and   06/28/2018 20:28:42.8
Mid-occultation observing point (lat., long.) -0.7 -8.8

Occultation of 56 Sgr 4.86 by moon 98% illuminated at phase= 197 degrees
06/29/2018 11:43:34.2 Geocentric minimum 0.4 degrees
Global start/end: 06/29/2018 09:34:01.9   and   06/29/2018 13:53:07.5
Mid-occultation observing point (lat., long.) -47.6 101.8

Occultation of 23 theta Cap 4.07 by moon 91% illuminated at phase= 215 degrees
07/01/2018 02:17:24.9 Geocentric minimum 0.2 degrees
Global start/end: 06/30/2018 23:59:19.7   and   07/01/2018 04:35:31.0
Mid-occultation observing point (lat., long.) -27.1 -99.7
At HVO the miss angle is 2400.7 arc-sec at 07/01/2018 03:05:11.3

Occultation of 32 iota Cap 4.28 by moon 89% illuminated at phase= 218 degrees
07/01/2018 10:10:06.5 Geocentric minimum 0.3 degrees
Global start/end: 07/01/2018 07:54:50.5   and   07/01/2018 12:25:23.1
Mid-occultation observing point (lat., long.) 0.6 139.7

Occultation of Nashira 3.68 by moon 87% illuminated at phase= 222 degrees
07/01/2018 18:38:59.3 Geocentric minimum 1.1 degrees
Global start/end: 07/01/2018 17:57:17.5   and   07/01/2018 19:20:41.0
Mid-occultation observing point (lat., long.) 69.4 -22.8

Occultation of Deneb Algedi 2.87 by moon 86% illuminated at phase= 224 degrees
07/01/2018 22:10:34.1 Geocentric minimum 1.0 degrees
Global start/end: 07/01/2018 20:59:31.4   and   07/01/2018 23:21:36.4
Mid-occultation observing point (lat., long.) 69.5 -76.0

Occultation of 33 iota Aqr 4.27 by moon 83% illuminated at phase= 228 degrees
07/02/2018 08:27:43.7 Geocentric minimum 0.0 degrees
Global start/end: 07/02/2018 06:08:43.6   and   07/02/2018 10:46:45.3
Mid-occultation observing point (lat., long.) -12.3 178.9

Occultation of 91 psi^1 Aqr 4.21 by moon 72% illuminated at phase= 245 degrees
07/03/2018 19:40:17.3 Geocentric minimum 0.6 degrees
Global start/end: 07/03/2018 17:40:18.6   and   07/03/2018 21:40:13.2
Mid-occultation observing point (lat., long.) 27.9 13.7

Occultation of 93 psi^2 Aqr 4.39 by moon 71% illuminated at phase= 245 degrees
07/03/2018 20:32:00.0 Geocentric minimum 0.8 degrees
Global start/end: 07/03/2018 18:54:47.1   and   07/03/2018 22:09:10.5
Mid-occultation observing point (lat., long.) 51.2 -13.4

Occultation of 27 Psc 4.86 by moon 63% illuminated at phase= 255 degrees
07/04/2018 18:53:07.7 Geocentric minimum 1.0 degrees
Global start/end: 07/04/2018 17:50:53.6   and   07/04/2018 19:55:20.3
Mid-occultation observing point (lat., long.) -69.3 151.1

Occultation of 106 nu Psc 4.44 by moon 41% illuminated at phase= 281 degrees
07/06/2018 22:09:15.0 Geocentric minimum 0.5 degrees
Global start/end: 07/06/2018 20:07:35.3   and   07/07/2018 00:10:48.9
Mid-occultation observing point (lat., long.) -23.4 34.3

Occultation of 65 xi^1 Cet 4.37 by moon 34% illuminated at phase= 289 degrees
07/07/2018 13:32:24.0 Geocentric minimum 1.0 degrees
Global start/end: 07/07/2018 12:16:10.0   and   07/07/2018 14:48:34.3
Mid-occultation observing point (lat., long.) -69.4 -131.1

Occultation of 73 xi^2 Cet 4.28 by moon 32% illuminated at phase= 292 degrees
07/07/2018 19:37:37.7 Geocentric minimum 0.6 degrees
Global start/end: 07/07/2018 17:42:48.9   and   07/07/2018 21:32:20.0
Mid-occultation observing point (lat., long.) 44.0 56.2

Occultation of 87 mu Cet 4.27 by moon 28% illuminated at phase= 296 degrees
07/08/2018 03:29:07.0 Geocentric minimum 0.3 degrees
Global start/end: 07/08/2018 01:23:40.8   and   07/08/2018 05:34:27.7
Mid-occultation observing point (lat., long.) 29.2 -49.0
At HVO the miss angle is 738.4 arc-sec at 07/08/2018 02:47:13.6

Occultation of 5 Tau 4.11 by moon 20% illuminated at phase= 307 degrees
07/08/2018 23:31:58.5 Geocentric minimum 0.9 degrees
Global start/end: 07/08/2018 22:02:40.8   and   07/09/2018 01:01:11.2
Mid-occultation observing point (lat., long.) 72.0 -24.1

Occultation of 54 gamma Tau 3.63 by moon 13% illuminated at phase= 318 degrees
07/09/2018 19:59:08.4 Geocentric minimum 1.2 degrees
Global start/end: 07/09/2018 19:09:48.0   and   07/09/2018 20:48:27.2
Mid-occultation observing point (lat., long.) 69.3 -51.0

Occultation of 61 delta Tau 3.76 by moon 12% illuminated at phase= 319 degrees
07/09/2018 21:52:45.1 Geocentric minimum 0.5 degrees
Global start/end: 07/09/2018 19:58:35.5   and   07/09/2018 23:46:49.3
Mid-occultation observing point (lat., long.) -14.8 71.5

Occultation of 68v776 Tau 4.29 by moon 12% illuminated at phase= 320 degrees
07/09/2018 22:59:54.6 Geocentric minimum 0.8 degrees
Global start/end: 07/09/2018 21:21:17.5   and   07/10/2018 00:38:26.6
Mid-occultation observing point (lat., long.) -33.7 59.9

Occultation of Aldebaran 0.85 by moon 11% illuminated at phase= 322 degrees
07/10/2018 02:33:28.7 Geocentric minimum 1.1 degrees
Global start/end: 07/10/2018 01:29:38.9   and   07/10/2018 03:37:16.2
Mid-occultation observing point (lat., long.) 69.3 -149.9

Occultation of 119 CE Tau 4.38 by moon 5% illuminated at phase= 335 degrees
07/11/2018 00:39:32.1 Geocentric minimum 1.1 degrees
Global start/end: 07/10/2018 23:39:53.0   and   07/11/2018 01:39:09.5
Mid-occultation observing point (lat., long.) 69.2 -122.2

Occultation of 54 chi^1 Ori 4.41 by moon 3% illuminated at phase= 340 degrees
07/11/2018 09:15:59.8 Geocentric minimum 0.0 degrees
Global start/end: 07/11/2018 07:12:08.6   and   07/11/2018 11:19:50.1
Mid-occultation observing point (lat., long.) 19.1 -84.5
At HVO the miss angle is 726.0 arc-sec at 07/11/2018 08:55:10.4

Occultation of 62 chi^2 Ori 4.63 by moon 3% illuminated at phase= 342 degrees
07/11/2018 12:48:45.3 Geocentric minimum 0.3 degrees
Global start/end: 07/11/2018 10:48:03.6   and   07/11/2018 14:49:24.6
Mid-occultation observing point (lat., long.) 36.5 -136.9

Eclipse of the Sun by moon 0% illuminated at phase= 0 degrees
07/12/2018 20:01:06.2 Geocentric minimum 1.4 degrees
Global start/end: 07/12/2018 18:47:56.2   and   07/12/2018 21:14:15.8
Mid-occultation observing point (lat., long.) -69.3 126.9

Occultation of Asellus Australis 3.94 by moon 2% illuminated at phase= 17 degrees
07/14/2018 00:42:12.6 Geocentric minimum 0.2 degrees
Global start/end: 07/13/2018 22:40:33.7   and   07/14/2018 02:43:53.0
Mid-occultation observing point (lat., long.) 29.7 86.1

Occultation of 3 nu Vir 4.03 by moon 25% illuminated at phase= 60 degrees
07/17/2018 03:11:10.7 Geocentric minimum 0.6 degrees
Global start/end: 07/17/2018 01:19:43.9   and   07/17/2018 05:02:43.4
Mid-occultation observing point (lat., long.) -30.1 74.3

Occultation of 16 Vir 4.96 by moon 32% illuminated at phase= 68 degrees
07/17/2018 18:59:26.5 Geocentric minimum 0.6 degrees
Global start/end: 07/17/2018 17:05:14.7   and   07/17/2018 20:53:44.5
Mid-occultation observing point (lat., long.) -31.3 -154.8
At HVO the miss angle is 3934.6 arc-sec at 07/17/2018 18:59:53.0

Occultation of 38 gamma Lib 3.91 by moon 72% illuminated at phase= 116 degrees
07/21/2018 18:17:31.4 Geocentric minimum 0.6 degrees
Global start/end: 07/21/2018 16:20:19.4   and   07/21/2018 20:14:46.9
Mid-occultation observing point (lat., long.) 25.0 -74.0

Occultation of 8 phi Oph 4.28 by moon 81% illuminated at phase= 129 degrees
07/22/2018 20:38:37.7 Geocentric minimum 0.8 degrees
Global start/end: 07/22/2018 18:53:26.3   and   07/22/2018 22:23:51.1
Mid-occultation observing point (lat., long.) -69.6 -135.5
At HVO the miss angle is 4607.5 arc-sec at 07/22/2018 19:45:49.2

Occultation of BSC6196 4.96 by moon 83% illuminated at phase= 131 degrees
07/23/2018 01:55:17.4 Geocentric minimum 0.1 degrees
Global start/end: 07/22/2018 23:37:59.3   and   07/23/2018 04:12:35.1
Mid-occultation observing point (lat., long.) -25.8 174.1

Occultation of 13 mu Sgr 3.86 by moon 94% illuminated at phase= 151 degrees
07/24/2018 21:53:55.0 Geocentric minimum 0.5 degrees
Global start/end: 07/24/2018 19:48:53.5   and   07/24/2018 23:58:57.0
Mid-occultation observing point (lat., long.) 12.8 -100.9
At HVO the miss angle is 235.3 arc-sec at 07/24/2018 21:42:28.5

Occultation of 37 xi^2 Sgr 3.51 by moon 97% illuminated at phase= 161 degrees
07/25/2018 18:37:07.0 Geocentric minimum 0.3 degrees
Global start/end: 07/25/2018 16:24:19.1   and   07/25/2018 20:49:54.6
Mid-occultation observing point (lat., long.) 1.3 -43.6

Occultation of 39 o Sgr 3.77 by moon 98% illuminated at phase= 162 degrees
07/25/2018 21:52:09.0 Geocentric minimum 1.0 degrees
Global start/end: 07/25/2018 20:46:16.1   and   07/25/2018 22:58:02.0
Mid-occultation observing point (lat., long.) 69.5 -94.8

---For observations at HVO:
07/25/2018 21:05:43.8 Start Total 20.5 20.74 (az156) -15.1 ***
07/25/2018 21:31:29.0 OCCULTATION MID-POINT 22.18 22.37 (az162) -18.0 ***
07/25/2018 21:57:40.9 End Total 23.38 23.55 (az168) -20.6 ***

Occultation of 41 pi Sgr 2.89 by moon 98% illuminated at phase= 163 degrees
07/26/2018 00:18:15.2 Geocentric minimum 0.3 degrees
Global start/end: 07/25/2018 22:04:46.4   and   07/26/2018 02:31:43.6
Mid-occultation observing point (lat., long.) 0.2 -126.5
At HVO the miss angle is 676.7 arc-sec at 07/26/2018 01:14:16.8

Occultation of 56 Sgr 4.86 by moon 99% illuminated at phase= 171 degrees
07/26/2018 17:47:59.8 Geocentric minimum 0.4 degrees
Global start/end: 07/26/2018 15:38:19.3   and   07/26/2018 19:57:39.8
Mid-occultation observing point (lat., long.) -47.4 -16.3

Occultation of 23 theta Cap 4.07 by moon 99% illuminated at phase= 189 degrees
07/28/2018 08:18:57.4 Geocentric minimum 0.2 degrees
Global start/end: 07/28/2018 06:01:30.6   and   07/28/2018 10:36:24.2
Mid-occultation observing point (lat., long.) -28.0 143.2

Occultation of 32 iota Cap 4.28 by moon 99% illuminated at phase= 192 degrees
07/28/2018 16:10:29.7 Geocentric minimum 0.3 degrees
Global start/end: 07/28/2018 13:55:08.2   and   07/28/2018 18:25:51.4
Mid-occultation observing point (lat., long.) -0.5 23.0

Occultation of Nashira 3.68 by moon 98% illuminated at phase= 196 degrees
07/29/2018 00:38:06.9 Geocentric minimum 1.1 degrees
Global start/end: 07/28/2018 23:49:32.4   and   07/29/2018 01:26:41.2
Mid-occultation observing point (lat., long.) 69.4 -139.3
At HVO the miss angle is 222.0 arc-sec at 07/29/2018 00:51:52.3

Occultation of Deneb Algedi 2.87 by moon 98% illuminated at phase= 198 degrees
07/29/2018 04:09:08.5 Geocentric minimum 1.0 degrees
Global start/end: 07/29/2018 02:54:12.4   and   07/29/2018 05:24:04.1
Mid-occultation observing point (lat., long.) 69.5 167.5

Occultation of 33 iota Aqr 4.27 by moon 96% illuminated at phase= 202 degrees
07/29/2018 14:24:49.3 Geocentric minimum 0.0 degrees
Global start/end: 07/29/2018 12:06:14.1   and   07/29/2018 16:43:25.5
Mid-occultation observing point (lat., long.) -13.9 63.2

Occultation of 91 psi^1 Aqr 4.21 by moon 89% illuminated at phase= 219 degrees
07/31/2018 01:37:00.4 Geocentric minimum 0.5 degrees
Global start/end: 07/30/2018 23:35:11.5   and   07/31/2018 03:38:47.6
Mid-occultation observing point (lat., long.) 25.7 -101.4

---For observations at HVO:
07/31/2018 01:26:09.7 Start Total 34.73 34.51 (az160) -24.6 ***
07/31/2018 01:55:55.0 OCCULTATION MID-POINT 36.22 36.05 (az168) -22.3 ***
07/31/2018 02:25:46.7 End Total 36.89 36.81 (az177) -19.3 ***

Occultation of 93 psi^2 Aqr 4.39 by moon 89% illuminated at phase= 219 degrees
07/31/2018 02:28:50.9 Geocentric minimum 0.8 degrees
Global start/end: 07/31/2018 00:48:19.9   and   07/31/2018 04:09:20.3
Mid-occultation observing point (lat., long.) 47.6 -126.4

---For observations at HVO:
07/31/2018 02:26:58.1 Start Total 36.79 36.82 (az177) -19.2 ***
07/31/2018 03:02:56.4 OCCULTATION MID-POINT 36.49 36.6 (az188) -15.0 ***
07/31/2018 03:38:28.6 End Total 34.99 35.23 (az199) -10.2 ***

Occultation of 27 Psc 4.86 by moon 82% illuminated at phase= 229 degrees
08/01/2018 00:56:38.6 Geocentric minimum 1.1 degrees
Global start/end: 08/01/2018 00:04:37.9   and   08/01/2018 01:48:38.6
Mid-occultation observing point (lat., long.) -69.3 33.3
At HVO the miss angle is 5770.5 arc-sec at 08/01/2018 01:13:05.4

Occultation of 106 nu Psc 4.44 by moon 63% illuminated at phase= 255 degrees
08/03/2018 04:58:49.2 Geocentric minimum 0.5 degrees
Global start/end: 08/03/2018 02:57:49.1   and   08/03/2018 06:59:45.1
Mid-occultation observing point (lat., long.) -26.0 -93.8
At HVO the miss angle is 2740.6 arc-sec at 08/03/2018 05:59:38.6

Occultation of 65 xi^1 Cet 4.37 by moon 57% illuminated at phase= 263 degrees
08/03/2018 20:44:41.0 Geocentric minimum 1.0 degrees
Global start/end: 08/03/2018 19:34:34.3   and   08/03/2018 21:54:45.2
Mid-occultation observing point (lat., long.) -69.4 93.9

Occultation of 73 xi^2 Cet 4.28 by moon 54% illuminated at phase= 266 degrees
08/04/2018 02:59:49.8 Geocentric minimum 0.6 degrees
Global start/end: 08/04/2018 01:02:09.6   and   08/04/2018 04:57:25.1
Mid-occultation observing point (lat., long.) 42.5 -80.4

---For observations at HVO:
08/04/2018 02:02:59.7 Start Total 32.78 32.7 (az112) -22.5 ***
08/04/2018 02:32:21.4 OCCULTATION MID-POINT 37.54 37.4 (az119) -19.5 ***
08/04/2018 03:02:45.8 End Total 42.14 41.96 (az126) -15.8 ***

Occultation of 87 mu Cet 4.27 by moon 50% illuminated at phase= 270 degrees
08/04/2018 11:04:55.7 Geocentric minimum 0.3 degrees
Global start/end: 08/04/2018 08:56:55.5   and   08/04/2018 13:12:52.1
Mid-occultation observing point (lat., long.) 27.8 170.7

Occultation of 5 Tau 4.11 by moon 41% illuminated at phase= 281 degrees
08/05/2018 07:45:14.1 Geocentric minimum 0.9 degrees
Global start/end: 08/05/2018 06:13:19.4   and   08/05/2018 09:17:04.1
Mid-occultation observing point (lat., long.) 71.2 -170.7
At HVO the miss angle is 758.4 arc-sec at 08/05/2018 08:34:29.4

Occultation of 54 gamma Tau 3.63 by moon 31% illuminated at phase= 292 degrees
08/06/2018 04:52:28.8 Geocentric minimum 1.1 degrees
Global start/end: 08/06/2018 04:01:52.4   and   08/06/2018 05:43:03.6
Mid-occultation observing point (lat., long.) 69.3 148.8
At HVO the miss angle is 952.2 arc-sec at 08/06/2018 04:04:14.7

Occultation of 61 delta Tau 3.76 by moon 31% illuminated at phase= 293 degrees
08/06/2018 06:49:51.0 Geocentric minimum 0.6 degrees
Global start/end: 08/06/2018 04:54:59.6   and   08/06/2018 08:44:36.8
Mid-occultation observing point (lat., long.) -16.6 -89.3
At HVO the miss angle is 2674.9 arc-sec at 08/06/2018 07:06:15.7

Occultation of 68v776 Tau 4.29 by moon 30% illuminated at phase= 294 degrees
08/06/2018 07:59:11.6 Geocentric minimum 0.8 degrees
Global start/end: 08/06/2018 06:21:19.7   and   08/06/2018 09:36:58.5
Mid-occultation observing point (lat., long.) -36.6 -101.0
At HVO the miss angle is 3390.3 arc-sec at 08/06/2018 08:37:45.5

Occultation of Aldebaran 0.85 by moon 29% illuminated at phase= 296 degrees
08/06/2018 11:39:33.5 Geocentric minimum 1.1 degrees
Global start/end: 08/06/2018 10:34:22.2   and   08/06/2018 12:44:42.3
Mid-occultation observing point (lat., long.) 69.3 46.6

Occultation of 119 CE Tau 4.38 by moon 19% illuminated at phase= 308 degrees
08/07/2018 10:25:44.0 Geocentric minimum 1.1 degrees
Global start/end: 08/07/2018 09:25:30.8   and   08/07/2018 11:25:55.3
Mid-occultation observing point (lat., long.) 69.2 64.3

Occultation of 54 chi^1 Ori 4.41 by moon 16% illuminated at phase= 313 degrees
08/07/2018 19:16:01.6 Geocentric minimum 0.0 degrees
Global start/end: 08/07/2018 17:10:27.7   and   08/07/2018 21:21:34.1
Mid-occultation observing point (lat., long.) 18.5 98.5

Occultation of 62 chi^2 Ori 4.63 by moon 14% illuminated at phase= 315 degrees
08/07/2018 22:54:04.8 Geocentric minimum 0.3 degrees
Global start/end: 08/07/2018 20:51:37.5   and   08/08/2018 00:56:28.7
Mid-occultation observing point (lat., long.) 36.1 44.8

Occultation of 18 nu Gem 4.15 by moon 11% illuminated at phase= 321 degrees
08/08/2018 08:26:54.4 Geocentric minimum 0.5 degrees
Global start/end: 08/08/2018 06:31:44.1   and   08/08/2018 10:22:00.9
Mid-occultation observing point (lat., long.) 49.8 -92.5

Occultation of 43 zeta Gem 3.79 by moon 7% illuminated at phase= 329 degrees
08/08/2018 21:42:14.9 Geocentric minimum 0.2 degrees
Global start/end: 08/08/2018 19:39:12.8   and   08/08/2018 23:45:14.9
Mid-occultation observing point (lat., long.) 30.1 78.4

Eclipse of the Sun by moon 0% illuminated at phase= 360 degrees
08/11/2018 02:46:17.8 Geocentric minimum 1.2 degrees
Global start/end: 08/11/2018 01:01:44.3   and   08/11/2018 04:30:53.1
Mid-occultation observing point (lat., long.) 69.5 176.8

Occultation of 3 nu Vir 4.03 by moon 8% illuminated at phase= 33 degrees
08/13/2018 12:42:29.5 Geocentric minimum 0.6 degrees
Global start/end: 08/13/2018 10:52:44.8   and   08/13/2018 14:32:19.5
Mid-occultation observing point (lat., long.) -30.1 -95.5
At HVO the miss angle is 2858.7 arc-sec at 08/13/2018 11:29:13.8

Occultation of 16 Vir 4.96 by moon 13% illuminated at phase= 42 degrees
08/14/2018 04:03:07.4 Geocentric minimum 0.6 degrees
Global start/end: 08/14/2018 02:10:54.1   and   08/14/2018 05:55:26.7
Mid-occultation observing point (lat., long.) -31.4 42.3

Occultation of 38 gamma Lib 3.91 by moon 50% illuminated at phase= 90 degrees
08/18/2018 00:57:24.1 Geocentric minimum 0.6 degrees
Global start/end: 08/17/2018 22:58:59.7   and   08/18/2018 02:55:53.5
Mid-occultation observing point (lat., long.) 22.7 158.4

Occultation of 8 phi Oph 4.28 by moon 61% illuminated at phase= 103 degrees
08/19/2018 03:00:09.7 Geocentric minimum 0.8 degrees
Global start/end: 08/19/2018 01:17:22.4   and   08/19/2018 04:43:00.3
Mid-occultation observing point (lat., long.) -71.6 98.0

Occultation of BSC6196 4.96 by moon 63% illuminated at phase= 105 degrees
08/19/2018 08:14:25.7 Geocentric minimum 0.2 degrees
Global start/end: 08/19/2018 05:57:42.4   and   08/19/2018 10:31:09.9
Mid-occultation observing point (lat., long.) -27.3 52.1

Occultation of 13 mu Sgr 3.86 by moon 79% illuminated at phase= 125 degrees
08/21/2018 04:05:24.6 Geocentric minimum 0.5 degrees
Global start/end: 08/21/2018 01:58:45.8   and   08/21/2018 06:12:04.0
Mid-occultation observing point (lat., long.) 11.1 139.2

Occultation of 37 xi^2 Sgr 3.51 by moon 85% illuminated at phase= 135 degrees
08/22/2018 00:49:41.9 Geocentric minimum 0.3 degrees
Global start/end: 08/21/2018 22:35:51.4   and   08/22/2018 03:03:31.8
Mid-occultation observing point (lat., long.) 0.1 -163.6

Occultation of 39 o Sgr 3.77 by moon 86% illuminated at phase= 136 degrees
08/22/2018 04:04:56.5 Geocentric minimum 1.0 degrees
Global start/end: 08/22/2018 02:54:52.5   and   08/22/2018 05:15:00.6
Mid-occultation observing point (lat., long.) 69.5 145.1

Occultation of 41 pi Sgr 2.89 by moon 87% illuminated at phase= 137 degrees
08/22/2018 06:31:17.2 Geocentric minimum 0.3 degrees
Global start/end: 08/22/2018 04:16:51.5   and   08/22/2018 08:45:42.0
Mid-occultation observing point (lat., long.) -1.0 113.4

Occultation of 56 Sgr 4.86 by moon 91% illuminated at phase= 145 degrees
08/23/2018 00:02:19.2 Geocentric minimum 0.4 degrees
Global start/end: 08/22/2018 21:52:53.9   and   08/23/2018 02:11:43.3
Mid-occultation observing point (lat., long.) -48.2 -136.6
At HVO the miss angle is 3004.7 arc-sec at 08/23/2018 01:37:04.0

Occultation of 23 theta Cap 4.07 by moon 98% illuminated at phase= 162 degrees
08/24/2018 14:31:50.8 Geocentric minimum 0.2 degrees
Global start/end: 08/24/2018 12:14:26.4   and   08/24/2018 16:49:13.5
Mid-occultation observing point (lat., long.) -27.7 23.1

Occultation of 32 iota Cap 4.28 by moon 99% illuminated at phase= 166 degrees
08/24/2018 22:21:59.1 Geocentric minimum 0.3 degrees
Global start/end: 08/24/2018 20:07:02.5   and   08/25/2018 00:36:54.2
Mid-occultation observing point (lat., long.) -0.1 -96.8
At HVO the miss angle is 978.0 arc-sec at 08/24/2018 22:42:36.6

Occultation of Nashira 3.68 by moon 99% illuminated at phase= 170 degrees
08/25/2018 06:47:36.4 Geocentric minimum 1.1 degrees
Global start/end: 08/25/2018 06:02:29.6   and   08/25/2018 07:32:42.9
Mid-occultation observing point (lat., long.) 69.4 101.3

Occultation of Deneb Algedi 2.87 by moon 99% illuminated at phase= 171 degrees
08/25/2018 10:17:43.4 Geocentric minimum 1.0 degrees
Global start/end: 08/25/2018 09:05:16.3   and   08/25/2018 11:30:09.7
Mid-occultation observing point (lat., long.) 69.5 48.4

Occultation of 33 iota Aqr 4.27 by moon 100% illuminated at phase= 176 degrees
08/25/2018 20:30:25.7 Geocentric minimum 0.0 degrees
Global start/end: 08/25/2018 18:12:20.6   and   08/25/2018 22:48:30.6
Mid-occultation observing point (lat., long.) -12.7 -55.4
At HVO the miss angle is 1982.7 arc-sec at 08/25/2018 19:45:15.2

Occultation of 91 psi^1 Aqr 4.21 by moon 99% illuminated at phase= 192 degrees
08/27/2018 07:28:42.8 Geocentric minimum 0.6 degrees
Global start/end: 08/27/2018 05:30:02.4   and   08/27/2018 09:27:21.1
Mid-occultation observing point (lat., long.) 28.5 142.6

Occultation of 93 psi^2 Aqr 4.39 by moon 99% illuminated at phase= 193 degrees
08/27/2018 08:20:09.1 Geocentric minimum 0.8 degrees
Global start/end: 08/27/2018 06:44:35.9   and   08/27/2018 09:55:40.4
Mid-occultation observing point (lat., long.) 52.3 114.7

Occultation of 27 Psc 4.86 by moon 96% illuminated at phase= 203 degrees
08/28/2018 06:39:12.7 Geocentric minimum 1.0 degrees
Global start/end: 08/28/2018 05:34:19.2   and   08/28/2018 07:44:05.2
Mid-occultation observing point (lat., long.) -69.3 -79.2

Occultation of 106 nu Psc 4.44 by moon 83% illuminated at phase= 228 degrees
08/30/2018 10:36:03.2 Geocentric minimum 0.4 degrees
Global start/end: 08/30/2018 08:31:09.6   and   08/30/2018 12:40:54.5
Mid-occultation observing point (lat., long.) -20.7 152.7

Occultation of 65 xi^1 Cet 4.37 by moon 78% illuminated at phase= 236 degrees
08/31/2018 02:28:14.7 Geocentric minimum 0.9 degrees
Global start/end: 08/31/2018 01:05:03.0   and   08/31/2018 03:51:24.4
Mid-occultation observing point (lat., long.) -67.5 -28.8
At HVO the miss angle is 4496.3 arc-sec at 08/31/2018 03:08:15.6

Occultation of 73 xi^2 Cet 4.28 by moon 75% illuminated at phase= 240 degrees
08/31/2018 08:47:07.7 Geocentric minimum 0.7 degrees
Global start/end: 08/31/2018 06:55:02.9   and   08/31/2018 10:39:09.3
Mid-occultation observing point (lat., long.) 49.1 161.0

Occultation of 87 mu Cet 4.27 by moon 72% illuminated at phase= 244 degrees
08/31/2018 16:58:22.3 Geocentric minimum 0.4 degrees
Global start/end: 08/31/2018 14:52:47.7   and   08/31/2018 19:03:54.2
Mid-occultation observing point (lat., long.) 33.6 52.9

Occultation of 5 Tau 4.11 by moon 64% illuminated at phase= 254 degrees
09/01/2018 14:00:22.9 Geocentric minimum 1.0 degrees
Global start/end: 09/01/2018 12:40:56.5   and   09/01/2018 15:19:46.9
Mid-occultation observing point (lat., long.) 69.2 -14.7

Occultation of 61 delta Tau 3.76 by moon 53% illuminated at phase= 267 degrees
09/02/2018 13:39:09.0 Geocentric minimum 0.5 degrees
Global start/end: 09/02/2018 11:38:18.4   and   09/02/2018 15:39:55.9
Mid-occultation observing point (lat., long.) -10.3 140.1

Occultation of 68v776 Tau 4.29 by moon 52% illuminated at phase= 267 degrees
09/02/2018 14:50:26.4 Geocentric minimum 0.7 degrees
Global start/end: 09/02/2018 13:03:58.4   and   09/02/2018 16:36:50.4
Mid-occultation observing point (lat., long.) -28.4 127.0

Occultation of Aldebaran 0.85 by moon 51% illuminated at phase= 269 degrees
09/02/2018 18:37:11.6 Geocentric minimum 1.2 degrees
Global start/end: 09/02/2018 17:57:49.4   and   09/02/2018 19:16:33.1
Mid-occultation observing point (lat., long.) 69.3 -84.7

Occultation of 119 CE Tau 4.38 by moon 40% illuminated at phase= 282 degrees
09/03/2018 18:06:33.5 Geocentric minimum 1.2 degrees
Global start/end: 09/03/2018 17:34:21.5   and   09/03/2018 18:38:45.1
Mid-occultation observing point (lat., long.) 69.3 -77.9

Occultation of 54 chi^1 Ori 4.41 by moon 35% illuminated at phase= 287 degrees
09/04/2018 03:14:43.7 Geocentric minimum 0.1 degrees
Global start/end: 09/04/2018 01:06:59.5   and   09/04/2018 05:22:26.5
Mid-occultation observing point (lat., long.) 23.8 -48.6
At HVO the miss angle is 1023.7 arc-sec at 09/04/2018 02:18:48.6

Occultation of 62 chi^2 Ori 4.63 by moon 34% illuminated at phase= 289 degrees
09/04/2018 07:00:16.8 Geocentric minimum 0.4 degrees
Global start/end: 09/04/2018 04:58:04.2   and   09/04/2018 09:02:25.7
Mid-occultation observing point (lat., long.) 41.9 -104.3

Occultation of 18 nu Gem 4.15 by moon 29% illuminated at phase= 295 degrees
09/04/2018 16:52:48.1 Geocentric minimum 0.6 degrees
Global start/end: 09/04/2018 14:59:49.4   and   09/04/2018 18:45:42.5
Mid-occultation observing point (lat., long.) 56.1 113.7

Occultation of 43 zeta Gem 3.79 by moon 23% illuminated at phase= 302 degrees
09/05/2018 06:34:57.9 Geocentric minimum 0.2 degrees
Global start/end: 09/05/2018 04:30:59.8   and   09/05/2018 08:38:53.1
Mid-occultation observing point (lat., long.) 34.7 -81.6

Occultation of Asellus Australis 3.94 by moon 9% illuminated at phase= 324 degrees
09/06/2018 21:28:18.9 Geocentric minimum 0.2 degrees
Global start/end: 09/06/2018 19:26:01.7   and   09/06/2018 23:30:34.5
Mid-occultation observing point (lat., long.) 32.1 81.0

Occultation of 16 Vir 4.96 by moon 2% illuminated at phase= 16 degrees
09/10/2018 14:21:00.1 Geocentric minimum 0.7 degrees
Global start/end: 09/10/2018 12:33:28.5   and   09/10/2018 16:08:36.1
Mid-occultation observing point (lat., long.) -35.8 -141.7
At HVO the miss angle is 3937.7 arc-sec at 09/10/2018 13:55:11.9

Occultation of 38 gamma Lib 3.91 by moon 28% illuminated at phase= 64 degrees
09/14/2018 09:08:26.7 Geocentric minimum 0.4 degrees
Global start/end: 09/14/2018 07:03:34.3   and   09/14/2018 11:13:25.1
Mid-occultation observing point (lat., long.) 12.1 5.7

Occultation of 46 theta Lib 4.15 by moon 31% illuminated at phase= 68 degrees
09/14/2018 18:04:28.9 Geocentric minimum 1.2 degrees
Global start/end: 09/14/2018 17:52:30.4   and   09/14/2018 18:16:27.4
Mid-occultation observing point (lat., long.) 69.3 -88.3

Occultation of 7 chi Oph 4.42 by moon 38% illuminated at phase= 76 degrees
09/15/2018 09:31:06.3 Geocentric minimum 1.1 degrees
Global start/end: 09/15/2018 08:35:28.1   and   09/15/2018 10:26:46.2
Mid-occultation observing point (lat., long.) 69.3 39.6

Occultation of 8 phi Oph 4.28 by moon 38% illuminated at phase= 76 degrees
09/15/2018 10:38:47.8 Geocentric minimum 0.9 degrees
Global start/end: 09/15/2018 09:14:22.2   and   09/15/2018 12:03:16.9
Mid-occultation observing point (lat., long.) -69.0 -157.6

Occultation of BSC6196 4.96 by moon 40% illuminated at phase= 79 degrees
09/15/2018 15:47:35.9 Geocentric minimum 0.3 degrees
Global start/end: 09/15/2018 13:35:27.0   and   09/15/2018 17:59:48.8
Mid-occultation observing point (lat., long.) -36.7 -90.4
At HVO the miss angle is 2697.7 arc-sec at 09/15/2018 14:27:35.3

Occultation of 13 mu Sgr 3.86 by moon 58% illuminated at phase= 99 degrees
09/17/2018 11:07:35.0 Geocentric minimum 0.3 degrees
Global start/end: 09/17/2018 08:54:30.8   and   09/17/2018 13:20:40.9
Mid-occultation observing point (lat., long.) 0.7 6.3

Occultation of 37 xi^2 Sgr 3.51 by moon 66% illuminated at phase= 108 degrees
09/18/2018 07:46:00.0 Geocentric minimum 0.2 degrees
Global start/end: 09/18/2018 05:28:17.4   and   09/18/2018 10:03:42.6
Mid-occultation observing point (lat., long.) -8.9 65.5

Occultation of 39 o Sgr 3.77 by moon 67% illuminated at phase= 110 degrees
09/18/2018 11:00:37.5 Geocentric minimum 0.9 degrees
Global start/end: 09/18/2018 09:27:49.3   and   09/18/2018 12:33:26.5
Mid-occultation observing point (lat., long.) 50.8 16.2

Occultation of 41 pi Sgr 2.89 by moon 68% illuminated at phase= 111 degrees
09/18/2018 13:26:45.8 Geocentric minimum 0.2 degrees
Global start/end: 09/18/2018 11:08:42.5   and   09/18/2018 15:44:48.7
Mid-occultation observing point (lat., long.) -9.7 -17.1

Occultation of 56 Sgr 4.86 by moon 74% illuminated at phase= 119 degrees
09/19/2018 06:56:57.2 Geocentric minimum 0.5 degrees
Global start/end: 09/19/2018 04:53:55.0   and   09/19/2018 08:59:58.7
Mid-occultation observing point (lat., long.) -56.9 95.0

Occultation of 23 theta Cap 4.07 by moon 86% illuminated at phase= 136 degrees
09/20/2018 21:27:54.4 Geocentric minimum 0.2 degrees
Global start/end: 09/20/2018 19:11:59.4   and   09/20/2018 23:43:47.1
Mid-occultation observing point (lat., long.) -32.9 -106.4
At HVO the miss angle is 2595.5 arc-sec at 09/20/2018 22:35:43.0

Occultation of 32 iota Cap 4.28 by moon 88% illuminated at phase= 139 degrees
09/21/2018 05:17:59.4 Geocentric minimum 0.2 degrees
Global start/end: 09/21/2018 03:01:00.1   and   09/21/2018 07:34:56.1
Mid-occultation observing point (lat., long.) -4.8 133.3

Occultation of Nashira 3.68 by moon 90% illuminated at phase= 143 degrees
09/21/2018 13:43:06.6 Geocentric minimum 1.0 degrees
Global start/end: 09/21/2018 12:39:39.7   and   09/21/2018 14:46:32.5
Mid-occultation observing point (lat., long.) 69.3 -29.8

Occultation of Deneb Algedi 2.87 by moon 91% illuminated at phase= 145 degrees
09/21/2018 17:13:01.3 Geocentric minimum 0.9 degrees
Global start/end: 09/21/2018 15:49:50.7   and   09/21/2018 18:36:10.5
Mid-occultation observing point (lat., long.) 69.4 -82.6

Occultation of 33 iota Aqr 4.27 by moon 93% illuminated at phase= 150 degrees
09/22/2018 03:24:50.8 Geocentric minimum 0.0 degrees
Global start/end: 09/22/2018 01:06:46.0   and   09/22/2018 05:42:54.1
Mid-occultation observing point (lat., long.) -15.4 174.9

Occultation of 91 psi^1 Aqr 4.21 by moon 99% illuminated at phase= 166 degrees
09/23/2018 14:12:17.7 Geocentric minimum 0.6 degrees
Global start/end: 09/23/2018 12:14:10.2   and   09/23/2018 16:10:21.7
Mid-occultation observing point (lat., long.) 28.6 14.6

Occultation of 93 psi^2 Aqr 4.39 by moon 99% illuminated at phase= 166 degrees
09/23/2018 15:03:15.0 Geocentric minimum 0.8 degrees
Global start/end: 09/23/2018 13:28:16.7   and   09/23/2018 16:38:10.6
Mid-occultation observing point (lat., long.) 52.4 -13.4

Occultation of 27 Psc 4.86 by moon 100% illuminated at phase= 177 degrees
09/24/2018 13:10:17.4 Geocentric minimum 1.0 degrees
Global start/end: 09/24/2018 11:57:21.2   and   09/24/2018 14:23:11.8
Mid-occultation observing point (lat., long.) -69.1 156.1

Occultation of 106 nu Psc 4.44 by moon 96% illuminated at phase= 202 degrees
09/26/2018 16:27:39.4 Geocentric minimum 0.3 degrees
Global start/end: 09/26/2018 14:19:25.9   and   09/26/2018 18:35:51.4
Mid-occultation observing point (lat., long.) -13.4 35.1

Occultation of 65 xi^1 Cet 4.37 by moon 93% illuminated at phase= 210 degrees
09/27/2018 08:08:40.1 Geocentric minimum 0.8 degrees
Global start/end: 09/27/2018 06:29:52.5   and   09/27/2018 09:47:25.5
Mid-occultation observing point (lat., long.) -45.4 -176.3

Occultation of 73 xi^2 Cet 4.28 by moon 92% illuminated at phase= 213 degrees
09/27/2018 14:23:13.8 Geocentric minimum 0.8 degrees
Global start/end: 09/27/2018 12:43:43.2   and   09/27/2018 16:02:42.3
Mid-occultation observing point (lat., long.) 60.4 36.7

Occultation of 87 mu Cet 4.27 by moon 90% illuminated at phase= 217 degrees
09/27/2018 22:30:04.9 Geocentric minimum 0.5 degrees
Global start/end: 09/27/2018 20:32:24.4   and   09/28/2018 00:27:43.3
Mid-occultation observing point (lat., long.) 43.5 -62.3

---For observations at HVO:
09/27/2018 21:30:33.9 Start Total 21.27 21.13 (az97) -38.6 ***
09/27/2018 21:48:05.1 OCCULTATION MID-POINT 24.39 24.19 (az100) -40.7 ***
09/27/2018 22:06:01.2 End Total 27.54 27.29 (az103) -42.7 ***

Occultation of 5 Tau 4.11 by moon 84% illuminated at phase= 228 degrees
09/28/2018 19:24:46.6 Geocentric minimum 1.1 degrees
Global start/end: 09/28/2018 18:40:49.1   and   09/28/2018 20:08:43.5
Mid-occultation observing point (lat., long.) 69.1 -122.4

Occultation of 61 delta Tau 3.76 by moon 75% illuminated at phase= 240 degrees
09/29/2018 19:05:10.8 Geocentric minimum 0.3 degrees
Global start/end: 09/29/2018 16:57:52.4   and   09/29/2018 21:12:28.3
Mid-occultation observing point (lat., long.) 1.8 29.3

Occultation of 68v776 Tau 4.29 by moon 74% illuminated at phase= 241 degrees
09/29/2018 20:16:51.9 Geocentric minimum 0.5 degrees
Global start/end: 09/29/2018 18:18:31.5   and   09/29/2018 22:15:10.4
Mid-occultation observing point (lat., long.) -13.8 15.2

Occultation of 54 chi^1 Ori 4.41 by moon 58% illuminated at phase= 260 degrees
10/01/2018 09:08:16.3 Geocentric minimum 0.3 degrees
Global start/end: 10/01/2018 07:02:05.6   and   10/01/2018 11:14:25.7
Mid-occultation observing point (lat., long.) 36.0 -165.1
At HVO the miss angle is 7.7 arc-sec at 10/01/2018 10:21:22.7

Occultation of 62 chi^2 Ori 4.63 by moon 57% illuminated at phase= 263 degrees
10/01/2018 12:58:18.8 Geocentric minimum 0.6 degrees
Global start/end: 10/01/2018 11:03:31.9   and   10/01/2018 14:53:03.4
Mid-occultation observing point (lat., long.) 55.7 137.3

Occultation of 18 nu Gem 4.15 by moon 52% illuminated at phase= 268 degrees
10/01/2018 23:04:02.3 Geocentric minimum 0.8 degrees
Global start/end: 10/01/2018 21:23:35.7   and   10/02/2018 00:44:26.6
Mid-occultation observing point (lat., long.) 73.1 -8.6

---For observations at HVO:
10/01/2018 21:36:15.8 Start Total -6.12 -5.96 (az54) -40.8
10/01/2018 22:00:00.6 OCCULTATION MID-POINT -1.94 -1.92 (az58) -43.6
10/01/2018 22:24:23.0 End Total 1.64 1.51 (az62) -45.9 ***

Occultation of 43 zeta Gem 3.79 by moon 45% illuminated at phase= 276 degrees
10/02/2018 13:07:30.7 Geocentric minimum 0.4 degrees
Global start/end: 10/02/2018 11:07:25.3   and   10/02/2018 15:07:34.0
Mid-occultation observing point (lat., long.) 47.0 154.0

Occultation of Wasat 3.53 by moon 42% illuminated at phase= 279 degrees
10/02/2018 19:21:41.1 Geocentric minimum 1.1 degrees
Global start/end: 10/02/2018 18:23:09.4   and   10/02/2018 20:20:11.9
Mid-occultation observing point (lat., long.) -69.2 54.7

Occultation of Asellus Australis 3.94 by moon 27% illuminated at phase= 298 degrees
10/04/2018 05:13:41.3 Geocentric minimum 0.4 degrees
Global start/end: 10/04/2018 03:13:29.7   and   10/04/2018 07:13:51.0
Mid-occultation observing point (lat., long.) 41.7 -59.6

---For observations at HVO:
10/04/2018 03:33:54.9 Start Total 31.63 31.85 (az95) -25.7 ***
10/04/2018 04:06:38.3 OCCULTATION MID-POINT 37.45 37.44 (az101) -20.1 ***
10/04/2018 04:40:51.1 End Total 43.39 43.17 (az109) -14.1 ***

Occultation of 3 nu Vir 4.03 by moon 3% illuminated at phase= 340 degrees
10/07/2018 08:54:15.4 Geocentric minimum 0.7 degrees
Global start/end: 10/07/2018 07:06:17.5   and   10/07/2018 10:42:14.5
Mid-occultation observing point (lat., long.) -32.4 -93.9
At HVO the miss angle is 2918.8 arc-sec at 10/07/2018 07:37:47.9

Occultation of 38 gamma Lib 3.91 by moon 10% illuminated at phase= 37 degrees
10/11/2018 18:24:45.0 Geocentric minimum 0.3 degrees
Global start/end: 10/11/2018 16:15:01.2   and   10/11/2018 20:34:33.5
Mid-occultation observing point (lat., long.) 0.2 -163.5

Occultation of 46 theta Lib 4.15 by moon 12% illuminated at phase= 41 degrees
10/12/2018 03:11:15.8 Geocentric minimum 1.0 degrees
Global start/end: 10/12/2018 01:56:04.9   and   10/12/2018 04:26:29.9
Mid-occultation observing point (lat., long.) 69.2 108.3

Occultation of 7 chi Oph 4.42 by moon 17% illuminated at phase= 49 degrees
10/12/2018 18:20:38.9 Geocentric minimum 0.9 degrees
Global start/end: 10/12/2018 16:48:17.3   and   10/12/2018 19:53:05.2
Mid-occultation observing point (lat., long.) 48.2 -138.2

---For observations at HVO:
10/12/2018 18:36:15.3 Start Total 9.69 9.61 (az233) -15.6 ***
10/12/2018 19:10:47.4 OCCULTATION MID-POINT 4.65 4.69 (az239) -21.7 ***
10/12/2018 19:43:38.1 End Total -0.15 0.03 (az244) -27.4

Occultation of 8 phi Oph 4.28 by moon 17% illuminated at phase= 49 degrees
10/12/2018 19:26:37.0 Geocentric minimum 1.1 degrees
Global start/end: 10/12/2018 18:48:12.6   and   10/12/2018 20:05:02.1
Mid-occultation observing point (lat., long.) -68.9 43.7

Occultation of BSC6196 4.96 by moon 19% illuminated at phase= 52 degrees
10/13/2018 00:29:54.0 Geocentric minimum 0.5 degrees
Global start/end: 10/12/2018 22:28:22.0   and   10/13/2018 02:31:31.7
Mid-occultation observing point (lat., long.) -51.1 106.8

Occultation of 13 mu Sgr 3.86 by moon 34% illuminated at phase= 72 degrees
10/14/2018 19:09:25.2 Geocentric minimum 0.1 degrees
Global start/end: 10/14/2018 16:51:40.8   and   10/14/2018 21:27:11.6
Mid-occultation observing point (lat., long.) -15.1 -141.9
At HVO the miss angle is 1472.1 arc-sec at 10/14/2018 20:19:06.6

Occultation of 37 xi^2 Sgr 3.51 by moon 42% illuminated at phase= 81 degrees
10/15/2018 15:35:36.1 Geocentric minimum 0.1 degrees
Global start/end: 10/15/2018 13:16:33.4   and   10/15/2018 17:54:39.8
Mid-occultation observing point (lat., long.) -24.4 -78.5
At HVO the miss angle is 2109.6 arc-sec at 10/15/2018 14:36:59.7

Occultation of 39 o Sgr 3.77 by moon 44% illuminated at phase= 83 degrees
10/15/2018 18:48:46.9 Geocentric minimum 0.6 degrees
Global start/end: 10/15/2018 16:51:08.3   and   10/15/2018 20:46:27.8
Mid-occultation observing point (lat., long.) 21.4 -126.5

---For observations at HVO:
10/15/2018 19:04:55.7 Start Total 20.04 19.81 (az206) -21.6 ***
10/15/2018 19:37:56.7 OCCULTATION MID-POINT 17.12 16.99 (az213) -27.4 ***
10/15/2018 20:09:38.2 End Total 13.73 13.73 (az220) -32.8 ***

Occultation of 41 pi Sgr 2.89 by moon 45% illuminated at phase= 84 degrees
10/15/2018 21:13:58.7 Geocentric minimum 0.1 degrees
Global start/end: 10/15/2018 18:54:48.3   and   10/15/2018 23:33:09.9
Mid-occultation observing point (lat., long.) -25.1 -160.3

Occultation of 56 Sgr 4.86 by moon 52% illuminated at phase= 92 degrees
10/16/2018 14:39:31.2 Geocentric minimum 0.8 degrees
Global start/end: 10/16/2018 12:56:49.7   and   10/16/2018 16:22:13.5
Mid-occultation observing point (lat., long.) -78.7 -29.2

Occultation of 23 theta Cap 4.07 by moon 66% illuminated at phase= 109 degrees
10/18/2018 05:12:02.3 Geocentric minimum 0.5 degrees
Global start/end: 10/18/2018 03:03:43.7   and   10/18/2018 07:20:19.1
Mid-occultation observing point (lat., long.) -46.8 115.5

Occultation of 32 iota Cap 4.28 by moon 69% illuminated at phase= 113 degrees
10/18/2018 13:03:40.5 Geocentric minimum 0.0 degrees
Global start/end: 10/18/2018 10:44:08.4   and   10/18/2018 15:23:11.1
Mid-occultation observing point (lat., long.) -17.3 -7.3

Occultation of Nashira 3.68 by moon 72% illuminated at phase= 116 degrees
10/18/2018 21:30:34.8 Geocentric minimum 0.8 degrees
Global start/end: 10/18/2018 19:54:33.9   and   10/18/2018 23:06:33.8
Mid-occultation observing point (lat., long.) 48.6 -150.1

---For observations at HVO:
10/18/2018 22:32:03.3 Start Total 18.24 18.34 (az223) -53.0 ***
10/18/2018 22:41:10.8 OCCULTATION MID-POINT 17.11 17.25 (az225) -53.7 ***
10/18/2018 22:50:11.8 End Total 15.96 16.14 (az227) -54.3 ***

Occultation of Deneb Algedi 2.87 by moon 74% illuminated at phase= 118 degrees
10/19/2018 01:01:24.5 Geocentric minimum 0.7 degrees
Global start/end: 10/18/2018 23:14:20.8   and   10/19/2018 02:48:25.7
Mid-occultation observing point (lat., long.) 36.8 163.9

Occultation of 33 iota Aqr 4.27 by moon 77% illuminated at phase= 123 degrees
10/19/2018 11:16:08.7 Geocentric minimum 0.2 degrees
Global start/end: 10/19/2018 08:59:25.9   and   10/19/2018 13:32:48.7
Mid-occultation observing point (lat., long.) -26.0 33.5

Occultation of 91 psi^1 Aqr 4.21 by moon 88% illuminated at phase= 139 degrees
10/20/2018 22:09:07.3 Geocentric minimum 0.5 degrees
Global start/end: 10/20/2018 20:03:47.5   and   10/21/2018 00:14:22.4
Mid-occultation observing point (lat., long.) 20.2 -128.1

---For observations at HVO:
10/20/2018 22:39:37.4 Start Total 33.31 33.08 (az206) -54.3 ***
10/20/2018 23:16:42.0 OCCULTATION MID-POINT 29.85 29.79 (az216) -56.3 ***
10/20/2018 23:52:24.8 End Total 25.66 25.82 (az225) -56.5 ***

Occultation of 93 psi^2 Aqr 4.39 by moon 88% illuminated at phase= 139 degrees
10/20/2018 23:00:00.2 Geocentric minimum 0.7 degrees
Global start/end: 10/20/2018 21:12:36.5   and   10/21/2018 00:47:19.6
Mid-occultation observing point (lat., long.) 39.9 -149.9

---For observations at HVO:
10/20/2018 23:58:52.3 Start Total 25.01 25.03 (az226) -56.3 ***
10/21/2018 00:15:40.6 OCCULTATION MID-POINT 22.77 22.87 (az230) -55.6 ***
10/21/2018 00:32:08.9 End Total 20.45 20.65 (az234) -54.6 ***

Occultation of 27 Psc 4.86 by moon 93% illuminated at phase= 150 degrees
10/21/2018 21:05:47.1 Geocentric minimum 1.1 degrees
Global start/end: 10/21/2018 20:06:56.4   and   10/21/2018 22:04:36.2
Mid-occultation observing point (lat., long.) -68.9 10.1

Occultation of 106 nu Psc 4.44 by moon 100% illuminated at phase= 175 degrees
10/23/2018 23:53:09.5 Geocentric minimum 0.3 degrees
Global start/end: 10/23/2018 21:44:48.2   and   10/24/2018 02:01:27.9
Mid-occultation observing point (lat., long.) -10.9 -104.1
At HVO the miss angle is 1817.0 arc-sec at 10/24/2018 00:53:21.8

Occultation of 65 xi^1 Cet 4.37 by moon 100% illuminated at phase= 183 degrees
10/24/2018 15:18:38.8 Geocentric minimum 0.7 degrees
Global start/end: 10/24/2018 13:33:48.9   and   10/24/2018 17:03:25.2
Mid-occultation observing point (lat., long.) -38.0 44.7

Occultation of 73 xi^2 Cet 4.28 by moon 100% illuminated at phase= 186 degrees
10/24/2018 21:25:38.2 Geocentric minimum 0.9 degrees
Global start/end: 10/24/2018 19:55:22.5   and   10/24/2018 22:55:51.3
Mid-occultation observing point (lat., long.) 67.2 -113.4

---For observations at HVO:
10/24/2018 20:24:20.3 Start Total 30.04 30.25 (az109) -37.8 ***
10/24/2018 20:51:09.0 OCCULTATION MID-POINT 34.52 34.67 (az114) -42.2 ***
10/24/2018 21:18:52.4 End Total 38.93 39.04 (az121) -46.4 ***

Occultation of 87 mu Cet 4.27 by moon 99% illuminated at phase= 190 degrees
10/25/2018 05:23:11.5 Geocentric minimum 0.7 degrees
Global start/end: 10/25/2018 03:32:49.7   and   10/25/2018 07:13:30.4
Mid-occultation observing point (lat., long.) 50.2 162.4

Occultation of 61 delta Tau 3.76 by moon 92% illuminated at phase= 213 degrees
10/27/2018 01:04:53.4 Geocentric minimum 0.1 degrees
Global start/end: 10/26/2018 22:56:12.2   and   10/27/2018 03:13:35.2
Mid-occultation observing point (lat., long.) 13.0 -89.8
At HVO the miss angle is 1008.7 arc-sec at 10/27/2018 01:06:33.1

Occultation of 68v776 Tau 4.29 by moon 92% illuminated at phase= 214 degrees
10/27/2018 02:15:18.7 Geocentric minimum 0.3 degrees
Global start/end: 10/27/2018 00:10:56.8   and   10/27/2018 04:19:39.9
Mid-occultation observing point (lat., long.) -1.3 -103.8
At HVO the miss angle is 1658.5 arc-sec at 10/27/2018 02:44:18.7

Occultation of 54 chi^1 Ori 4.41 by moon 80% illuminated at phase= 233 degrees
10/28/2018 14:34:22.5 Geocentric minimum 0.5 degrees
Global start/end: 10/28/2018 12:36:51.5   and   10/28/2018 16:31:53.2
Mid-occultation observing point (lat., long.) 51.1 84.3

Occultation of 62 chi^2 Ori 4.63 by moon 78% illuminated at phase= 236 degrees
10/28/2018 18:22:19.7 Geocentric minimum 0.8 degrees
Global start/end: 10/28/2018 16:44:39.0   and   10/28/2018 19:59:59.9
Mid-occultation observing point (lat., long.) 75.6 20.5

Occultation of 18 nu Gem 4.15 by moon 74% illuminated at phase= 241 degrees
10/29/2018 04:24:10.2 Geocentric minimum 1.0 degrees
Global start/end: 10/29/2018 03:11:24.0   and   10/29/2018 05:36:56.2
Mid-occultation observing point (lat., long.) 68.6 73.1
At HVO the miss angle is 1338.1 arc-sec at 10/29/2018 04:42:31.6

Occultation of 43 zeta Gem 3.79 by moon 68% illuminated at phase= 249 degrees
10/29/2018 18:26:10.4 Geocentric minimum 0.7 degrees
Global start/end: 10/29/2018 16:39:28.8   and   10/29/2018 20:12:51.6
Mid-occultation observing point (lat., long.) 65.5 49.1

Occultation of Wasat 3.53 by moon 66% illuminated at phase= 252 degrees
10/30/2018 00:41:12.5 Geocentric minimum 0.9 degrees
Global start/end: 10/29/2018 23:07:54.9   and   10/30/2018 02:14:30.0
Mid-occultation observing point (lat., long.) -38.9 -46.9
At HVO the miss angle is 4070.4 arc-sec at 10/29/2018 23:44:50.4

Occultation of Asellus Australis 3.94 by moon 50% illuminated at phase= 271 degrees
10/31/2018 10:54:10.1 Geocentric minimum 0.7 degrees
Global start/end: 10/31/2018 09:04:59.6   and   10/31/2018 12:43:20.5
Mid-occultation observing point (lat., long.) 58.8 -163.9

Occultation of 3 nu Vir 4.03 by moon 16% illuminated at phase= 313 degrees
11/03/2018 16:29:24.2 Geocentric minimum 0.5 degrees
Global start/end: 11/03/2018 14:32:32.2   and   11/03/2018 18:26:16.7
Mid-occultation observing point (lat., long.) -23.3 129.6

Occultation of 16 Vir 4.96 by moon 11% illuminated at phase= 321 degrees
11/04/2018 08:14:35.5 Geocentric minimum 0.6 degrees
Global start/end: 11/04/2018 06:20:23.7   and   11/04/2018 10:08:48.2
Mid-occultation observing point (lat., long.) -30.1 -101.3
At HVO the miss angle is 2787.8 arc-sec at 11/04/2018 06:59:29.3

Occultation of 46 theta Lib 4.15 by moon 1% illuminated at phase= 14 degrees
11/08/2018 12:17:28.6 Geocentric minimum 0.9 degrees
Global start/end: 11/08/2018 10:45:14.4   and   11/08/2018 13:49:46.3
Mid-occultation observing point (lat., long.) 47.6 -78.8

Occultation of 7 chi Oph 4.42 by moon 3% illuminated at phase= 21 degrees
11/09/2018 03:21:27.6 Geocentric minimum 0.7 degrees
Global start/end: 11/09/2018 01:33:50.5   and   11/09/2018 05:09:09.2
Mid-occultation observing point (lat., long.) 29.9 53.6

Occultation of BSC6196 4.96 by moon 4% illuminated at phase= 24 degrees
11/09/2018 09:27:11.4 Geocentric minimum 0.7 degrees
Global start/end: 11/09/2018 07:37:42.0   and   11/09/2018 11:16:45.5
Mid-occultation observing point (lat., long.) -63.9 -63.5

Occultation of 40 xi Oph 4.39 by moon 8% illuminated at phase= 33 degrees
11/10/2018 03:56:46.4 Geocentric minimum 1.1 degrees
Global start/end: 11/10/2018 03:10:08.7   and   11/10/2018 04:43:25.2
Mid-occultation observing point (lat., long.) 68.8 68.3

Occultation of 58 Oph 4.87 by moon 11% illuminated at phase= 38 degrees
11/10/2018 14:03:43.0 Geocentric minimum 1.0 degrees
Global start/end: 11/10/2018 13:02:21.4   and   11/10/2018 15:05:06.2
Mid-occultation observing point (lat., long.) 68.9 -83.8

Occultation of 13 mu Sgr 3.86 by moon 14% illuminated at phase= 44 degrees
11/11/2018 03:40:27.1 Geocentric minimum 0.1 degrees
Global start/end: 11/11/2018 01:24:13.2   and   11/11/2018 05:56:44.1
Mid-occultation observing point (lat., long.) -29.6 62.5

Occultation of 37 xi^2 Sgr 3.51 by moon 21% illuminated at phase= 54 degrees
11/11/2018 23:54:17.7 Geocentric minimum 0.3 degrees
Global start/end: 11/11/2018 21:40:44.1   and   11/12/2018 02:07:55.0
Mid-occultation observing point (lat., long.) -40.5 130.2

Occultation of 39 o Sgr 3.77 by moon 22% illuminated at phase= 55 degrees
11/12/2018 03:05:56.1 Geocentric minimum 0.4 degrees
Global start/end: 11/12/2018 00:54:35.1 and 11/12/2018 05:17:20.8
Mid-occultation observing point (lat., long.) 2.0 82.8

Occultation of 41 pi Sgr 2.89 by moon 22% illuminated at phase= 56 degrees
11/12/2018 05:29:45.9 Geocentric minimum 0.3 degrees
Global start/end: 11/12/2018 03:16:30.2 and 11/12/2018 07:43:05.0
Mid-occultation observing point (lat., long.) -41.6 49.6

Occultation of 56 Sgr 4.86 by moon 28% illuminated at phase= 64 degrees
11/12/2018 22:48:10.5 Geocentric minimum 1.0 degrees
Global start/end: 11/12/2018 21:49:22.8 and 11/12/2018 23:46:59.1
Mid-occultation observing point (lat., long.) -68.6 -37.0

Occultation of 23 theta Cap 4.07 by moon 43% illuminated at phase= 82 degrees
11/14/2018 13:18:21.1 Geocentric minimum 0.7 degrees
Global start/end: 11/14/2018 11:29:35.6 and 11/14/2018 15:07:06.6
Mid-occultation observing point (lat., long.) -68.1 -15.5

Occultation of 32 iota Cap 4.28 by moon 46% illuminated at phase= 85 degrees
11/14/2018 21:11:51.7 Geocentric minimum 0.3 degrees
Global start/end: 11/14/2018 18:55:52.2 and 11/14/2018 23:27:51.0
Mid-occultation observing point (lat., long.) -34.0 -151.6

Occultation of Nashira 3.68 by moon 49% illuminated at phase= 89 degrees
11/15/2018 05:41:31.5 Geocentric minimum 0.6 degrees
Global start/end: 11/15/2018 03:40:10.8 and 11/15/2018 07:42:51.1
Mid-occultation observing point (lat., long.) 21.7 70.6

Occultation of Deneb Algedi 2.87 by moon 51% illuminated at phase= 91 degrees
11/15/2018 09:13:47.3 Geocentric minimum 0.5 degrees
Global start/end: 11/15/2018 07:06:28.8 and 11/15/2018 11:21:04.5
Mid-occultation observing point (lat., long.) 14.8 20.8

Occultation of Mars -0.3 by moon 56% illuminated at phase= 96 degrees
11/15/2018 21:52:00.0 Geocentric minimum 1.0 degrees
Global start/end: 11/15/2018 20:28:52.9 and 11/15/2018 23:15:05.7
Mid-occultation observing point (lat., long.) -68.9 -24.8

Occultation of 33 iota Aqr 4.27 by moon 55% illuminated at phase= 95 degrees
11/15/2018 19:33:36.0 Geocentric minimum 0.5 degrees
Global start/end: 11/15/2018 17:25:10.9 and 11/15/2018 21:41:59.1
Mid-occultation observing point (lat., long.) -42.4 -110.8
At HVO the miss angle is 2870.9 arc-sec at 11/15/2018 21:09:32.6

Occultation of 91 psi^1 Aqr 4.21 by moon 68% illuminated at phase= 111 degrees
11/17/2018 06:48:34.4 Geocentric minimum 0.2 degrees
Global start/end: 11/17/2018 04:33:46.8 and 11/17/2018 09:03:18.6
Mid-occultation observing point (lat., long.) 6.0 80.2

Occultation of 93 psi^2 Aqr 4.39 by moon 69% illuminated at phase= 112 degrees
11/17/2018 07:39:58.0 Geocentric minimum 0.5 degrees
Global start/end: 11/17/2018 05:35:38.8 and 11/17/2018 09:44:12.7
Mid-occultation observing point (lat., long.) 22.6 61.5

Occultation of 95 psi^3 Aqr 4.98 by moon 69% illuminated at phase= 112 degrees
11/17/2018 07:52:00.6 Geocentric minimum 1.0 degrees
Global start/end: 11/17/2018 06:40:23.3 and 11/17/2018 09:03:35.9
Mid-occultation observing point (lat., long.) 68.8 2.3

Occultation of 106 nu Psc 4.44 by moon 92% illuminated at phase= 147 degrees
11/20/2018 09:04:02.8 Geocentric minimum 0.4 degrees
Global start/end: 11/20/2018 06:58:19.5 and 11/20/2018 11:09:40.6
Mid-occultation observing point (lat., long.) -16.3 93.4

Occultation of 65 xi^1 Cet 4.37 by moon 95% illuminated at phase= 155 degrees
11/21/2018 00:26:10.3 Geocentric minimum 0.8 degrees
Global start/end: 11/20/2018 22:45:58.1   and   11/21/2018 02:06:17.7
Mid-occultation observing point (lat., long.) -42.5 -116.0
At HVO the miss angle is 3233.5 arc-sec at 11/21/2018 01:49:35.3

Occultation of 73 xi^2 Cet 4.28 by moon 96% illuminated at phase= 159 degrees
11/21/2018 06:29:43.0 Geocentric minimum 0.8 degrees
Global start/end: 11/21/2018 04:54:56.0   and   11/21/2018 08:04:25.5
Mid-occultation observing point (lat., long.) 63.1 94.9

Occultation of 87 mu Cet 4.27 by moon 98% illuminated at phase= 163 degrees
11/21/2018 14:22:42.0 Geocentric minimum 0.6 degrees
Global start/end: 11/21/2018 12:31:10.9   and   11/21/2018 16:14:08.3
Mid-occultation observing point (lat., long.) 48.3 1.8

Occultation of 61 delta Tau 3.76 by moon 100% illuminated at phase= 186 degrees
11/23/2018 09:17:48.5 Geocentric minimum 0.0 degrees
Global start/end: 11/23/2018 07:10:30.0   and   11/23/2018 11:25:07.2
Mid-occultation observing point (lat., long.) 17.7 119.0

Occultation of 68v776 Tau 4.29 by moon 100% illuminated at phase= 186 degrees
11/23/2018 10:26:38.9 Geocentric minimum 0.2 degrees
Global start/end: 11/23/2018 08:21:48.1   and   11/23/2018 12:31:28.1
Mid-occultation observing point (lat., long.) 4.0 105.4

Occultation of 54 chi^1 Ori 4.41 by moon 95% illuminated at phase= 206 degrees
11/24/2018 21:47:05.1 Geocentric minimum 0.7 degrees
Global start/end: 11/24/2018 19:59:21.1   and   11/24/2018 23:34:48.3
Mid-occultation observing point (lat., long.) 61.9 -53.8

---For observations at HVO:
11/24/2018 20:15:16.5 Start Total 21.5 21.69 (az82) -41.9 ***
11/24/2018 20:43:50.3 OCCULTATION MID-POINT 26.61 26.64 (az87) -46.8 ***
11/24/2018 21:13:35.9 End Total 31.96 31.82 (az92) -51.8 ***

Occultation of 62 chi^2 Ori 4.63 by moon 94% illuminated at phase= 208 degrees
11/25/2018 01:28:30.3 Geocentric minimum 1.0 degrees
Global start/end: 11/25/2018 00:08:05.2   and   11/25/2018 02:48:54.9
Mid-occultation observing point (lat., long.) 79.5 102.0
At HVO the miss angle is 1100.6 arc-sec at 11/25/2018 01:23:09.7

Occultation of Propus 3.28 by moon 93% illuminated at phase= 211 degrees
11/25/2018 05:57:19.0 Geocentric minimum 1.2 degrees
Global start/end: 11/25/2018 05:24:51.6   and   11/25/2018 06:29:46.4
Mid-occultation observing point (lat., long.) -68.7 -156.3

Occultation of 13 mu Gem 2.88 by moon 92% illuminated at phase= 212 degrees
11/25/2018 09:03:05.6 Geocentric minimum 1.1 degrees
Global start/end: 11/25/2018 08:07:44.8   and   11/25/2018 09:58:26.2
Mid-occultation observing point (lat., long.) -68.8 157.2

Occultation of 18 nu Gem 4.15 by moon 92% illuminated at phase= 214 degrees
11/25/2018 11:13:24.4 Geocentric minimum 1.2 degrees
Global start/end: 11/25/2018 10:36:54.5   and   11/25/2018 11:49:54.3
Mid-occultation observing point (lat., long.) 68.6 -55.6

Occultation of 43 zeta Gem 3.79 by moon 88% illuminated at phase= 221 degrees
11/26/2018 00:52:46.4 Geocentric minimum 0.9 degrees
Global start/end: 11/25/2018 23:23:34.6   and   11/26/2018 02:21:58.7
Mid-occultation observing point (lat., long.) 85.0 -62.4
At HVO the miss angle is 687.2 arc-sec at 11/26/2018 00:03:24.3

Occultation of Wasat 3.53 by moon 86% illuminated at phase= 225 degrees
11/26/2018 06:58:34.7 Geocentric minimum 0.6 degrees
Global start/end: 11/26/2018 05:10:00.6   and   11/26/2018 08:47:09.9
Mid-occultation observing point (lat., long.) -18.6 -166.7
At HVO the miss angle is 3574.6 arc-sec at 11/26/2018 07:49:17.5

Occultation of Asellus Australis 3.94 by moon 73% illuminated at phase= 243 degrees
11/27/2018 16:29:27.5 Geocentric minimum 0.9 degrees
Global start/end: 11/27/2018 14:59:58.7   and   11/27/2018 17:58:57.4
Mid-occultation observing point (lat., long.) 78.2 123.7

Occultation of 3 nu Vir 4.03 by moon 37% illuminated at phase= 285 degrees
11/30/2018 22:07:10.8 Geocentric minimum 0.3 degrees
Global start/end: 11/30/2018 20:01:34.8   and   12/01/2018 00:12:48.0
Mid-occultation observing point (lat., long.) -10.5 23.5

Occultation of 16 Vir 4.96 by moon 30% illuminated at phase= 294 degrees
12/01/2018 14:08:26.1 Geocentric minimum 0.4 degrees
Global start/end: 12/01/2018 12:04:40.2   and   12/01/2018 16:12:13.4
Mid-occultation observing point (lat., long.) -18.2 149.0

Occultation of 38 gamma Lib 3.91 by moon 3% illuminated at phase= 342 degrees
12/05/2018 11:15:23.4 Geocentric minimum 0.2 degrees
Global start/end: 12/05/2018 09:03:21.5   and   12/05/2018 13:27:26.1
Mid-occultation observing point (lat., long.) -5.1 -111.4
At HVO the miss angle is 1329.2 arc-sec at 12/05/2018 10:47:14.3

Occultation of 46 theta Lib 4.15 by moon 1% illuminated at phase= 346 degrees
12/05/2018 20:07:41.2 Geocentric minimum 0.9 degrees
Global start/end: 12/05/2018 18:35:46.3   and   12/05/2018 21:39:38.2
Mid-occultation observing point (lat., long.) 48.6 137.6

Occultation of 13 mu Sgr 3.86 by moon 2% illuminated at phase= 17 degrees
12/08/2018 11:45:34.5 Geocentric minimum 0.2 degrees
Global start/end: 12/08/2018 09:32:03.8   and   12/08/2018 13:59:08.0
Mid-occultation observing point (lat., long.) -37.0 -86.3
At HVO the miss angle is 2799.3 arc-sec at 12/08/2018 10:43:25.3

Occultation of Saturn 0.5 by moon 4% illuminated at phase= 22 degrees
12/08/2018 22:20:10.8 Geocentric minimum 1.1 degrees
Global start/end: 12/08/2018 21:46:02.6   and   12/08/2018 22:54:19.4
Mid-occultation observing point (lat., long.) 68.6 124.7

Occultation of 37 xi^2 Sgr 3.51 by moon 5% illuminated at phase= 26 degrees
12/09/2018 07:55:07.1 Geocentric minimum 0.4 degrees
Global start/end: 12/09/2018 05:48:01.5   and   12/09/2018 10:02:16.2
Mid-occultation observing point (lat., long.) -50.6 -16.8

Occultation of 39 o Sgr 3.77 by moon 6% illuminated at phase= 28 degrees
12/09/2018 11:06:08.1 Geocentric minimum 0.2 degrees
Global start/end: 12/09/2018 08:50:48.8   and   12/09/2018 13:21:30.1
Mid-occultation observing point (lat., long.) -7.9 -63.9
At HVO the miss angle is 962.6 arc-sec at 12/09/2018 09:54:43.5

Occultation of 41 pi Sgr 2.89 by moon 6% illuminated at phase= 29 degrees
12/09/2018 13:29:04.5 Geocentric minimum 0.5 degrees
Global start/end: 12/09/2018 11:23:00.5   and   12/09/2018 15:35:12.1
Mid-occultation observing point (lat., long.) -52.2 -96.6
At HVO the miss angle is 3783.3 arc-sec at 12/09/2018 13:21:35.3

Occultation of 23 theta Cap 4.07 by moon 21% illuminated at phase= 54 degrees
12/11/2018 21:06:53.0 Geocentric minimum 0.9 degrees
Global start/end: 12/11/2018 19:44:33.3   and   12/11/2018 22:29:13.6
Mid-occultation observing point (lat., long.) -68.4 -39.5

Occultation of 32 iota Cap 4.28 by moon 23% illuminated at phase= 57 degrees
12/12/2018 05:00:58.8 Geocentric minimum 0.5 degrees
Global start/end: 12/12/2018 02:53:55.6   and   12/12/2018 07:08:03.3
Mid-occultation observing point (lat., long.) -48.0 69.8

Occultation of Nashira 3.68 by moon 26% illuminated at phase= 61 degrees
12/12/2018 13:32:08.6 Geocentric minimum 0.4 degrees
Global start/end: 12/12/2018 11:19:19.6   and   12/12/2018 15:44:58.7
Mid-occultation observing point (lat., long.) 6.4 -70.0
At HVO the miss angle is 765.2 arc-sec at 12/12/2018 12:55:46.3

Occultation of Deneb Algedi 2.87 by moon 27% illuminated at phase= 63 degrees
12/12/2018 17:05:17.1 Geocentric minimum 0.3 degrees
Global start/end: 12/12/2018 14:49:04.1   and   12/12/2018 19:21:30.9
Mid-occultation observing point (lat., long.) 0.5 -120.2
At HVO the miss angle is 513.7 arc-sec at 12/12/2018 18:15:20.1

Occultation of 33 iota Aqr 4.27 by moon 31% illuminated at phase= 68 degrees
12/13/2018 03:28:39.8 Geocentric minimum 0.7 degrees
Global start/end: 12/13/2018 01:34:39.7   and   12/13/2018 05:22:39.6
Mid-occultation observing point (lat., long.) -58.5 115.7

Occultation of 91 psi^1 Aqr 4.21 by moon 45% illuminated at phase= 84 degrees
12/14/2018 15:07:41.1 Geocentric minimum 0.0 degrees
Global start/end: 12/14/2018 12:48:36.7   and   12/14/2018 17:26:45.6
Mid-occultation observing point (lat., long.) -6.8 -67.0
At HVO the miss angle is 1877.3 arc-sec at 12/14/2018 14:54:36.1

Occultation of 93 psi^2 Aqr 4.39 by moon 45% illuminated at phase= 84 degrees
12/14/2018 15:59:51.1 Geocentric minimum 0.3 degrees
Global start/end: 12/14/2018 13:45:16.7   and   12/14/2018 18:14:23.6
Mid-occultation observing point (lat., long.) 8.7 -85.1
At HVO the miss angle is 806.6 arc-sec at 12/14/2018 16:07:32.9

Occultation of 95 psi^3 Aqr 4.98 by moon 45% illuminated at phase= 84 degrees
12/14/2018 16:12:02.2 Geocentric minimum 0.8 degrees
Global start/end: 12/14/2018 14:29:45.1   and   12/14/2018 17:54:17.0
Mid-occultation observing point (lat., long.) 46.2 -106.4

---For observations at HVO:
12/14/2018 15:32:20.8 Start Total 29.23 29.25 (az144) 5.5
12/14/2018 16:14:14.5 OCCULTATION MID-POINT 33.08 33.11 (az155) -0.1
12/14/2018 16:57:06.2 End Total 35.58 35.69 (az167) -7.5 ***

Occultation of 30 YY Psc 4.41 by moon 54% illuminated at phase= 95 degrees
12/15/2018 14:31:12.7 Geocentric minimum 1.1 degrees
Global start/end: 12/15/2018 13:59:50.7   and   12/15/2018 15:02:34.3
Mid-occultation observing point (lat., long.) 68.7 -124.6

Occultation of 33 BC Psc 4.61 by moon 55% illuminated at phase= 95 degrees
12/15/2018 16:16:42.7 Geocentric minimum 1.2 degrees
Global start/end: 12/15/2018 15:53:31.2   and   12/15/2018 16:39:54.0
Mid-occultation observing point (lat., long.) 68.7 -151.0
At HVO the miss angle is 456.7 arc-sec at 12/15/2018 15:58:20.9

Occultation of 106 nu Psc 4.44 by moon 75% illuminated at phase= 120 degrees
12/17/2018 18:50:20.3 Geocentric minimum 0.5 degrees
Global start/end: 12/17/2018 16:50:04.2   and   12/17/2018 20:50:29.5
Mid-occultation observing point (lat., long.) -26.2 -75.7
At HVO the miss angle is 3116.7 arc-sec at 12/17/2018 19:28:19.5

Occultation of 65 xi^1 Cet 4.37 by moon 80% illuminated at phase= 128 degrees
12/18/2018 10:28:34.6 Geocentric minimum 0.9 degrees
Global start/end: 12/18/2018 09:01:48.3   and   12/18/2018 11:55:16.2
Mid-occultation observing point (lat., long.) -58.6 83.4

Occultation of 73 xi^2 Cet 4.28 by moon 83% illuminated at phase= 131 degrees
12/18/2018 16:36:59.5 Geocentric minimum 0.7 degrees
Global start/end: 12/18/2018 14:50:42.5   and   12/18/2018 18:23:09.8
Mid-occultation observing point (lat., long.) 53.4 -69.2

Occultation of 87 mu Cet 4.27 by moon 85% illuminated at phase= 135 degrees
12/19/2018 00:36:04.2 Geocentric minimum 0.5 degrees
Global start/end: 12/18/2018 22:37:33.6   and   12/19/2018 02:34:28.1
Mid-occultation observing point (lat., long.) 41.1 -173.7

---For observations at HVO:
12/19/2018 01:41:17.2 Start Total 18.99 18.86 (az266) -59.3 ***
12/19/2018 02:07:23.8 OCCULTATION MID-POINT 14.32 14.38 (az271) -55.2 ***
12/19/2018 02:32:34.4 End Total 9.82 10.08 (az275) -51.0 ***

Occultation of 61 delta Tau 3.76 by moon 96% illuminated at phase= 158 degrees
12/20/2018 19:40:02.8 Geocentric minimum 0.0 degrees
Global start/end: 12/20/2018 17:33:00.1   and   12/20/2018 21:47:04.3
Mid-occultation observing point (lat., long.) 15.8 -63.2
At HVO the miss angle is 1386.8 arc-sec at 12/20/2018 19:08:43.3

Occultation of 68v776 Tau 4.29 by moon 97% illuminated at phase= 159 degrees
12/20/2018 20:48:34.0 Geocentric minimum 0.3 degrees
Global start/end: 12/20/2018 18:44:37.6   and   12/20/2018 22:52:26.7
Mid-occultation observing point (lat., long.) 2.2 -76.7
At HVO the miss angle is 1908.5 arc-sec at 12/20/2018 20:39:09.0

Occultation of 54 chi^1 Ori 4.41 by moon 100% illuminated at phase= 178 degrees
12/22/2018 07:39:28.7 Geocentric minimum 0.7 degrees
Global start/end: 12/22/2018 05:54:27.9   and   12/22/2018 09:24:26.8
Mid-occultation observing point (lat., long.) 63.8 130.1

Occultation of 62 chi^2 Ori 4.63 by moon 100% illuminated at phase= 180 degrees
12/22/2018 11:15:59.5 Geocentric minimum 1.0 degrees
Global start/end: 12/22/2018 09:59:56.6   and   12/22/2018 12:32:00.8
Mid-occultation observing point (lat., long.) 68.3 -82.7

Occultation of Propus 3.28 by moon 100% illuminated at phase= 183 degrees
12/22/2018 15:39:09.5 Geocentric minimum 1.2 degrees
Global start/end: 12/22/2018 14:49:55.7   and   12/22/2018 16:28:22.6
Mid-occultation observing point (lat., long.) -68.7 31.7

Occultation of 13 mu Gem 2.88 by moon 100% illuminated at phase= 185 degrees
12/22/2018 18:40:19.2 Geocentric minimum 1.1 degrees
Global start/end: 12/22/2018 17:34:10.4   and   12/22/2018 19:46:27.0
Mid-occultation observing point (lat., long.) -68.8 -13.7
At HVO the miss angle is 5496.5 arc-sec at 12/22/2018 17:51:14.1

Occultation of 18 nu Gem 4.15 by moon 100% illuminated at phase= 186 degrees
12/22/2018 20:46:40.5 Geocentric minimum 1.3 degrees
Global start/end: 12/22/2018 20:28:05.3   and   12/22/2018 21:05:15.7
Mid-occultation observing point (lat., long.) 68.6 134.4

Occultation of 43 zeta Gem 3.79 by moon 99% illuminated at phase= 193 degrees
12/23/2018 10:03:13.9 Geocentric minimum 1.0 degrees
Global start/end: 12/23/2018 08:42:12.8   and   12/23/2018 11:24:14.5
Mid-occultation observing point (lat., long.) 84.0 -73.7

Occultation of Wasat 3.53 by moon 98% illuminated at phase= 197 degrees
12/23/2018 15:58:13.1 Geocentric minimum 0.6 degrees
Global start/end: 12/23/2018 14:06:28.2   and   12/23/2018 17:49:58.1
Mid-occultation observing point (lat., long.) -11.7 31.8

Occultation of Asellus Australis 3.94 by moon 91% illuminated at phase= 215 degrees
12/25/2018 00:21:09.8 Geocentric minimum 1.0 degrees
Global start/end: 12/24/2018 23:06:12.7   and   12/25/2018 01:36:08.1
Mid-occultation observing point (lat., long.) 68.4 79.2
At HVO the miss angle is 1249.3 arc-sec at 12/24/2018 23:20:22.3

Occultation of 3 nu Vir 4.03 by moon 61% illuminated at phase= 258 degrees
12/28/2018 03:49:16.2 Geocentric minimum 0.1 degrees
Global start/end: 12/28/2018 01:41:33.0   and   12/28/2018 05:57:01.5
Mid-occultation observing point (lat., long.) -1.1 -85.3
At HVO the miss angle is 1063.7 arc-sec at 12/28/2018 02:39:46.5

Occultation of 16 Vir 4.96 by moon 53% illuminated at phase= 266 degrees
12/28/2018 19:38:21.0 Geocentric minimum 0.2 degrees
Global start/end: 12/28/2018 17:30:50.2   and   12/28/2018 21:45:54.3
Mid-occultation observing point (lat., long.) -8.9 43.5

Occultation of 38 gamma Lib 3.91 by moon 15% illuminated at phase= 314 degrees
01/01/2019 17:17:59.5 Geocentric minimum 0.2 degrees
Global start/end: 01/01/2019 15:06:21.5   and   01/01/2019 19:29:38.3
Mid-occultation observing point (lat., long.) 0.0 132.5

Occultation of 46 theta Lib 4.15 by moon 13% illuminated at phase= 319 degrees
01/02/2019 02:18:26.8 Geocentric minimum 0.9 degrees
Global start/end: 01/02/2019 00:55:57.6   and   01/02/2019 03:40:57.5
Mid-occultation observing point (lat., long.) 68.8 41.9

Occultation of 7 chi Oph 4.42 by moon 9% illuminated at phase= 326 degrees
01/02/2019 17:44:37.8 Geocentric minimum 0.7 degrees
Global start/end: 01/02/2019 15:58:45.0   and   01/02/2019 19:30:32.6
Mid-occultation observing point (lat., long.) 33.1 145.2

Occultation of BSC6196 4.96 by moon 7% illuminated at phase= 329 degrees
01/02/2019 23:57:11.2 Geocentric minimum 0.7 degrees
Global start/end: 01/02/2019 22:06:24.7   and   01/03/2019 01:47:59.7
Mid-occultation observing point (lat., long.) -63.6 24.8

Occultation of 40 xi Oph 4.39 by moon 4% illuminated at phase= 338 degrees
01/03/2019 18:46:34.7 Geocentric minimum 1.1 degrees
Global start/end: 01/03/2019 17:48:42.0   and   01/03/2019 19:44:28.1
Mid-occultation observing point (lat., long.) 68.7 152.9

Occultation of 58 Oph 4.87 by moon 2% illuminated at phase= 343 degrees
01/04/2019 05:00:24.9 Geocentric minimum 1.0 degrees
Global start/end: 01/04/2019 03:44:47.1   and   01/04/2019 06:16:03.8
Mid-occultation observing point (lat., long.) 68.8 -0.9

Eclipse of the Sun by moon 0% illuminated at phase= 0 degrees
01/05/2019 18:41:27.1 Geocentric minimum 1.0 degrees
Global start/end: 01/05/2019 16:33:53.3   and   01/05/2019 20:49:05.0
Mid-occultation observing point (lat., long.) 68.7 153.4

Occultation of 23 theta Cap 4.07 by moon 5% illuminated at phase= 26 degrees
01/08/2019 04:10:29.5 Geocentric minimum 1.0 degrees
Global start/end: 01/08/2019 03:01:12.7   and   01/08/2019 05:19:46.8
Mid-occultation observing point (lat., long.) -68.5 -172.1

Occultation of 32 iota Cap 4.28 by moon 7% illuminated at phase= 30 degrees
01/08/2019 12:04:01.4 Geocentric minimum 0.6 degrees
Global start/end: 01/08/2019 10:01:47.2   and   01/08/2019 14:06:17.1
Mid-occultation observing point (lat., long.) -53.3 -59.9
At HVO the miss angle is 4054.5 arc-sec at 01/08/2019 11:39:32.8

Occultation of Nashira 3.68 by moon 8% illuminated at phase= 34 degrees
01/08/2019 20:34:51.2 Geocentric minimum 0.3 degrees
Global start/end: 01/08/2019 18:19:46.0   and   01/08/2019 22:49:58.2
Mid-occultation observing point (lat., long.) 1.5 158.6

Occultation of Deneb Algedi 2.87 by moon 9% illuminated at phase= 35 degrees
01/09/2019 00:07:55.0 Geocentric minimum 0.2 degrees
Global start/end: 01/08/2019 21:50:13.0 and 01/09/2019 02:25:38.4
Mid-occultation observing point (lat., long.) -4.4 108.4

Occultation of 33 iota Aqr 4.27 by moon 12% illuminated at phase= 40 degrees
01/09/2019 10:31:31.5 Geocentric minimum 0.7 degrees
Global start/end: 01/09/2019 08:45:40.2 and 01/09/2019 12:17:23.3
Mid-occultation observing point (lat., long.) -65.5 -6.4

Occultation of 91 psi^1 Aqr 4.21 by moon 22% illuminated at phase= 56 degrees
01/10/2019 22:20:44.8 Geocentric minimum 0.1 degrees
Global start/end: 01/10/2019 20:01:22.0 and 01/11/2019 00:40:08.7
Mid-occultation observing point (lat., long.) -12.1 159.7

Occultation of 93 psi^2 Aqr 4.39 by moon 22% illuminated at phase= 56 degrees
01/10/2019 23:13:22.5 Geocentric minimum 0.2 degrees
Global start/end: 01/10/2019 20:56:05.0 and 01/11/2019 01:30:40.2
Mid-occultation observing point (lat., long.) 3.3 141.5

Occultation of 95 psi^3 Aqr 4.98 by moon 22% illuminated at phase= 56 degrees
01/10/2019 23:25:40.4 Geocentric minimum 0.7 degrees
Global start/end: 01/10/2019 21:34:30.6 and 01/11/2019 01:16:49.1
Mid-occultation observing point (lat., long.) 37.7 123.9

Occultation of 30 YY Psc 4.41 by moon 30% illuminated at phase= 67 degrees
01/11/2019 22:01:13.7 Geocentric minimum 1.0 degrees
Global start/end: 01/11/2019 21:01:48.2 and 01/11/2019 23:00:38.3
Mid-occultation observing point (lat., long.) 68.7 96.0

Occultation of 33 BC Psc 4.61 by moon 31% illuminated at phase= 67 degrees
01/11/2019 23:48:23.1 Geocentric minimum 1.1 degrees
Global start/end: 01/11/2019 22:52:44.5 and 01/12/2019 00:44:00.8
Mid-occultation observing point (lat., long.) 68.7 69.2

Occultation of 20 Cet 4.77 by moon 41% illuminated at phase= 79 degrees
01/13/2019 01:02:15.2 Geocentric minimum 1.2 degrees
Global start/end: 01/13/2019 00:42:11.8 and 01/13/2019 01:22:18.4
Mid-occultation observing point (lat., long.) 68.6 49.9

Occultation of 106 nu Psc 4.44 by moon 52% illuminated at phase= 92 degrees
01/14/2019 03:30:50.5 Geocentric minimum 0.6 degrees
Global start/end: 01/14/2019 01:34:09.2 and 01/14/2019 05:27:26.5
Mid-occultation observing point (lat., long.) -32.4 130.4

Occultation of 65 xi^1 Cet 4.37 by moon 58% illuminated at phase= 100 degrees
01/14/2019 19:36:28.4 Geocentric minimum 1.0 degrees
Global start/end: 01/14/2019 18:20:51.9 and 01/14/2019 20:52:01.5
Mid-occultation observing point (lat., long.) -68.6 -49.8

Occultation of 73 xi^2 Cet 4.28 by moon 61% illuminated at phase= 103 degrees
01/15/2019 01:55:47.0 Geocentric minimum 0.6 degrees
Global start/end: 01/15/2019 00:02:56.2 and 01/15/2019 03:48:31.6
Mid-occultation observing point (lat., long.) 48.7 128.6

Occultation of 87 mu Cet 4.27 by moon 65% illuminated at phase= 107 degrees
01/15/2019 10:09:19.2 Geocentric minimum 0.5 degrees
Global start/end: 01/15/2019 08:05:50.6 and 01/15/2019 12:12:41.6
Mid-occultation observing point (lat., long.) 37.1 18.2

Occultation of 5 Tau 4.11 by moon 73% illuminated at phase= 118 degrees
01/16/2019 07:05:22.8 Geocentric minimum 1.2 degrees
Global start/end: 01/16/2019 06:33:20.3 and 01/16/2019 07:37:24.5
Mid-occultation observing point (lat., long.) 68.6 -44.3

Occultation of 61 delta Tau 3.76 by moon 82% illuminated at phase= 130 degrees
01/17/2019 06:23:28.9 Geocentric minimum 0.1 degrees
Global start/end: 01/17/2019 04:14:57.8   and   01/17/2019 08:31:57.5
Mid-occultation observing point (lat., long.) 13.3 109.5

Occultation of 68v776 Tau 4.29 by moon 83% illuminated at phase= 131 degrees
01/17/2019 07:33:31.9 Geocentric minimum 0.3 degrees
Global start/end: 01/17/2019 05:29:07.0   and   01/17/2019 09:37:51.4
Mid-occultation observing point (lat., long.) -0.6 95.6

Occultation of 54 chi^1 Ori 4.41 by moon 93% illuminated at phase= 150 degrees
01/18/2019 18:54:48.5 Geocentric minimum 0.7 degrees
Global start/end: 01/18/2019 17:08:06.8   and   01/18/2019 20:41:25.1
Mid-occultation observing point (lat., long.) 62.3 -65.3

---For observations at HVO:
01/18/2019 17:28:25.9 Start Total 30.35 30.59 (az91) -8.1 ***
01/18/2019 17:57:13.5 OCCULTATION MID-POINT 35.52 35.6 (az96) -13.0 ***
01/18/2019 18:27:12.2 End Total 40.85 40.77 (az101) -18.2 ***

Occultation of 62 chi^2 Ori 4.63 by moon 94% illuminated at phase= 152 degrees
01/18/2019 22:32:32.1 Geocentric minimum 1.0 degrees
Global start/end: 01/18/2019 21:14:06.0   and   01/18/2019 23:50:54.9
Mid-occultation observing point (lat., long.) 75.0 86.2
At HVO the miss angle is 1189.2 arc-sec at 01/18/2019 22:48:40.1

Occultation of Propus 3.28 by moon 95% illuminated at phase= 155 degrees
01/19/2019 02:56:53.4 Geocentric minimum 1.2 degrees
Global start/end: 01/19/2019 02:11:13.4   and   01/19/2019 03:42:32.2
Mid-occultation observing point (lat., long.) -68.7 -164.6

Occultation of 13 mu Gem 2.88 by moon 96% illuminated at phase= 157 degrees
01/19/2019 05:58:21.3 Geocentric minimum 1.1 degrees
Global start/end: 01/19/2019 04:54:09.0   and   01/19/2019 07:02:31.6
Mid-occultation observing point (lat., long.) -68.8 150.0

Occultation of 18 nu Gem 4.15 by moon 96% illuminated at phase= 158 degrees
01/19/2019 08:04:32.3 Geocentric minimum 1.3 degrees
Global start/end: 01/19/2019 07:38:47.9   and   01/19/2019 08:30:16.4
Mid-occultation observing point (lat., long.) 68.6 -62.0

Occultation of 43 zeta Gem 3.79 by moon 98% illuminated at phase= 165 degrees
01/19/2019 21:18:13.7 Geocentric minimum 1.0 degrees
Global start/end: 01/19/2019 19:56:33.7   and   01/19/2019 22:39:51.5
Mid-occultation observing point (lat., long.) 85.7 86.3
At HVO the miss angle is 911.4 arc-sec at 01/19/2019 20:30:18.7

Occultation of Wasat 3.53 by moon 99% illuminated at phase= 169 degrees
01/20/2019 03:10:16.0 Geocentric minimum 0.6 degrees
Global start/end: 01/20/2019 01:18:56.2   and   01/20/2019 05:01:32.9
Mid-occultation observing point (lat., long.) -11.5 -163.2
At HVO the miss angle is 3223.7 arc-sec at 01/20/2019 04:00:27.5

Occultation of Asellus Australis 3.94 by moon 100% illuminated at phase= 187
degrees
01/21/2019 10:57:59.3 Geocentric minimum 1.0 degrees
Global start/end: 01/21/2019 09:44:21.8   and   01/21/2019 12:11:36.9
Mid-occultation observing point (lat., long.) 68.4 -107.0

Occultation of 3 nu Vir 4.03 by moon 82% illuminated at phase= 230 degrees
01/24/2019 11:49:53.2 Geocentric minimum 0.1 degrees
Global start/end: 01/24/2019 09:44:22.8   and   01/24/2019 13:55:26.1
Mid-occultation observing point (lat., long.) 0.7 128.3

Occultation of 16 Vir 4.96 by moon 76% illuminated at phase= 238 degrees
01/25/2019 03:04:53.2 Geocentric minimum 0.2 degrees
Global start/end: 01/25/2019 00:59:07.8   and   01/25/2019 05:10:42.1
Mid-occultation observing point (lat., long.) -7.0 -94.3
At HVO the miss angle is 1468.2 arc-sec at 01/25/2019 01:59:49.0

Occultation of 38 gamma Lib 3.91 by moon 36% illuminated at phase= 286 degrees
01/28/2019 22:53:48.0 Geocentric minimum 0.3 degrees
Global start/end: 01/28/2019 20:42:25.3   and   01/29/2019 01:05:13.3
Mid-occultation observing point (lat., long.) 0.9 21.9

Occultation of 46 theta Lib 4.15 by moon 32% illuminated at phase= 291 degrees
01/29/2019 07:53:15.3 Geocentric minimum 1.0 degrees
Global start/end: 01/29/2019 06:32:10.6   and   01/29/2019 09:14:22.4
Mid-occultation observing point (lat., long.) 68.8 -68.6

Occultation of 7 chi Oph 4.42 by moon 27% illuminated at phase= 298 degrees
01/29/2019 23:20:48.9 Geocentric minimum 0.7 degrees
Global start/end: 01/29/2019 21:35:24.6   and   01/30/2019 01:06:16.1
Mid-occultation observing point (lat., long.) 34.2 34.7

Occultation of BSC6196 4.96 by moon 24% illuminated at phase= 301 degrees
01/30/2019 05:34:48.9 Geocentric minimum 0.7 degrees
Global start/end: 01/30/2019 03:42:39.5   and   01/30/2019 07:27:01.1
Mid-occultation observing point (lat., long.) -62.8 -85.6
At HVO the miss angle is 3636.4 arc-sec at 01/30/2019 03:51:10.5

Occultation of Venus -4.3 by moon 15% illuminated at phase= 315 degrees
01/31/2019 10:35:51.6 Geocentric minimum 0.1 degrees
Global start/end: 01/31/2019 08:04:38.5   and   01/31/2019 13:07:05.1
Mid-occultation observing point (lat., long.) -15.3 -127.9
At HVO the miss angle is 1718.7 arc-sec at 01/31/2019 11:22:19.7

Occultation of 40 xi Oph 4.39 by moon 18% illuminated at phase= 310 degrees
01/31/2019 00:31:08.3 Geocentric minimum 1.1 degrees
Global start/end: 01/30/2019 23:35:09.7   and   01/31/2019 01:27:07.7
Mid-occultation observing point (lat., long.) 68.7 39.9

Occultation of 58 Oph 4.87 by moon 15% illuminated at phase= 315 degrees
01/31/2019 10:49:43.5 Geocentric minimum 1.0 degrees
Global start/end: 01/31/2019 09:35:07.7   and   01/31/2019 12:04:20.4
Mid-occultation observing point (lat., long.) 68.8 -115.1

Occultation of 13 mu Sgr 3.86 by moon 11% illuminated at phase= 321 degrees
02/01/2019 00:38:22.9 Geocentric minimum 0.2 degrees
Global start/end: 01/31/2019 22:23:23.5   and   02/01/2019 02:53:22.4
Mid-occultation observing point (lat., long.) -36.6 26.8

Occultation of Saturn 0.6 by moon 6% illuminated at phase= 332 degrees
02/02/2019 00:03:45.5 Geocentric minimum 0.6 degrees
Global start/end: 02/01/2019 22:05:44.4   and   02/02/2019 02:01:47.5
Mid-occultation observing point (lat., long.) 21.3 47.3

Occultation of 37 xi^2 Sgr 3.51 by moon 7% illuminated at phase= 331 degrees
02/01/2019 21:04:20.4 Geocentric minimum 0.5 degrees
Global start/end: 02/01/2019 18:57:12.6   and   02/01/2019 23:11:28.8
Mid-occultation observing point (lat., long.) -51.6 92.1

Occultation of 39 o Sgr 3.77 by moon 6% illuminated at phase= 332 degrees
02/02/2019 00:17:34.3 Geocentric minimum 0.2 degrees
Global start/end: 02/01/2019 22:01:11.5   and   02/02/2019 02:33:56.8
Mid-occultation observing point (lat., long.) -8.9 44.6

Occultation of 41 pi Sgr 2.89 by moon 5% illuminated at phase= 333 degrees
02/02/2019 02:41:49.5 Geocentric minimum 0.5 degrees
Global start/end: 02/02/2019 00:36:11.6   and   02/02/2019 04:47:28.0
Mid-occultation observing point (lat., long.) -53.7 11.5

Occultation of 91 psi^1 Aqr 4.21 by moon 6% illuminated at phase= 28 degrees
02/07/2019 04:35:23.1 Geocentric minimum 0.0 degrees
Global start/end: 02/07/2019 02:16:19.4   and   02/07/2019 06:54:28.3
Mid-occultation observing point (lat., long.) -10.0 38.4

Occultation of 93 psi^2 Aqr 4.39 by moon 6% illuminated at phase= 29 degrees
02/07/2019 05:27:56.8 Geocentric minimum 0.2 degrees
Global start/end: 02/07/2019 03:11:57.1   and   02/07/2019 07:43:57.0
Mid-occultation observing point (lat., long.) 5.5 20.2

Occultation of 95 psi^3 Aqr 4.98 by moon 6% illuminated at phase= 29 degrees
02/07/2019 05:40:11.1 Geocentric minimum 0.7 degrees
Global start/end: 02/07/2019 03:52:58.3   and   02/07/2019 07:27:23.4
Mid-occultation observing point (lat., long.) 41.3 1.2

Occultation of 30 YY Psc 4.41 by moon 11% illuminated at phase= 39 degrees
02/08/2019 04:16:52.5 Geocentric minimum 1.1 degrees
Global start/end: 02/08/2019 03:31:49.4   and   02/08/2019 05:01:55.3
Mid-occultation observing point (lat., long.) 68.6 -24.8

Occultation of 33 BC Psc 4.61 by moon 12% illuminated at phase= 40 degrees
02/08/2019 06:04:21.2 Geocentric minimum 1.1 degrees
Global start/end: 02/08/2019 05:24:58.5   and   02/08/2019 06:43:43.7
Mid-occultation observing point (lat., long.) 68.6 -51.7

Occultation of 106 nu Psc 4.44 by moon 28% illuminated at phase= 64 degrees
02/10/2019 10:18:26.0 Geocentric minimum 0.5 degrees
Global start/end: 02/10/2019 08:17:13.0   and   02/10/2019 12:19:35.8
Mid-occultation observing point (lat., long.) -28.3 -0.5

Occultation of 65 xi^1 Cet 4.37 by moon 35% illuminated at phase= 72 degrees
02/11/2019 02:44:09.9 Geocentric minimum 0.9 degrees
Global start/end: 02/11/2019 01:19:21.1   and   02/11/2019 04:08:55.9
Mid-occultation observing point (lat., long.) -66.3 164.7

Occultation of 73 xi^2 Cet 4.28 by moon 37% illuminated at phase= 75 degrees
02/11/2019 09:12:42.8 Geocentric minimum 0.7 degrees
Global start/end: 02/11/2019 07:24:28.1   and   02/11/2019 11:00:53.3
Mid-occultation observing point (lat., long.) 54.4 -13.4

Occultation of 87 mu Cet 4.27 by moon 41% illuminated at phase= 79 degrees
02/11/2019 17:39:27.5 Geocentric minimum 0.5 degrees
Global start/end: 02/11/2019 15:38:01.7   and   02/11/2019 19:40:48.5
Mid-occultation observing point (lat., long.) 42.0 -124.1

---For observations at HVO:
02/11/2019 17:38:28.2 Start Total 55.62 55.55 (az192) -4.4 ***
02/11/2019 18:17:46.8 OCCULTATION MID-POINT 53.23 53.29 (az208) -11.5 ***
02/11/2019 18:56:32.7 End Total 49.25 49.49 (az222) -18.4 ***

Occultation of 61 delta Tau 3.76 by moon 61% illuminated at phase= 102 degrees
02/13/2019 15:20:58.2 Geocentric minimum 0.0 degrees
Global start/end: 02/13/2019 13:09:43.9   and   02/13/2019 17:32:12.0
Mid-occultation observing point (lat., long.) 17.2 -52.8
At HVO the miss angle is 1474.8 arc-sec at 02/13/2019 14:39:59.9

Occultation of 68v776 Tau 4.29 by moon 61% illuminated at phase= 103 degrees
02/13/2019 16:33:32.5 Geocentric minimum 0.3 degrees
Global start/end: 02/13/2019 14:25:08.2   and   02/13/2019 18:41:52.6
Mid-occultation observing point (lat., long.) 3.3 -67.2
At HVO the miss angle is 1988.9 arc-sec at 02/13/2019 16:12:17.5

Occultation of 54 chi^1 Ori 4.41 by moon 77% illuminated at phase= 122 degrees
02/15/2019 05:09:40.0 Geocentric minimum 0.7 degrees
Global start/end: 02/15/2019 03:25:30.3   and   02/15/2019 06:53:43.8
Mid-occultation observing point (lat., long.) 67.7 111.5

Occultation of 62 chi^2 Ori 4.63 by moon 78% illuminated at phase= 124 degrees
02/15/2019 08:54:27.2 Geocentric minimum 1.1 degrees
Global start/end: 02/15/2019 07:44:08.1   and   02/15/2019 10:04:43.0
Mid-occultation observing point (lat., long.) 68.4 -101.5

Occultation of Propus 3.28 by moon 80% illuminated at phase= 127 degrees
02/15/2019 13:26:50.7 Geocentric minimum 1.1 degrees
Global start/end: 02/15/2019 12:31:55.4   and   02/15/2019 14:21:44.0
Mid-occultation observing point (lat., long.) -68.7 10.8

Occultation of 13 mu Gem 2.88 by moon 81% illuminated at phase= 129 degrees
02/15/2019 16:33:46.6 Geocentric minimum 1.0 degrees
Global start/end: 02/15/2019 15:22:44.9   and   02/15/2019 17:44:44.9
Mid-occultation observing point (lat., long.) -68.7 -36.0
At HVO the miss angle is 4971.8 arc-sec at 02/15/2019 15:48:02.4

Occultation of 43 zeta Gem 3.79 by moon 87% illuminated at phase= 138 degrees
02/16/2019 08:18:35.9 Geocentric minimum 1.0 degrees
Global start/end: 02/16/2019 07:01:53.0   and   02/16/2019 09:35:15.6
Mid-occultation observing point (lat., long.) 68.3 -93.3

Occultation of Wasat 3.53 by moon 89% illuminated at phase= 141 degrees
02/16/2019 14:18:24.2 Geocentric minimum 0.5 degrees
Global start/end: 02/16/2019 12:24:18.5   and   02/16/2019 16:12:25.0
Mid-occultation observing point (lat., long.) -9.4 2.7

Occultation of Asellus Australis 3.94 by moon 97% illuminated at phase= 160 degrees
02/17/2019 22:31:58.0 Geocentric minimum 1.1 degrees
Global start/end: 02/17/2019 21:19:30.7   and   02/17/2019 23:44:23.9
Mid-occultation observing point (lat., long.) 68.3 52.1
At HVO the miss angle is 1281.3 arc-sec at 02/17/2019 22:19:48.4

Occultation of 3 nu Vir 4.03 by moon 96% illuminated at phase= 202 degrees
02/20/2019 22:22:27.3 Geocentric minimum 0.2 degrees
Global start/end: 02/20/2019 20:19:41.6   and   02/21/2019 00:25:15.2
Mid-occultation observing point (lat., long.) -2.7 -58.2
At HVO the miss angle is 1013.6 arc-sec at 02/20/2019 20:57:42.9

Occultation of 16 Vir 4.96 by moon 93% illuminated at phase= 211 degrees
02/21/2019 13:08:15.2 Geocentric minimum 0.3 degrees
Global start/end: 02/21/2019 11:06:11.6   and   02/21/2019 15:10:22.4
Mid-occultation observing point (lat., long.) -11.2 86.1

Occultation of 38 gamma Lib 3.91 by moon 60% illuminated at phase= 259 degrees
02/25/2019 05:52:40.2 Geocentric minimum 0.1 degrees
Global start/end: 02/25/2019 03:40:30.6   and   02/25/2019 08:04:52.8
Mid-occultation observing point (lat., long.) -6.8 -111.8
At HVO the miss angle is 1445.3 arc-sec at 02/25/2019 05:23:27.9

Occultation of 46 theta Lib 4.15 by moon 56% illuminated at phase= 263 degrees
02/25/2019 14:39:12.8 Geocentric minimum 0.8 degrees
Global start/end: 02/25/2019 13:01:59.6   and   02/25/2019 16:16:31.1
Mid-occultation observing point (lat., long.) 42.4 136.0

Occultation of 7 chi Oph 4.42 by moon 50% illuminated at phase= 271 degrees
02/26/2019 05:48:16.5 Geocentric minimum 0.6 degrees
Global start/end: 02/26/2019 03:53:06.3   and   02/26/2019 07:43:32.1
Mid-occultation observing point (lat., long.) 22.4 -92.3

---For observations at HVO:
02/26/2019 04:37:57.1 Start Total 24.86 24.85 (az160) -21.9 ***
02/26/2019 05:11:02.7 OCCULTATION MID-POINT 26.55 26.41 (az168) -16.0 ***
02/26/2019 05:44:52.7 End Total 27.37 27.14 (az177) -9.9 ***

Occultation of BSC6196 4.96 by moon 47% illuminated at phase= 274 degrees
02/26/2019 11:56:10.7 Geocentric minimum 0.8 degrees
Global start/end: 02/26/2019 10:15:11.9   and   02/26/2019 13:37:14.1
Mid-occultation observing point (lat., long.) -72.9 135.8

Occultation of 40 xi Oph 4.39 by moon 39% illuminated at phase= 283 degrees
02/27/2019 06:38:27.6 Geocentric minimum 0.9 degrees
Global start/end: 02/27/2019 05:17:39.7   and   02/27/2019 07:59:18.1
Mid-occultation observing point (lat., long.) 68.7 -78.9

---For observations at HVO:
02/27/2019 05:40:11.5 Start Total 23.03 23.24 (az163) -10.5 ***
02/27/2019 06:16:15.1 OCCULTATION MID-POINT 24.42 24.55 (az172) -3.8 ***
02/27/2019 06:52:53.4 End Total 24.78 24.87 (az181) 2.8

Occultation of 58 Oph 4.87 by moon 35% illuminated at phase= 287 degrees
02/27/2019 16:52:11.7 Geocentric minimum 0.9 degrees
Global start/end: 02/27/2019 15:19:36.3   and   02/27/2019 18:24:50.1
Mid-occultation observing point (lat., long.) 48.5 119.1

Occultation of 13 mu Sgr 3.86 by moon 30% illuminated at phase= 294 degrees
02/28/2019 06:37:11.1 Geocentric minimum 0.3 degrees
Global start/end: 02/28/2019 04:25:18.5   and   02/28/2019 08:49:05.7
Mid-occultation observing point (lat., long.) -43.5 -90.4
At HVO the miss angle is 3193.1 arc-sec at 02/28/2019 05:38:31.4

Occultation of Saturn 0.6 by moon 20% illuminated at phase= 307 degrees
03/01/2019 11:26:21.3 Geocentric minimum 0.3 degrees
Global start/end: 03/01/2019 09:11:11.1   and   03/01/2019 13:41:31.8
Mid-occultation observing point (lat., long.) -1.7 -147.4

Occultation of 37 xi^2 Sgr 3.51 by moon 23% illuminated at phase= 303 degrees
03/01/2019 03:02:07.4 Geocentric minimum 0.5 degrees
Global start/end: 03/01/2019 00:59:54.1   and   03/01/2019 05:04:22.3
Mid-occultation observing point (lat., long.) -58.6 -23.9

Occultation of 39 o Sgr 3.77 by moon 22% illuminated at phase= 305 degrees
03/01/2019 06:15:28.4 Geocentric minimum 0.1 degrees
Global start/end: 03/01/2019 03:57:07.5   and   03/01/2019 08:33:48.5
Mid-occultation observing point (lat., long.) -14.7 -71.7
At HVO the miss angle is 1446.9 arc-sec at 03/01/2019 05:09:51.1

Occultation of 41 pi Sgr 2.89 by moon 21% illuminated at phase= 306 degrees
03/01/2019 08:40:03.1 Geocentric minimum 0.6 degrees
Global start/end: 03/01/2019 06:39:24.3   and   03/01/2019 10:40:43.2
Mid-occultation observing point (lat., long.) -60.5 -104.1
At HVO the miss angle is 4136.8 arc-sec at 03/01/2019 09:03:43.0

Occultation of 23 theta Cap 4.07 by moon 6% illuminated at phase= 331 degrees
03/03/2019 16:39:29.0 Geocentric minimum 1.0 degrees
Global start/end: 03/03/2019 15:34:16.4   and   03/03/2019 17:44:41.5
Mid-occultation observing point (lat., long.) -68.4 -53.5

Occultation of 32 iota Cap 4.28 by moon 5% illuminated at phase= 334 degrees
03/04/2019 00:33:40.6 Geocentric minimum 0.6 degrees
Global start/end: 03/03/2019 22:31:53.2   and   03/04/2019 02:35:27.1
Mid-occultation observing point (lat., long.) -53.8 59.5

Occultation of Nashira 3.68 by moon 4% illuminated at phase= 338 degrees
03/04/2019 09:04:16.2 Geocentric minimum 0.3 degrees
Global start/end: 03/04/2019 06:49:30.4   and   03/04/2019 11:19:00.9
Mid-occultation observing point (lat., long.) 1.9 -82.6
At HVO the miss angle is 993.2 arc-sec at 03/04/2019 08:54:43.1

Occultation of Deneb Algedi 2.87 by moon 3% illuminated at phase= 340 degrees
03/04/2019 12:37:09.1 Geocentric minimum 0.2 degrees
Global start/end: 03/04/2019 10:19:54.5   and   03/04/2019 14:54:22.3

Mid-occultation observing point (lat., long.) -3.7 -132.8
At HVO the miss angle is 473.2 arc-sec at 03/04/2019 14:03:31.0

Occultation of 33 iota Aqr 4.27 by moon 2% illuminated at phase= 345 degrees
03/04/2019 22:59:43.8 Geocentric minimum 0.7 degrees
Global start/end: 03/04/2019 21:11:31.6 and 03/05/2019 00:47:54.9
Mid-occultation observing point (lat., long.) -63.1 108.9

Occultation of 106 nu Psc 4.44 by moon 10% illuminated at phase= 37 degrees
03/09/2019 15:59:28.8 Geocentric minimum 0.4 degrees
Global start/end: 03/09/2019 13:51:14.2 and 03/09/2019 18:07:41.9
Mid-occultation observing point (lat., long.) -18.6 -117.0
At HVO the miss angle is 1949.0 arc-sec at 03/09/2019 17:22:26.5

Occultation of 65 xi^1 Cet 4.37 by moon 14% illuminated at phase= 45 degrees
03/10/2019 08:26:38.5 Geocentric minimum 0.8 degrees
Global start/end: 03/10/2019 06:43:12.8 and 03/10/2019 10:10:01.9
Mid-occultation observing point (lat., long.) -43.0 16.8

Occultation of 73 xi^2 Cet 4.28 by moon 16% illuminated at phase= 48 degrees
03/10/2019 14:56:39.2 Geocentric minimum 0.9 degrees
Global start/end: 03/10/2019 13:26:20.7 and 03/10/2019 16:26:55.7
Mid-occultation observing point (lat., long.) 69.0 -162.4
At HVO the miss angle is 473.0 arc-sec at 03/10/2019 15:10:39.5

Occultation of 87 mu Cet 4.27 by moon 19% illuminated at phase= 52 degrees
03/10/2019 23:26:52.7 Geocentric minimum 0.7 degrees
Global start/end: 03/10/2019 21:37:16.7 and 03/11/2019 01:16:26.1
Mid-occultation observing point (lat., long.) 54.7 111.5

Occultation of 61 delta Tau 3.76 by moon 37% illuminated at phase= 75 degrees
03/12/2019 21:52:51.4 Geocentric minimum 0.2 degrees
Global start/end: 03/12/2019 19:41:39.7 and 03/13/2019 00:04:01.3
Mid-occultation observing point (lat., long.) 28.7 179.4
At HVO the miss angle is 140.8 arc-sec at 03/12/2019 23:18:02.3

Occultation of 68v776 Tau 4.29 by moon 37% illuminated at phase= 75 degrees
03/12/2019 23:07:10.1 Geocentric minimum 0.1 degrees
Global start/end: 03/12/2019 20:54:37.7 and 03/13/2019 01:19:42.3
Mid-occultation observing point (lat., long.) 14.8 165.0

Occultation of 74 epsilon Tau 3.53 by moon 38% illuminated at phase= 76 degrees
03/13/2019 00:56:09.7 Geocentric minimum 1.1 degrees
Global start/end: 03/13/2019 00:04:25.2 and 03/13/2019 01:47:53.0
Mid-occultation observing point (lat., long.) -68.4 173.2

Occultation of 54 chi^1 Ori 4.41 by moon 54% illuminated at phase= 95 degrees
03/14/2019 12:50:25.6 Geocentric minimum 0.9 degrees
Global start/end: 03/14/2019 11:23:07.7 and 03/14/2019 14:17:39.7
Mid-occultation observing point (lat., long.) 85.1 -127.5

Occultation of 62 chi^2 Ori 4.63 by moon 56% illuminated at phase= 97 degrees
03/14/2019 16:43:14.6 Geocentric minimum 1.2 degrees
Global start/end: 03/14/2019 16:36:27.3 and 03/14/2019 16:50:02.0
Mid-occultation observing point (lat., long.) 0.0 0.0

Occultation of Propus 3.28 by moon 58% illuminated at phase= 99 degrees
03/14/2019 21:25:13.9 Geocentric minimum 1.0 degrees
Global start/end: 03/14/2019 20:02:31.5 and 03/14/2019 22:47:52.7
Mid-occultation observing point (lat., long.) -56.4 -139.1
At HVO the miss angle is 4111.1 arc-sec at 03/14/2019 22:11:19.8

Occultation of 13 mu Gem 2.88 by moon 60% illuminated at phase= 101 degrees
03/15/2019 00:39:02.5 Geocentric minimum 0.9 degrees
Global start/end: 03/14/2019 23:06:21.2 and 03/15/2019 02:11:39.7
Mid-occultation observing point (lat., long.) -40.2 171.5
At HVO the miss angle is 4560.3 arc-sec at 03/15/2019 01:35:57.6

Occultation of 43 zeta Gem 3.79 by moon 67% illuminated at phase= 110 degrees
03/15/2019 16:59:44.5 Geocentric minimum 1.2 degrees
Global start/end: 03/15/2019 16:15:34.6   and   03/15/2019 17:43:53.7
Mid-occultation observing point (lat., long.) 68.3 109.2

Occultation of Wasat 3.53 by moon 70% illuminated at phase= 113 degrees
03/15/2019 23:12:50.6 Geocentric minimum 0.4 degrees
Global start/end: 03/15/2019 21:10:44.2   and   03/16/2019 01:14:52.7
Mid-occultation observing point (lat., long.) 0.5 -157.5
At HVO the miss angle is 2399.1 arc-sec at 03/16/2019 00:04:04.8

Occultation of Asellus Australis 3.94 by moon 84% illuminated at phase= 132 degrees
03/17/2019 08:35:21.4 Geocentric minimum 1.2 degrees
Global start/end: 03/17/2019 07:43:18.1   and   03/17/2019 09:27:23.5
Mid-occultation observing point (lat., long.) 68.2 -126.2

Occultation of 3 nu Vir 4.03 by moon 100% illuminated at phase= 175 degrees
03/20/2019 09:35:42.6 Geocentric minimum 0.2 degrees
Global start/end: 03/20/2019 07:33:39.5   and   03/20/2019 11:37:46.3
Mid-occultation observing point (lat., long.) -4.7 105.6

Occultation of 16 Vir 4.96 by moon 100% illuminated at phase= 183 degrees
03/21/2019 00:16:34.3 Geocentric minimum 0.3 degrees
Global start/end: 03/20/2019 22:16:47.0   and   03/21/2019 02:16:23.4
Mid-occultation observing point (lat., long.) -14.9 -109.6
At HVO the miss angle is 2258.2 arc-sec at 03/20/2019 23:24:45.7

Occultation of 38 gamma Lib 3.91 by moon 81% illuminated at phase= 231 degrees
03/24/2019 14:53:57.1 Geocentric minimum 0.1 degrees
Global start/end: 03/24/2019 12:43:23.1   and   03/24/2019 17:04:33.4
Mid-occultation observing point (lat., long.) -18.9 82.4

Occultation of 46 theta Lib 4.15 by moon 78% illuminated at phase= 236 degrees
03/24/2019 23:24:32.2 Geocentric minimum 0.6 degrees
Global start/end: 03/24/2019 21:30:39.8   and   03/25/2019 01:18:31.5
Mid-occultation observing point (lat., long.) 21.7 -29.7

Occultation of 7 chi Oph 4.42 by moon 73% illuminated at phase= 243 degrees
03/25/2019 14:06:45.6 Geocentric minimum 0.4 degrees
Global start/end: 03/25/2019 12:01:10.4   and   03/25/2019 16:12:27.0
Mid-occultation observing point (lat., long.) 5.8 112.5

Occultation of BSC6196 4.96 by moon 70% illuminated at phase= 246 degrees
03/25/2019 20:04:10.5 Geocentric minimum 1.0 degrees
Global start/end: 03/25/2019 18:53:18.5   and   03/25/2019 21:15:05.7
Mid-occultation observing point (lat., long.) -68.1 -126.8

Occultation of 40 xi Oph 4.39 by moon 63% illuminated at phase= 255 degrees
03/26/2019 14:17:56.4 Geocentric minimum 0.7 degrees
Global start/end: 03/26/2019 12:30:02.5   and   03/26/2019 16:05:55.8
Mid-occultation observing point (lat., long.) 28.7 124.0

Occultation of 58 Oph 4.87 by moon 59% illuminated at phase= 260 degrees
03/27/2019 00:18:01.8 Geocentric minimum 0.6 degrees
Global start/end: 03/26/2019 22:23:05.3   and   03/27/2019 02:13:03.6
Mid-occultation observing point (lat., long.) 21.2 -23.5

Occultation of 13 mu Sgr 3.86 by moon 53% illuminated at phase= 267 degrees
03/27/2019 13:47:19.0 Geocentric minimum 0.6 degrees
Global start/end: 03/27/2019 11:47:54.4   and   03/27/2019 15:46:48.3
Mid-occultation observing point (lat., long.) -59.9 132.8

Occultation of 37 xi^2 Sgr 3.51 by moon 45% illuminated at phase= 276 degrees
03/28/2019 09:54:46.5 Geocentric minimum 0.8 degrees
Global start/end: 03/28/2019 08:11:02.4   and   03/28/2019 11:38:33.8
Mid-occultation observing point (lat., long.) -78.7 -151.6

Occultation of 39 o Sgr 3.77 by moon 44% illuminated at phase= 277 degrees
03/28/2019 13:05:55.2 Geocentric minimum 0.1 degrees
Global start/end: 03/28/2019 10:48:00.9   and   03/28/2019 15:23:50.3
Mid-occultation observing point (lat., long.) -28.5 159.2

Occultation of 41 pi Sgr 2.89 by moon 43% illuminated at phase= 278 degrees
03/28/2019 15:29:04.4 Geocentric minimum 0.8 degrees
Global start/end: 03/28/2019 13:47:35.1   and   03/28/2019 17:10:36.5
Mid-occultation observing point (lat., long.) -81.3 135.2

Occultation of Saturn 0.6 by moon 40% illuminated at phase= 281 degrees
03/28/2019 21:59:19.6 Geocentric minimum 0.1 degrees
Global start/end: 03/28/2019 19:39:44.9   and   03/29/2019 00:18:54.3
Mid-occultation observing point (lat., long.) -25.1 30.3

Occultation of 32 iota Cap 4.28 by moon 20% illuminated at phase= 307 degrees
03/31/2019 07:09:12.2 Geocentric minimum 0.7 degrees
Global start/end: 03/31/2019 05:19:04.0   and   03/31/2019 08:59:19.8
Mid-occultation observing point (lat., long.) -65.8 -54.0
At HVO the miss angle is 4605.4 arc-sec at 03/31/2019 07:09:39.3

Occultation of Nashira 3.68 by moon 17% illuminated at phase= 311 degrees
03/31/2019 15:39:54.4 Geocentric minimum 0.2 degrees
Global start/end: 03/31/2019 13:21:23.5   and   03/31/2019 17:58:23.6
Mid-occultation observing point (lat., long.) -7.0 153.8

Occultation of Deneb Algedi 2.87 by moon 16% illuminated at phase= 313 degrees
03/31/2019 19:13:01.2 Geocentric minimum 0.1 degrees
Global start/end: 03/31/2019 16:53:29.5   and   03/31/2019 21:32:31.4
Mid-occultation observing point (lat., long.) -12.0 103.5

Occultation of 33 iota Aqr 4.27 by moon 13% illuminated at phase= 317 degrees
04/01/2019 05:36:32.6 Geocentric minimum 0.8 degrees
Global start/end: 04/01/2019 04:00:51.1   and   04/01/2019 07:12:12.8
Mid-occultation observing point (lat., long.) -72.6 14.1

Occultation of 91 psi^1 Aqr 4.21 by moon 5% illuminated at phase= 334 degrees
04/02/2019 17:13:39.3 Geocentric minimum 0.0 degrees
Global start/end: 04/02/2019 14:55:04.3   and   04/02/2019 19:32:12.6
Mid-occultation observing point (lat., long.) -10.1 155.1

Occultation of 93 psi^2 Aqr 4.39 by moon 5% illuminated at phase= 334 degrees
04/02/2019 18:05:38.3 Geocentric minimum 0.2 degrees
Global start/end: 04/02/2019 15:50:08.5   and   04/02/2019 20:21:05.8
Mid-occultation observing point (lat., long.) 5.5 136.9

Occultation of 95 psi^3 Aqr 4.98 by moon 5% illuminated at phase= 334 degrees
04/02/2019 18:17:24.6 Geocentric minimum 0.7 degrees
Global start/end: 04/02/2019 16:30:30.9   and   04/02/2019 20:04:16.0
Mid-occultation observing point (lat., long.) 41.1 117.9

Occultation of 65 xi^1 Cet 4.37 by moon 2% illuminated at phase= 18 degrees
04/06/2019 14:17:36.6 Geocentric minimum 0.6 degrees
Global start/end: 04/06/2019 12:23:41.3   and   04/06/2019 16:11:29.4
Mid-occultation observing point (lat., long.) -31.3 -104.6
At HVO the miss angle is 2778.5 arc-sec at 04/06/2019 15:32:25.3

Occultation of 73 xi^2 Cet 4.28 by moon 3% illuminated at phase= 21 degrees
04/06/2019 20:42:42.2 Geocentric minimum 1.0 degrees
Global start/end: 04/06/2019 19:35:03.3   and   04/06/2019 21:50:19.9
Mid-occultation observing point (lat., long.) 68.1 31.2

Occultation of 87 mu Cet 4.27 by moon 5% illuminated at phase= 25 degrees
04/07/2019 05:07:38.0 Geocentric minimum 0.9 degrees
Global start/end: 04/07/2019 03:34:05.1   and   04/07/2019 06:41:08.9
Mid-occultation observing point (lat., long.) 67.5 -26.9

Occultation of 61 delta Tau 3.76 by moon 16% illuminated at phase= 48 degrees
04/09/2019 03:16:34.9 Geocentric minimum 0.4 degrees
Global start/end: 04/09/2019 01:11:58.3   and   04/09/2019 05:21:09.8
Mid-occultation observing point (lat., long.) 42.6 67.0

Occultation of 68v776 Tau 4.29 by moon 17% illuminated at phase= 48 degrees
04/09/2019 04:30:54.7 Geocentric minimum 0.2 degrees
Global start/end: 04/09/2019 02:19:50.0   and   04/09/2019 06:41:59.1
Mid-occultation observing point (lat., long.) 28.2 54.0

Occultation of 74 epsilon Tau 3.53 by moon 17% illuminated at phase= 49 degrees
04/09/2019 06:20:04.3 Geocentric minimum 0.9 degrees
Global start/end: 04/09/2019 04:50:21.6   and   04/09/2019 07:49:45.0
Mid-occultation observing point (lat., long.) -48.7 47.7

Occultation of 54 chi^1 Ori 4.41 by moon 31% illuminated at phase= 68 degrees
04/10/2019 18:28:21.6 Geocentric minimum 1.2 degrees
Global start/end: 04/10/2019 17:48:54.5   and   04/10/2019 19:07:48.2
Mid-occultation observing point (lat., long.) 68.1 61.3

Occultation of Propus 3.28 by moon 35% illuminated at phase= 73 degrees
04/11/2019 03:10:56.1 Geocentric minimum 0.7 degrees
Global start/end: 04/11/2019 01:23:40.0   and   04/11/2019 04:58:09.4
Mid-occultation observing point (lat., long.) -24.0 104.5

Occultation of 13 mu Gem 2.88 by moon 36% illuminated at phase= 74 degrees
04/11/2019 06:28:04.9 Geocentric minimum 0.6 degrees
Global start/end: 04/11/2019 04:34:57.3   and   04/11/2019 08:21:09.7
Mid-occultation observing point (lat., long.) -16.7 56.2

Occultation of Wasat 3.53 by moon 47% illuminated at phase= 86 degrees
04/12/2019 05:31:40.6 Geocentric minimum 0.1 degrees
Global start/end: 04/12/2019 03:23:02.7   and   04/12/2019 07:40:17.6
Mid-occultation observing point (lat., long.) 15.6 81.6

Occultation of 3 nu Vir 4.03 by moon 92% illuminated at phase= 148 degrees
04/16/2019 19:17:23.3 Geocentric minimum 0.1 degrees
Global start/end: 04/16/2019 17:12:46.3   and   04/16/2019 21:21:59.5
Mid-occultation observing point (lat., long.) -0.5 -65.2
At HVO the miss angle is 850.4 arc-sec at 04/16/2019 17:54:45.2

Occultation of 16 Vir 4.96 by moon 96% illuminated at phase= 156 degrees
04/17/2019 10:17:14.7 Geocentric minimum 0.3 degrees
Global start/end: 04/17/2019 08:15:21.3   and   04/17/2019 12:19:07.9
Mid-occultation observing point (lat., long.) -12.7 74.0

Occultation of 38 gamma Lib 3.91 by moon 96% illuminated at phase= 204 degrees
04/21/2019 00:54:39.3 Geocentric minimum 0.2 degrees
Global start/end: 04/20/2019 22:47:38.0   and   04/21/2019 03:01:44.4
Mid-occultation observing point (lat., long.) -28.5 -98.1
At HVO the miss angle is 2421.7 arc-sec at 04/20/2019 23:42:50.5

Occultation of 46 theta Lib 4.15 by moon 94% illuminated at phase= 209 degrees
04/21/2019 09:16:44.5 Geocentric minimum 0.4 degrees
Global start/end: 04/21/2019 07:14:48.8   and   04/21/2019 11:18:45.7
Mid-occultation observing point (lat., long.) 8.8 151.8

Occultation of 7 chi Oph 4.42 by moon 90% illuminated at phase= 216 degrees
04/21/2019 23:41:36.5 Geocentric minimum 0.2 degrees
Global start/end: 04/21/2019 21:31:53.6   and   04/22/2019 01:51:23.3
Mid-occultation observing point (lat., long.) -7.3 -60.9
At HVO the miss angle is 481.6 arc-sec at 04/21/2019 22:14:36.8

Occultation of 40 xi Oph 4.39 by moon 83% illuminated at phase= 228 degrees
04/22/2019 23:21:08.9 Geocentric minimum 0.5 degrees
Global start/end: 04/22/2019 21:18:51.0   and   04/23/2019 01:23:33.0
Mid-occultation observing point (lat., long.) 9.3 -41.6

Occultation of 58 Oph 4.87 by moon 80% illuminated at phase= 233 degrees
04/23/2019 09:07:49.0 Geocentric minimum 0.4 degrees
Global start/end: 04/23/2019 07:00:45.4   and   04/23/2019 11:14:58.3
Mid-occultation observing point (lat., long.) 2.5 175.3

Occultation of 13 mu Sgr 3.86 by moon 75% illuminated at phase= 240 degrees
04/23/2019 22:19:18.6 Geocentric minimum 0.8 degrees
Global start/end: 04/23/2019 20:42:55.0   and   04/23/2019 23:55:46.9
Mid-occultation observing point (lat., long.) -84.0 -48.3

Occultation of Saturn 0.5 by moon 63% illuminated at phase= 255 degrees
04/25/2019 07:29:19.0 Geocentric minimum 0.4 degrees
Global start/end: 04/25/2019 05:18:21.8   and   04/25/2019 09:40:20.2
Mid-occultation observing point (lat., long.) -45.6 -136.5
At HVO the miss angle is 2941.2 arc-sec at 04/25/2019 08:58:39.5

Occultation of 37 xi^2 Sgr 3.51 by moon 68% illuminated at phase= 249 degrees
04/24/2019 18:03:00.6 Geocentric minimum 1.0 degrees
Global start/end: 04/24/2019 16:58:15.0   and   04/24/2019 19:07:48.3
Mid-occultation observing point (lat., long.) -67.9 -125.7

Occultation of 39 o Sgr 3.77 by moon 67% illuminated at phase= 251 degrees
04/24/2019 21:10:48.0 Geocentric minimum 0.4 degrees
Global start/end: 04/24/2019 19:00:43.0   and   04/24/2019 23:20:57.6
Mid-occultation observing point (lat., long.) -45.7 11.7

Occultation of 41 pi Sgr 2.89 by moon 66% illuminated at phase= 252 degrees
04/24/2019 23:31:26.7 Geocentric minimum 1.1 degrees
Global start/end: 04/24/2019 22:32:13.5   and   04/25/2019 00:30:41.5
Mid-occultation observing point (lat., long.) -67.9 152.0

Occultation of 32 iota Cap 4.28 by moon 41% illuminated at phase= 281 degrees
04/27/2019 14:33:03.8 Geocentric minimum 0.9 degrees
Global start/end: 04/27/2019 13:13:55.8   and   04/27/2019 15:52:12.3
Mid-occultation observing point (lat., long.) -67.9 -75.8

Occultation of Nashira 3.68 by moon 38% illuminated at phase= 284 degrees
04/27/2019 23:02:18.4 Geocentric minimum 0.1 degrees
Global start/end: 04/27/2019 20:42:40.1   and   04/28/2019 01:21:56.1
Mid-occultation observing point (lat., long.) -21.5 20.1

Occultation of Deneb Algedi 2.87 by moon 36% illuminated at phase= 286 degrees
04/28/2019 02:35:07.4 Geocentric minimum 0.2 degrees
Global start/end: 04/28/2019 00:16:33.8   and   04/28/2019 04:53:40.2
Mid-occultation observing point (lat., long.) -26.2 -29.8

Occultation of 33 iota Aqr 4.27 by moon 32% illuminated at phase= 291 degrees
04/28/2019 12:58:35.5 Geocentric minimum 1.1 degrees
Global start/end: 04/28/2019 12:02:45.9   and   04/28/2019 13:54:24.9
Mid-occultation observing point (lat., long.) -67.9 -53.3

Occultation of 91 psi^1 Aqr 4.21 by moon 20% illuminated at phase= 307 degrees
04/30/2019 00:38:45.1 Geocentric minimum 0.2 degrees
Global start/end: 04/29/2019 22:21:29.5   and   04/30/2019 02:55:58.2
Mid-occultation observing point (lat., long.) -20.2 20.9

Occultation of 93 psi^2 Aqr 4.39 by moon 20% illuminated at phase= 307 degrees
04/30/2019 01:30:43.5 Geocentric minimum 0.1 degrees
Global start/end: 04/29/2019 23:11:57.6   and   04/30/2019 03:49:27.2
Mid-occultation observing point (lat., long.) -4.7 2.4

Occultation of 95 psi^3 Aqr 4.98 by moon 20% illuminated at phase= 307 degrees
04/30/2019 01:42:19.6 Geocentric minimum 0.6 degrees
Global start/end: 04/29/2019 23:41:09.2   and   04/30/2019 03:43:26.9
Mid-occultation observing point (lat., long.) 26.8 -12.7

Occultation of 30 YY Psc 4.41 by moon 13% illuminated at phase= 318 degrees
05/01/2019 00:07:38.8 Geocentric minimum 1.0 degrees
Global start/end: 04/30/2019 23:05:53.5   and   05/01/2019 01:09:22.8
Mid-occultation observing point (lat., long.) 68.0 -43.5

Occultation of 33 BC Psc 4.61 by moon 13% illuminated at phase= 319 degrees
05/01/2019 01:53:54.8 Geocentric minimum 1.1 degrees
Global start/end: 05/01/2019 00:58:17.8   and   05/01/2019 02:49:30.7
Mid-occultation observing point (lat., long.) 68.0 -70.1

Occultation of 106 nu Psc 4.44 by moon 2% illuminated at phase= 343 degrees
05/03/2019 05:17:46.7 Geocentric minimum 0.3 degrees
Global start/end: 05/03/2019 03:07:47.9   and   05/03/2019 07:27:42.0
Mid-occultation observing point (lat., long.) -13.3 -12.4

Occultation of 61 delta Tau 3.76 by moon 3% illuminated at phase= 21 degrees
05/06/2019 09:27:12.3 Geocentric minimum 0.5 degrees
Global start/end: 05/06/2019 07:30:14.9   and   05/06/2019 11:24:07.2
Mid-occultation observing point (lat., long.) 51.6 -57.0

Occultation of 68v776 Tau 4.29 by moon 4% illuminated at phase= 22 degrees
05/06/2019 10:40:21.1 Geocentric minimum 0.3 degrees
Global start/end: 05/06/2019 08:33:41.9   and   05/06/2019 12:46:58.7
Mid-occultation observing point (lat., long.) 36.6 -67.9
At HVO the miss angle is 113.1 arc-sec at 05/06/2019 10:01:09.5

Occultation of 74 epsilon Tau 3.53 by moon 4% illuminated at phase= 23 degrees
05/06/2019 12:27:59.4 Geocentric minimum 0.7 degrees
Global start/end: 05/06/2019 10:44:18.6   and   05/06/2019 14:11:37.9
Mid-occultation observing point (lat., long.) -30.8 -77.5
At HVO the miss angle is 3354.3 arc-sec at 05/06/2019 12:38:59.4

Occultation of Propus 3.28 by moon 15% illuminated at phase= 46 degrees
05/08/2019 08:39:58.4 Geocentric minimum 0.5 degrees
Global start/end: 05/08/2019 06:41:00.9   and   05/08/2019 10:38:54.7
Mid-occultation observing point (lat., long.) -7.7 -5.5

Occultation of 13 mu Gem 2.88 by moon 16% illuminated at phase= 48 degrees
05/08/2019 11:55:11.7 Geocentric minimum 0.4 degrees
Global start/end: 05/08/2019 09:52:35.0   and   05/08/2019 13:57:47.5
Mid-occultation observing point (lat., long.) -1.5 -53.0
At HVO the miss angle is 2399.3 arc-sec at 05/08/2019 11:05:40.2

Occultation of Wasat 3.53 by moon 25% illuminated at phase= 60 degrees
05/09/2019 10:50:53.2 Geocentric minimum 0.1 degrees
Global start/end: 05/09/2019 08:42:42.1   and   05/09/2019 12:59:04.6
Mid-occultation observing point (lat., long.) 29.5 -24.2
At HVO the miss angle is 836.3 arc-sec at 05/09/2019 09:41:05.5

Occultation of 3 nu Vir 4.03 by moon 76% illuminated at phase= 121 degrees
05/14/2019 02:29:17.8 Geocentric minimum 0.0 degrees
Global start/end: 05/14/2019 00:22:06.5   and   05/14/2019 04:36:28.3
Mid-occultation observing point (lat., long.) 8.8 163.5

Occultation of 16 Vir 4.96 by moon 82% illuminated at phase= 130 degrees
05/14/2019 17:55:41.4 Geocentric minimum 0.2 degrees
Global start/end: 05/14/2019 15:49:20.8   and   05/14/2019 20:02:01.1
Mid-occultation observing point (lat., long.) -5.0 -64.4
At HVO the miss angle is 937.9 arc-sec at 05/14/2019 16:28:00.1

Occultation of 38 gamma Lib 3.91 by moon 100% illuminated at phase= 178 degrees
05/18/2019 10:14:08.4 Geocentric minimum 0.3 degrees
Global start/end: 05/18/2019 08:08:00.0   and   05/18/2019 12:20:19.3
Mid-occultation observing point (lat., long.) -31.3 93.9

Occultation of 46 theta Lib 4.15 by moon 100% illuminated at phase= 182 degrees
05/18/2019 18:38:35.3 Geocentric minimum 0.4 degrees
Global start/end: 05/18/2019 16:34:19.0   and   05/18/2019 20:42:54.5
Mid-occultation observing point (lat., long.) 4.7 -16.6

Occultation of 7 chi Oph 4.42 by moon 99% illuminated at phase= 190 degrees
05/19/2019 09:03:38.9 Geocentric minimum 0.1 degrees
Global start/end: 05/19/2019 06:53:03.4   and   05/19/2019 11:14:15.9
Mid-occultation observing point (lat., long.) -12.9 130.4

Occultation of 40 xi Oph 4.39 by moon 96% illuminated at phase= 202 degrees
05/20/2019 08:35:51.6 Geocentric minimum 0.3 degrees
Global start/end: 05/20/2019 06:28:47.9   and   05/20/2019 10:42:59.8
Mid-occultation observing point (lat., long.) 0.0 151.6

Occultation of 58 Oph 4.87 by moon 95% illuminated at phase= 207 degrees
05/20/2019 18:17:06.3 Geocentric minimum 0.2 degrees
Global start/end: 05/20/2019 16:06:23.2   and   05/20/2019 20:27:53.1
Mid-occultation observing point (lat., long.) -7.3 10.0

Occultation of 13 mu Sgr 3.86 by moon 92% illuminated at phase= 213 degrees
05/21/2019 07:19:24.8 Geocentric minimum 1.0 degrees
Global start/end: 05/21/2019 06:06:57.3   and   05/21/2019 08:31:55.0
Mid-occultation observing point (lat., long.) -67.6 9.2

Occultation of Saturn 0.3 by moon 83% illuminated at phase= 229 degrees
05/22/2019 15:17:02.1 Geocentric minimum 0.5 degrees
Global start/end: 05/22/2019 13:14:37.0   and   05/22/2019 17:19:32.2
Mid-occultation observing point (lat., long.) -56.0 80.5

Occultation of 39 o Sgr 3.77 by moon 86% illuminated at phase= 224 degrees
05/22/2019 05:53:20.4 Geocentric minimum 0.6 degrees
Global start/end: 05/22/2019 03:54:09.1   and   05/22/2019 07:52:37.0
Mid-occultation observing point (lat., long.) -59.7 -145.2

Occultation of Nashira 3.68 by moon 61% illuminated at phase= 258 degrees
05/25/2019 06:59:45.4 Geocentric minimum 0.3 degrees
Global start/end: 05/25/2019 04:45:00.2   and   05/25/2019 09:14:32.1
Mid-occultation observing point (lat., long.) -35.5 -121.5
At HVO the miss angle is 2321.5 arc-sec at 05/25/2019 08:37:08.6

Occultation of Deneb Algedi 2.87 by moon 59% illuminated at phase= 260 degrees
05/25/2019 10:31:42.8 Geocentric minimum 0.4 degrees
Global start/end: 05/25/2019 08:20:05.7   and   05/25/2019 12:43:21.4
Mid-occultation observing point (lat., long.) -40.4 -170.4

Occultation of 91 psi^1 Aqr 4.21 by moon 41% illuminated at phase= 280 degrees
05/27/2019 08:37:12.5 Geocentric minimum 0.4 degrees
Global start/end: 05/27/2019 06:25:43.2   and   05/27/2019 10:48:40.0
Mid-occultation observing point (lat., long.) -32.7 -119.8
At HVO the miss angle is 2208.4 arc-sec at 05/27/2019 10:19:01.3

Occultation of 93 psi^2 Aqr 4.39 by moon 41% illuminated at phase= 281 degrees
05/27/2019 09:29:21.6 Geocentric minimum 0.1 degrees
Global start/end: 05/27/2019 07:10:36.5   and   05/27/2019 11:48:05.6
Mid-occultation observing point (lat., long.) -16.7 -139.6
At HVO the miss angle is 1080.6 arc-sec at 05/27/2019 11:11:43.1

Occultation of 95 psi^3 Aqr 4.98 by moon 41% illuminated at phase= 281 degrees
05/27/2019 09:40:54.4 Geocentric minimum 0.4 degrees
Global start/end: 05/27/2019 07:28:29.4   and   05/27/2019 11:53:17.5
Mid-occultation observing point (lat., long.) 12.9 -153.5

Occultation of 30 YY Psc 4.41 by moon 32% illuminated at phase= 291 degrees
05/28/2019 08:13:42.9 Geocentric minimum 0.9 degrees
Global start/end: 05/28/2019 06:40:17.8   and   05/28/2019 09:47:05.6
Mid-occultation observing point (lat., long.) 57.1 -153.4
At HVO the miss angle is 257.3 arc-sec at 05/28/2019 09:06:30.5

Occultation of 33 BC Psc 4.61 by moon 31% illuminated at phase= 292 degrees
05/28/2019 10:00:39.9 Geocentric minimum 0.9 degrees
Global start/end: 05/28/2019 08:30:50.8   and   05/28/2019 11:30:26.5
Mid-occultation observing point (lat., long.) 61.3 172.0
At HVO the miss angle is 826.7 arc-sec at 05/28/2019 11:25:05.0

Occultation of 20 Cet 4.77 by moon 22% illuminated at phase= 304 degrees
05/29/2019 11:11:49.7 Geocentric minimum 1.1 degrees
Global start/end: 05/29/2019 10:46:58.4   and   05/29/2019 11:36:40.7
Mid-occultation observing point (lat., long.) 67.9 123.0

Occultation of 106 nu Psc 4.44 by moon 14% illuminated at phase= 317 degrees
05/30/2019 13:42:15.3 Geocentric minimum 0.4 degrees
Global start/end: 05/30/2019 11:36:03.0   and   05/30/2019 15:48:22.4
Mid-occultation observing point (lat., long.) -20.2 -162.4

Occultation of 65 xi^1 Cet 4.37 by moon 9% illuminated at phase= 325 degrees
05/31/2019 05:50:26.4 Geocentric minimum 0.7 degrees
Global start/end: 05/31/2019 04:01:56.2   and   05/31/2019 07:38:51.5
Mid-occultation observing point (lat., long.) -36.4 -28.4
At HVO the miss angle is 4406.0 arc-sec at 05/31/2019 05:30:00.7

Occultation of 73 xi^2 Cet 4.28 by moon 8% illuminated at phase= 328 degrees
05/31/2019 12:09:11.9 Geocentric minimum 1.0 degrees
Global start/end: 05/31/2019 10:52:32.0   and   05/31/2019 13:25:48.9
Mid-occultation observing point (lat., long.) 67.8 106.2

Occultation of 87 mu Cet 4.27 by moon 6% illuminated at phase= 332 degrees
05/31/2019 20:26:14.1 Geocentric minimum 0.8 degrees
Global start/end: 05/31/2019 18:51:05.6   and   05/31/2019 22:01:18.1
Mid-occultation observing point (lat., long.) 65.5 55.2

Occultation of Propus 3.28 by moon 3% illuminated at phase= 20 degrees
06/04/2019 15:40:57.8 Geocentric minimum 0.4 degrees
Global start/end: 06/04/2019 13:39:33.4   and   06/04/2019 17:42:21.0
Mid-occultation observing point (lat., long.) -0.9 -137.9
At HVO the miss angle is 1977.1 arc-sec at 06/04/2019 16:29:33.4

Occultation of 13 mu Gem 2.88 by moon 3% illuminated at phase= 21 degrees
06/04/2019 18:51:41.7 Geocentric minimum 0.3 degrees
Global start/end: 06/04/2019 16:47:31.9   and   06/04/2019 20:55:50.3
Mid-occultation observing point (lat., long.) 5.2 175.7
At HVO the miss angle is 2395.5 arc-sec at 06/04/2019 19:55:32.1

Occultation of Wasat 3.53 by moon 8% illuminated at phase= 34 degrees
06/05/2019 17:15:49.3 Geocentric minimum 0.3 degrees
Global start/end: 06/05/2019 15:11:18.9   and   06/05/2019 19:20:19.7
Mid-occultation observing point (lat., long.) 37.2 -146.9

Occultation of 3 nu Vir 4.03 by moon 55% illuminated at phase= 95 degrees
06/10/2019 08:00:00.9 Geocentric minimum 0.2 degrees
Global start/end: 06/10/2019 05:53:42.3   and   06/10/2019 10:06:20.1
Mid-occultation observing point (lat., long.) 17.8 57.6

Occultation of 8 pi Vir 4.66 by moon 57% illuminated at phase= 98 degrees
06/10/2019 13:51:11.8 Geocentric minimum 1.2 degrees
Global start/end: 06/10/2019 13:36:24.7   and   06/10/2019 14:05:58.8
Mid-occultation observing point (lat., long.) -67.8 -108.6

Occultation of 16 Vir 4.96 by moon 62% illuminated at phase= 104 degrees
06/10/2019 23:38:51.3 Geocentric minimum 0.0 degrees
Global start/end: 06/10/2019 21:30:26.2   and   06/11/2019 01:47:15.8
Mid-occultation observing point (lat., long.) 3.4 -173.6
At HVO the miss angle is 2220.2 arc-sec at 06/11/2019 00:15:44.8

Occultation of 38 gamma Lib 3.91 by moon 94% illuminated at phase= 152 degrees
06/14/2019 17:47:38.0 Geocentric minimum 0.2 degrees
Global start/end: 06/14/2019 15:39:12.7   and   06/14/2019 19:56:04.2
Mid-occultation observing point (lat., long.) -28.8 -45.5

Occultation of 46 theta Lib 4.15 by moon 96% illuminated at phase= 156 degrees
06/15/2019 02:21:20.1 Geocentric minimum 0.4 degrees
Global start/end: 06/15/2019 00:17:12.6   and   06/15/2019 04:25:29.4
Mid-occultation observing point (lat., long.) 6.9 -158.6

Occultation of 7 chi Oph 4.42 by moon 98% illuminated at phase= 164 degrees
06/15/2019 16:59:44.0 Geocentric minimum 0.1 degrees
Global start/end: 06/15/2019 14:48:22.0   and   06/15/2019 19:11:06.8
Mid-occultation observing point (lat., long.) -12.1 -15.3

Occultation of 40 xi Oph 4.39 by moon 100% illuminated at phase= 176 degrees
06/16/2019 16:47:18.1 Geocentric minimum 0.3 degrees
Global start/end: 06/16/2019 14:39:15.4   and   06/16/2019 18:55:23.8
Mid-occultation observing point (lat., long.) -1.2 1.7

Occultation of 58 Oph 4.87 by moon 100% illuminated at phase= 181 degrees
06/17/2019 02:32:19.2 Geocentric minimum 0.2 degrees
Global start/end: 06/17/2019 00:20:44.3   and   06/17/2019 04:43:56.2
Mid-occultation observing point (lat., long.) -9.3 -140.9
At HVO the miss angle is 1268.1 arc-sec at 06/17/2019 03:29:44.1

Occultation of 13 mu Sgr 3.86 by moon 100% illuminated at phase= 187 degrees
06/17/2019 15:37:15.1 Geocentric minimum 1.0 degrees
Global start/end: 06/17/2019 14:34:36.4   and   06/17/2019 16:39:55.3
Mid-occultation observing point (lat., long.) -67.6 -141.9

Occultation of 39 o Sgr 3.77 by moon 98% illuminated at phase= 198 degrees
06/18/2019 14:11:05.4 Geocentric minimum 0.6 degrees
Global start/end: 06/18/2019 12:17:14.7   and   06/18/2019 16:05:00.0
Mid-occultation observing point (lat., long.) -65.6 63.8

Occultation of Saturn 0.2 by moon 97% illuminated at phase= 201 degrees
06/18/2019 20:48:43.5 Geocentric minimum 0.4 degrees
Global start/end: 06/18/2019 18:43:10.2   and   06/18/2019 22:54:20.8
Mid-occultation observing point (lat., long.) -50.6 -32.1

Occultation of Nashira 3.68 by moon 81% illuminated at phase= 232 degrees
06/21/2019 14:56:00.8 Geocentric minimum 0.4 degrees
Global start/end: 06/21/2019 12:46:36.3   and   06/21/2019 17:05:28.0
Mid-occultation observing point (lat., long.) -43.4 95.9

Occultation of Deneb Algedi 2.87 by moon 80% illuminated at phase= 233 degrees
06/21/2019 18:27:08.0 Geocentric minimum 0.5 degrees
Global start/end: 06/21/2019 16:22:11.0   and   06/21/2019 20:32:07.8
Mid-occultation observing point (lat., long.) -48.7 48.2

Occultation of 91 psi^1 Aqr 4.21 by moon 64% illuminated at phase= 254 degrees
06/23/2019 16:32:26.1 Geocentric minimum 0.5 degrees
Global start/end: 06/23/2019 14:27:19.3   and   06/23/2019 18:37:32.5
Mid-occultation observing point (lat., long.) -41.2 99.5

Occultation of 30 YY Psc 4.41 by moon 54% illuminated at phase= 265 degrees
06/24/2019 16:17:57.0 Geocentric minimum 0.7 degrees
Global start/end: 06/24/2019 14:30:20.6   and   06/24/2019 18:05:31.7
Mid-occultation observing point (lat., long.) 43.8 73.9

Occultation of 93 psi^2 Aqr 4.39 by moon 63% illuminated at phase= 255 degrees
06/23/2019 17:24:48.1 Geocentric minimum 0.3 degrees
Global start/end: 06/23/2019 15:08:22.3   and   06/23/2019 19:41:14.4
Mid-occultation observing point (lat., long.) -24.4 77.8

Occultation of 95 psi^3 Aqr 4.98 by moon 63% illuminated at phase= 255 degrees
06/23/2019 17:36:22.6 Geocentric minimum 0.2 degrees
Global start/end: 06/23/2019 15:19:33.6   and   06/23/2019 19:53:12.2
Mid-occultation observing point (lat., long.) 4.9 63.7

Occultation of 33 BC Psc 4.61 by moon 54% illuminated at phase= 266 degrees
06/24/2019 18:05:49.9 Geocentric minimum 0.8 degrees
Global start/end: 06/24/2019 16:21:00.2   and   06/24/2019 19:50:38.0
Mid-occultation observing point (lat., long.) 46.6 45.3

Occultation of 20 Cet 4.77 by moon 43% illuminated at phase= 278 degrees
06/25/2019 19:33:18.9 Geocentric minimum 1.0 degrees
Global start/end: 06/25/2019 18:30:33.4   and   06/25/2019 20:36:03.0
Mid-occultation observing point (lat., long.) 67.8 -29.3

Occultation of 106 nu Psc 4.44 by moon 33% illuminated at phase= 290 degrees
06/26/2019 22:25:11.3 Geocentric minimum 0.5 degrees
Global start/end: 06/26/2019 20:23:03.2   and   06/27/2019 00:27:14.2
Mid-occultation observing point (lat., long.) -26.9 43.1

Occultation of 65 xi^1 Cet 4.37 by moon 26% illuminated at phase= 298 degrees
06/27/2019 14:46:26.4 Geocentric minimum 0.8 degrees
Global start/end: 06/27/2019 13:05:18.7   and   06/27/2019 16:27:29.1
Mid-occultation observing point (lat., long.) -44.7 176.4

Occultation of 73 xi^2 Cet 4.28 by moon 24% illuminated at phase= 301 degrees
06/27/2019 21:09:41.9 Geocentric minimum 0.9 degrees
Global start/end: 06/27/2019 19:40:56.8   and   06/27/2019 22:38:22.7
Mid-occultation observing point (lat., long.) 69.0 -8.7

Occultation of 87 mu Cet 4.27 by moon 21% illuminated at phase= 306 degrees
06/28/2019 05:32:34.8 Geocentric minimum 0.8 degrees
Global start/end: 06/28/2019 03:49:14.8   and   06/28/2019 07:15:49.1
Mid-occultation observing point (lat., long.) 59.3 -95.0

Occultation of 61 delta Tau 3.76 by moon 7% illuminated at phase= 329 degrees
06/30/2019 02:47:12.1 Geocentric minimum 0.5 degrees
Global start/end: 06/30/2019 00:49:49.1   and   06/30/2019 04:44:29.3
Mid-occultation observing point (lat., long.) 50.1 -10.3

Occultation of 68v776 Tau 4.29 by moon 7% illuminated at phase= 329 degrees
06/30/2019 03:59:17.4 Geocentric minimum 0.3 degrees
Global start/end: 06/30/2019 01:53:01.7   and   06/30/2019 06:05:28.5
Mid-occultation observing point (lat., long.) 35.6 -21.3
At HVO the miss angle is 901.3 arc-sec at 06/30/2019 03:08:53.1

Occultation of 74 epsilon Tau 3.53 by moon 7% illuminated at phase= 330 degrees
06/30/2019 05:45:40.9 Geocentric minimum 0.8 degrees
Global start/end: 06/30/2019 04:02:53.2   and   06/30/2019 07:28:23.1
Mid-occultation observing point (lat., long.) -30.9 -30.5
At HVO the miss angle is 4303.8 arc-sec at 06/30/2019 05:10:30.6

Eclipse of the Sun by moon 0% illuminated at phase= 0 degrees
07/02/2019 12:22:58.3 Geocentric minimum 0.6 degrees
Global start/end: 07/02/2019 09:55:09.0   and   07/02/2019 14:50:39.6
Mid-occultation observing point (lat., long.) -17.4 -109.0
At HVO the miss angle is 1709.3 arc-sec at 07/02/2019 12:33:22.2

Occultation of Mars 1.8 by moon 3% illuminated at phase= 19 degrees
07/03/2019 22:40:20.1 Geocentric minimum 0.1 degrees
Global start/end: 07/03/2019 20:29:52.7   and   07/04/2019 00:50:47.7
Mid-occultation observing point (lat., long.) 26.1 117.6

Occultation of 3 nu Vir 4.03 by moon 32% illuminated at phase= 69 degrees
07/07/2019 13:45:46.7 Geocentric minimum 0.3 degrees
Global start/end: 07/07/2019 11:41:49.9   and   07/07/2019 15:49:45.8
Mid-occultation observing point (lat., long.) 21.5 -54.0

Occultation of 8 pi Vir 4.66 by moon 35% illuminated at phase= 72 degrees
07/07/2019 19:31:37.8 Geocentric minimum 1.2 degrees
Global start/end: 07/07/2019 18:45:33.6   and   07/07/2019 20:17:42.8
Mid-occultation observing point (lat., long.) -67.7 139.4
At HVO the miss angle is 6043.8 arc-sec at 07/07/2019 19:22:58.1

Occultation of 16 Vir 4.96 by moon 39% illuminated at phase= 78 degrees
07/08/2019 05:12:02.4 Geocentric minimum 0.1 degrees
Global start/end: 07/08/2019 03:04:28.8   and   07/08/2019 07:19:37.1
Mid-occultation observing point (lat., long.) 7.0 77.7

Occultation of 38 gamma Lib 3.91 by moon 79% illuminated at phase= 126 degrees
07/11/2019 23:42:17.7 Geocentric minimum 0.2 degrees
Global start/end: 07/11/2019 21:31:55.9   and   07/12/2019 01:52:40.2
Mid-occultation observing point (lat., long.) -26.6 -160.2
At HVO the miss angle is 2893.2 arc-sec at 07/12/2019 00:29:50.5

Occultation of 46 theta Lib 4.15 by moon 82% illuminated at phase= 130 degrees
07/12/2019 08:23:47.0 Geocentric minimum 0.4 degrees
Global start/end: 07/12/2019 06:19:58.7   and   07/12/2019 10:27:37.3
Mid-occultation observing point (lat., long.) 9.4 84.6

Occultation of 7 chi Oph 4.42 by moon 87% illuminated at phase= 138 degrees
07/12/2019 23:15:58.7 Geocentric minimum 0.1 degrees
Global start/end: 07/12/2019 21:03:41.7   and   07/13/2019 01:28:15.7
Mid-occultation observing point (lat., long.) -10.3 -135.9
At HVO the miss angle is 1685.5 arc-sec at 07/12/2019 23:47:48.9

Occultation of 40 xi Oph 4.39 by moon 93% illuminated at phase= 150 degrees
07/13/2019 23:25:33.4 Geocentric minimum 0.3 degrees
Global start/end: 07/13/2019 21:17:08.4   and   07/14/2019 01:33:59.9
Mid-occultation observing point (lat., long.) 0.2 -124.6
At HVO the miss angle is 924.3 arc-sec at 07/13/2019 23:52:33.8

Occultation of 58 Oph 4.87 by moon 95% illuminated at phase= 154 degrees
07/14/2019 09:18:46.0 Geocentric minimum 0.2 degrees
Global start/end: 07/14/2019 07:06:32.5   and   07/14/2019 11:31:00.5
Mid-occultation observing point (lat., long.) -8.2 90.7

Occultation of 13 mu Sgr 3.86 by moon 97% illuminated at phase= 161 degrees
07/14/2019 22:33:27.2 Geocentric minimum 1.0 degrees
Global start/end: 07/14/2019 21:29:15.4   and   07/14/2019 23:37:40.2
Mid-occultation observing point (lat., long.) -67.6 87.2
At HVO the miss angle is 5865.2 arc-sec at 07/14/2019 22:04:03.7

Occultation of Saturn 0.1 by moon 100% illuminated at phase= 173 degrees
07/16/2019 00:15:37.5 Geocentric minimum 0.2 degrees
Global start/end: 07/15/2019 22:02:30.6   and   07/16/2019 02:28:45.9
Mid-occultation observing point (lat., long.) -36.2 -114.1
At HVO the miss angle is 2843.3 arc-sec at 07/16/2019 00:57:15.7

Occultation of 39 o Sgr 3.77 by moon 99% illuminated at phase= 172 degrees
07/15/2019 21:20:23.8 Geocentric minimum 0.6 degrees
Global start/end: 07/15/2019 19:26:02.6   and   07/15/2019 23:14:47.6
Mid-occultation observing point (lat., long.) -65.5 -70.5
At HVO the miss angle is 4162.7 arc-sec at 07/15/2019 20:03:22.6

Occultation of Nashira 3.68 by moon 95% illuminated at phase= 206 degrees
07/18/2019 22:15:11.6 Geocentric minimum 0.4 degrees
Global start/end: 07/18/2019 20:06:30.1   and   07/19/2019 00:23:55.5
Mid-occultation observing point (lat., long.) -43.9 -40.6

Occultation of Deneb Algedi 2.87 by moon 94% illuminated at phase= 207 degrees
07/19/2019 01:46:02.7 Geocentric minimum 0.5 degrees
Global start/end: 07/18/2019 23:41:54.5   and   07/19/2019 03:50:13.3
Mid-occultation observing point (lat., long.) -49.3 -88.1
At HVO the miss angle is 3579.8 arc-sec at 07/19/2019 02:54:51.0

Occultation of 91 psi^1 Aqr 4.21 by moon 83% illuminated at phase= 228 degrees
07/20/2019 23:50:30.4 Geocentric minimum 0.5 degrees
Global start/end: 07/20/2019 21:45:55.4   and   07/21/2019 01:55:06.5
Mid-occultation observing point (lat., long.) -41.6 -36.6
At HVO the miss angle is 3955.2 arc-sec at 07/20/2019 23:17:21.2

Occultation of 93 psi^2 Aqr 4.39 by moon 83% illuminated at phase= 229 degrees
07/21/2019 00:42:58.8 Geocentric minimum 0.3 degrees
Global start/end: 07/20/2019 22:26:49.9   and   07/21/2019 02:59:08.9
Mid-occultation observing point (lat., long.) -24.8 -58.5
At HVO the miss angle is 2949.2 arc-sec at 07/21/2019 00:33:29.2

Occultation of 95 psi^3 Aqr 4.98 by moon 83% illuminated at phase= 229 degrees
07/21/2019 00:54:34.0 Geocentric minimum 0.2 degrees
Global start/end: 07/20/2019 22:37:45.8   and   07/21/2019 03:11:23.5
Mid-occultation observing point (lat., long.) 4.6 -72.7
At HVO the miss angle is 1156.1 arc-sec at 07/21/2019 00:43:51.8

Occultation of 30 YY Psc 4.41 by moon 76% illuminated at phase= 239 degrees
07/21/2019 23:41:32.7 Geocentric minimum 0.7 degrees
Global start/end: 07/21/2019 21:53:50.2   and   07/22/2019 01:29:14.9
Mid-occultation observing point (lat., long.) 43.8 -64.0

---For observations at HVO:
07/21/2019 22:29:46.4 Start Total 1.96 1.97 (az100) -22.4 ***
07/21/2019 22:59:53.4 OCCULTATION MID-POINT 7.07 6.98 (az105) -24.2 ***
07/21/2019 23:31:24.1 End Total 12.41 12.24 (az111) -25.3 ***

Occultation of 33 BC Psc 4.61 by moon 75% illuminated at phase= 240 degrees
07/22/2019 01:30:06.1 Geocentric minimum 0.8 degrees
Global start/end: 07/21/2019 23:45:12.0   and   07/22/2019 03:14:59.7
Mid-occultation observing point (lat., long.) 46.7 -92.9

---For observations at HVO:
07/22/2019 00:33:01.6 Start Total 21.97 21.99 (az123) -25.2 ***
07/22/2019 01:11:29.2 OCCULTATION MID-POINT 27.51 27.48 (az131) -23.6 ***
07/22/2019 01:51:40.0 End Total 32.52 32.5 (az141) -20.7 ***

Occultation of 20 Cet 4.77 by moon 66% illuminated at phase= 252 degrees
07/23/2019 03:11:33.7 Geocentric minimum 1.0 degrees
Global start/end: 07/23/2019 02:10:21.4   and   07/23/2019 04:12:45.0
Mid-occultation observing point (lat., long.) 67.8 -170.8
At HVO the miss angle is 356.3 arc-sec at 07/23/2019 03:03:13.6

Occultation of 106 nu Psc 4.44 by moon 55% illuminated at phase= 264 degrees
07/24/2019 06:27:15.2 Geocentric minimum 0.5 degrees
Global start/end: 07/24/2019 04:23:55.8   and   07/24/2019 08:30:30.9
Mid-occultation observing point (lat., long.) -26.8 -104.4
At HVO the miss angle is 2466.4 arc-sec at 07/24/2019 07:47:23.1

Occultation of 65 xi^1 Cet 4.37 by moon 48% illuminated at phase= 272 degrees
07/24/2019 23:06:50.6 Geocentric minimum 0.8 degrees
Global start/end: 07/24/2019 21:24:31.5   and   07/25/2019 00:49:05.5
Mid-occultation observing point (lat., long.) -44.6 24.3

Occultation of 73 xi^2 Cet 4.28 by moon 46% illuminated at phase= 275 degrees
07/25/2019 05:37:48.8 Geocentric minimum 0.9 degrees
Global start/end: 07/25/2019 04:10:14.4   and   07/25/2019 07:05:19.6
Mid-occultation observing point (lat., long.) 69.9 -174.5
At HVO the miss angle is 464.3 arc-sec at 07/25/2019 05:42:54.8

Occultation of 87 mu Cet 4.27 by moon 42% illuminated at phase= 280 degrees
07/25/2019 14:11:14.1 Geocentric minimum 0.8 degrees
Global start/end: 07/25/2019 12:28:12.6 and 07/25/2019 15:54:10.5
Mid-occultation observing point (lat., long.) 60.6 106.0

Occultation of 61 delta Tau 3.76 by moon 23% illuminated at phase= 303 degrees
07/27/2019 12:22:24.2 Geocentric minimum 0.5 degrees
Global start/end: 07/27/2019 10:24:29.2 and 07/27/2019 14:20:12.5
Mid-occultation observing point (lat., long.) 51.1 178.3

Occultation of 68v776 Tau 4.29 by moon 23% illuminated at phase= 303 degrees
07/27/2019 13:35:48.8 Geocentric minimum 0.3 degrees
Global start/end: 07/27/2019 11:28:30.1 and 07/27/2019 15:43:02.1
Mid-occultation observing point (lat., long.) 36.4 167.3

Occultation of 74 epsilon Tau 3.53 by moon 22% illuminated at phase= 304 degrees
07/27/2019 15:24:08.0 Geocentric minimum 0.7 degrees
Global start/end: 07/27/2019 13:39:40.8 and 07/27/2019 17:08:29.0
Mid-occultation observing point (lat., long.) -30.4 157.7

Occultation of Propus 3.28 by moon 8% illuminated at phase= 327 degrees
07/29/2019 10:51:46.7 Geocentric minimum 0.4 degrees
Global start/end: 07/29/2019 08:50:21.5 and 07/29/2019 12:53:07.0
Mid-occultation observing point (lat., long.) -0.1 -119.7
At HVO the miss angle is 1746.7 arc-sec at 07/29/2019 11:21:10.2

Occultation of 13 mu Gem 2.88 by moon 7% illuminated at phase= 329 degrees
07/29/2019 14:00:12.8 Geocentric minimum 0.3 degrees
Global start/end: 07/29/2019 11:56:17.9 and 07/29/2019 16:04:03.5
Mid-occultation observing point (lat., long.) 6.1 -165.4
At HVO the miss angle is 2039.1 arc-sec at 07/29/2019 15:03:20.5

Occultation of Wasat 3.53 by moon 3% illuminated at phase= 341 degrees
07/30/2019 11:56:32.5 Geocentric minimum 0.3 degrees
Global start/end: 07/30/2019 09:54:13.6 and 07/30/2019 13:58:48.0
Mid-occultation observing point (lat., long.) 38.6 -121.0

Occultation of 3 nu Vir 4.03 by moon 13% illuminated at phase= 43 degrees
08/03/2019 21:26:11.9 Geocentric minimum 0.2 degrees
Global start/end: 08/03/2019 19:23:26.9 and 08/03/2019 23:28:59.5
Mid-occultation observing point (lat., long.) 19.0 162.8

Occultation of 8 pi Vir 4.66 by moon 15% illuminated at phase= 46 degrees
08/04/2019 03:01:03.5 Geocentric minimum 1.2 degrees
Global start/end: 08/04/2019 02:22:57.0 and 08/04/2019 03:39:10.5
Mid-occultation observing point (lat., long.) -67.7 0.1

Occultation of 16 Vir 4.96 by moon 19% illuminated at phase= 51 degrees
08/04/2019 12:23:40.9 Geocentric minimum 0.0 degrees
Global start/end: 08/04/2019 10:17:59.6 and 08/04/2019 14:29:23.4
Mid-occultation observing point (lat., long.) 4.5 -58.2
At HVO the miss angle is 295.7 arc-sec at 08/04/2019 10:56:54.0

Occultation of 38 gamma Lib 3.91 by moon 59% illuminated at phase= 100 degrees
08/08/2019 05:12:52.8 Geocentric minimum 0.3 degrees
Global start/end: 08/08/2019 03:03:47.7 and 08/08/2019 07:22:00.8
Mid-occultation observing point (lat., long.) -30.0 89.1

Occultation of 46 theta Lib 4.15 by moon 62% illuminated at phase= 104 degrees
08/08/2019 13:52:49.6 Geocentric minimum 0.4 degrees
Global start/end: 08/08/2019 11:46:38.9 and 08/08/2019 15:59:03.5
Mid-occultation observing point (lat., long.) 5.6 -25.5

Occultation of 7 chi Oph 4.42 by moon 69% illuminated at phase= 112 degrees
08/09/2019 04:45:25.5 Geocentric minimum 0.1 degrees
Global start/end: 08/09/2019 02:32:08.7 and 08/09/2019 06:58:42.5
Mid-occultation observing point (lat., long.) -13.5 114.2

Occultation of 40 xi Oph 4.39 by moon 78% illuminated at phase= 124 degrees
08/10/2019 05:02:12.5 Geocentric minimum 0.3 degrees
Global start/end: 08/10/2019 02:51:35.4 and 08/10/2019 07:12:51.3
Mid-occultation observing point (lat., long.) -2.7 124.0

Occultation of 58 Oph 4.87 by moon 81% illuminated at phase= 128 degrees
08/10/2019 15:00:05.3 Geocentric minimum 0.2 degrees
Global start/end: 08/10/2019 12:46:12.5 and 08/10/2019 17:13:58.9
Mid-occultation observing point (lat., long.) -10.8 -21.7

Occultation of 13 mu Sgr 3.86 by moon 85% illuminated at phase= 135 degrees
08/11/2019 04:22:04.3 Geocentric minimum 1.1 degrees
Global start/end: 08/11/2019 03:26:31.4 and 08/11/2019 05:17:38.0
Mid-occultation observing point (lat., long.) -67.6 -26.9

Occultation of Saturn 0.2 by moon 91% illuminated at phase= 146 degrees
08/12/2019 02:52:45.9 Geocentric minimum 0.0 degrees
Global start/end: 08/12/2019 00:36:20.1 and 08/12/2019 05:09:10.8
Mid-occultation observing point (lat., long.) -24.9 177.5

Occultation of 39 o Sgr 3.77 by moon 91% illuminated at phase= 146 degrees
08/12/2019 03:22:15.3 Geocentric minimum 0.7 degrees
Global start/end: 08/12/2019 01:29:08.1 and 08/12/2019 05:15:24.5
Mid-occultation observing point (lat., long.) -67.7 172.6

Occultation of Nashira 3.68 by moon 100% illuminated at phase= 180 degrees
08/15/2019 04:44:51.6 Geocentric minimum 0.4 degrees
Global start/end: 08/15/2019 02:34:47.9 and 08/15/2019 06:54:56.5
Mid-occultation observing point (lat., long.) -42.0 -165.8

Occultation of Deneb Algedi 2.87 by moon 100% illuminated at phase= 181 degrees
08/15/2019 08:16:09.5 Geocentric minimum 0.5 degrees
Global start/end: 08/15/2019 06:10:12.1 and 08/15/2019 10:22:08.2
Mid-occultation observing point (lat., long.) -47.0 146.2

Occultation of 91 psi^1 Aqr 4.21 by moon 96% illuminated at phase= 202 degrees
08/17/2019 06:21:18.2 Geocentric minimum 0.5 degrees
Global start/end: 08/17/2019 04:13:07.8 and 08/17/2019 08:29:29.5
Mid-occultation observing point (lat., long.) -37.0 -164.1

Occultation of 93 psi^2 Aqr 4.39 by moon 96% illuminated at phase= 203 degrees
08/17/2019 07:13:42.3 Geocentric minimum 0.2 degrees
Global start/end: 08/17/2019 04:56:12.1 and 08/17/2019 09:31:13.6
Mid-occultation observing point (lat., long.) -20.5 175.1

Occultation of 95 psi^3 Aqr 4.98 by moon 96% illuminated at phase= 203 degrees
08/17/2019 07:25:11.7 Geocentric minimum 0.3 degrees
Global start/end: 08/17/2019 05:10:48.2 and 08/17/2019 09:39:36.2
Mid-occultation observing point (lat., long.) 9.1 161.1

Occultation of 30 YY Psc 4.41 by moon 92% illuminated at phase= 213 degrees
08/18/2019 06:12:18.6 Geocentric minimum 0.8 degrees
Global start/end: 08/18/2019 04:34:48.3 and 08/18/2019 07:49:48.8
Mid-occultation observing point (lat., long.) 53.3 161.6

Occultation of 33 BC Psc 4.61 by moon 91% illuminated at phase= 214 degrees
08/18/2019 08:00:59.1 Geocentric minimum 0.8 degrees
Global start/end: 08/18/2019 06:27:08.2 and 08/18/2019 09:34:50.0
Mid-occultation observing point (lat., long.) 57.2 129.3

Occultation of 20 Cet 4.77 by moon 85% illuminated at phase= 226 degrees
08/19/2019 09:47:01.9 Geocentric minimum 1.1 degrees
Global start/end: 08/19/2019 09:31:51.7   and   08/19/2019 10:02:12.1
Mid-occultation observing point (lat., long.) 67.7 63.5

Occultation of 106 nu Psc 4.44 by moon 76% illuminated at phase= 238 degrees
08/20/2019 13:16:06.1 Geocentric minimum 0.4 degrees
Global start/end: 08/20/2019 11:06:12.6   and   08/20/2019 15:25:58.1
Mid-occultation observing point (lat., long.) -18.9 122.8

Occultation of 65 xi^1 Cet 4.37 by moon 70% illuminated at phase= 246 degrees
08/21/2019 06:09:04.0 Geocentric minimum 0.7 degrees
Global start/end: 08/21/2019 04:14:59.0   and   08/21/2019 08:03:06.2
Mid-occultation observing point (lat., long.) -33.7 -115.4
At HVO the miss angle is 2714.3 arc-sec at 08/21/2019 07:36:06.1

Occultation of 73 xi^2 Cet 4.28 by moon 68% illuminated at phase= 249 degrees
08/21/2019 12:46:21.6 Geocentric minimum 1.0 degrees
Global start/end: 08/21/2019 11:42:08.4   and   08/21/2019 13:50:33.4
Mid-occultation observing point (lat., long.) 67.7 16.2

Occultation of 87 mu Cet 4.27 by moon 65% illuminated at phase= 253 degrees
08/21/2019 21:29:13.4 Geocentric minimum 0.9 degrees
Global start/end: 08/21/2019 20:01:44.2   and   08/21/2019 22:56:39.8
Mid-occultation observing point (lat., long.) 70.9 -83.1

Occultation of 61 delta Tau 3.76 by moon 45% illuminated at phase= 276 degrees
08/23/2019 20:47:59.5 Geocentric minimum 0.7 degrees
Global start/end: 08/23/2019 18:57:08.8   and   08/23/2019 22:38:44.4
Mid-occultation observing point (lat., long.) 61.1 17.2

Occultation of 68v776 Tau 4.29 by moon 44% illuminated at phase= 277 degrees
08/23/2019 22:03:27.4 Geocentric minimum 0.4 degrees
Global start/end: 08/23/2019 19:59:00.8   and   08/24/2019 00:07:48.5
Mid-occultation observing point (lat., long.) 44.9 10.1

Occultation of 74 epsilon Tau 3.53 by moon 43% illuminated at phase= 278 degrees
08/23/2019 23:54:43.8 Geocentric minimum 0.6 degrees
Global start/end: 08/23/2019 21:59:46.0   and   08/24/2019 01:49:35.7
Mid-occultation observing point (lat., long.) -20.3 0.4

Occultation of 1 Gem 4.16 by moon 26% illuminated at phase= 299 degrees
08/25/2019 16:23:48.8 Geocentric minimum 1.2 degrees
Global start/end: 08/25/2019 15:53:15.0   and   08/25/2019 16:54:21.9
Mid-occultation observing point (lat., long.) -67.7 138.4

Occultation of Propus 3.28 by moon 24% illuminated at phase= 301 degrees
08/25/2019 20:35:33.5 Geocentric minimum 0.3 degrees
Global start/end: 08/25/2019 18:29:33.1   and   08/25/2019 22:41:28.8
Mid-occultation observing point (lat., long.) 6.1 67.0

Occultation of 13 mu Gem 2.88 by moon 23% illuminated at phase= 303 degrees
08/25/2019 23:48:48.2 Geocentric minimum 0.2 degrees
Global start/end: 08/25/2019 21:41:13.9   and   08/26/2019 01:56:18.6
Mid-occultation observing point (lat., long.) 12.0 20.1

Occultation of Wasat 3.53 by moon 15% illuminated at phase= 315 degrees
08/26/2019 22:14:33.0 Geocentric minimum 0.4 degrees
Global start/end: 08/26/2019 20:12:58.4   and   08/27/2019 00:16:02.4
Mid-occultation observing point (lat., long.) 43.4 58.0

Occultation of 3 nu Vir 4.03 by moon 2% illuminated at phase= 17 degrees
08/31/2019 07:19:31.4 Geocentric minimum 0.2 degrees
Global start/end: 08/31/2019 05:17:16.0   and   08/31/2019 09:21:48.1
Mid-occultation observing point (lat., long.) 14.5 -14.4

Occultation of 16 Vir 4.96 by moon 5% illuminated at phase= 25 degrees
08/31/2019 21:51:59.1 Geocentric minimum 0.1 degrees
Global start/end: 08/31/2019 19:48:32.5 and 08/31/2019 23:55:27.2
Mid-occultation observing point (lat., long.) -1.0 130.6

Occultation of 38 gamma Lib 3.91 by moon 36% illuminated at phase= 73 degrees
09/04/2019 11:56:44.6 Geocentric minimum 0.4 degrees
Global start/end: 09/04/2019 09:54:34.5 and 09/04/2019 13:59:00.4
Mid-occultation observing point (lat., long.) -40.2 -43.4

Occultation of 46 theta Lib 4.15 by moon 40% illuminated at phase= 78 degrees
09/04/2019 20:24:31.1 Geocentric minimum 0.2 degrees
Global start/end: 09/04/2019 18:15:01.9 and 09/04/2019 22:34:04.0
Mid-occultation observing point (lat., long.) -5.3 -153.2
At HVO the miss angle is 1455.2 arc-sec at 09/04/2019 21:12:49.5

Occultation of 7 chi Oph 4.42 by moon 46% illuminated at phase= 85 degrees
09/05/2019 10:59:09.9 Geocentric minimum 0.1 degrees
Global start/end: 09/05/2019 08:46:59.6 and 09/05/2019 13:11:21.9
Mid-occultation observing point (lat., long.) -23.9 -8.6

Occultation of 40 xi Oph 4.39 by moon 57% illuminated at phase= 97 degrees
09/06/2019 10:55:29.5 Geocentric minimum 0.1 degrees
Global start/end: 09/06/2019 08:41:50.6 and 09/06/2019 13:09:10.2
Mid-occultation observing point (lat., long.) -13.3 7.3

Occultation of 58 Oph 4.87 by moon 61% illuminated at phase= 102 degrees
09/06/2019 20:48:06.4 Geocentric minimum 0.0 degrees
Global start/end: 09/06/2019 18:32:56.6 and 09/06/2019 23:03:15.7
Mid-occultation observing point (lat., long.) -20.9 -136.7
At HVO the miss angle is 2002.0 arc-sec at 09/06/2019 21:42:07.8

Occultation of Saturn 0.4 by moon 74% illuminated at phase= 118 degrees
09/08/2019 06:41:39.5 Geocentric minimum 0.0 degrees
Global start/end: 09/08/2019 04:24:31.5 and 09/08/2019 08:58:46.9
Mid-occultation observing point (lat., long.) -25.1 92.5

Occultation of 39 o Sgr 3.77 by moon 75% illuminated at phase= 119 degrees
09/08/2019 09:04:15.0 Geocentric minimum 0.8 degrees
Global start/end: 09/08/2019 07:23:07.7 and 09/08/2019 10:45:24.8
Mid-occultation observing point (lat., long.) -81.3 65.5

Occultation of Nashira 3.68 by moon 95% illuminated at phase= 153 degrees
09/11/2019 10:44:13.2 Geocentric minimum 0.4 degrees
Global start/end: 09/11/2019 08:35:40.8 and 09/11/2019 12:52:45.8
Mid-occultation observing point (lat., long.) -44.7 79.0

Occultation of Deneb Algedi 2.87 by moon 95% illuminated at phase= 155 degrees
09/11/2019 14:16:18.7 Geocentric minimum 0.5 degrees
Global start/end: 09/11/2019 12:12:03.1 and 09/11/2019 16:20:34.4
Mid-occultation observing point (lat., long.) -49.5 31.0

Occultation of 91 psi^1 Aqr 4.21 by moon 100% illuminated at phase= 176 degrees
09/13/2019 12:24:56.4 Geocentric minimum 0.4 degrees
Global start/end: 09/13/2019 10:15:00.7 and 09/13/2019 14:34:51.9
Mid-occultation observing point (lat., long.) -34.4 76.7

Occultation of 93 psi^2 Aqr 4.39 by moon 100% illuminated at phase= 176 degrees
09/13/2019 13:17:10.9 Geocentric minimum 0.1 degrees
Global start/end: 09/13/2019 10:59:08.0 and 09/13/2019 15:35:13.7
Mid-occultation observing point (lat., long.) -18.0 56.4

Occultation of 95 psi^3 Aqr 4.98 by moon 100% illuminated at phase= 176 degrees
09/13/2019 13:28:27.8 Geocentric minimum 0.3 degrees
Global start/end: 09/13/2019 11:15:43.0 and 09/13/2019 15:41:12.4
Mid-occultation observing point (lat., long.) 11.7 42.4

Occultation of 30 YY Psc 4.41 by moon 100% illuminated at phase= 187 degrees
09/14/2019 12:12:43.3 Geocentric minimum 0.9 degrees
Global start/end: 09/14/2019 10:46:08.6   and   09/14/2019 13:39:17.7
Mid-occultation observing point (lat., long.) 66.4 10.4

Occultation of 33 BC Psc 4.61 by moon 100% illuminated at phase= 187 degrees
09/14/2019 14:01:05.9 Geocentric minimum 0.9 degrees
Global start/end: 09/14/2019 12:39:30.7   and   09/14/2019 15:22:40.7
Mid-occultation observing point (lat., long.) 67.6 -26.6

Occultation of 106 nu Psc 4.44 by moon 92% illuminated at phase= 212 degrees
09/16/2019 19:09:37.5 Geocentric minimum 0.2 degrees
Global start/end: 09/16/2019 16:54:34.5   and   09/16/2019 21:24:40.4
Mid-occultation observing point (lat., long.) -9.1 3.4

Occultation of 65 xi^1 Cet 4.37 by moon 88% illuminated at phase= 220 degrees
09/17/2019 12:04:02.8 Geocentric minimum 0.5 degrees
Global start/end: 09/17/2019 09:58:25.4   and   09/17/2019 14:09:38.6
Mid-occultation observing point (lat., long.) -20.6 122.7

Occultation of 87 mu Cet 4.27 by moon 84% illuminated at phase= 227 degrees
09/18/2019 03:28:12.0 Geocentric minimum 1.1 degrees
Global start/end: 09/18/2019 02:41:38.1   and   09/18/2019 04:14:45.4
Mid-occultation observing point (lat., long.) 67.5 128.4
At HVO the miss angle is 1590.1 arc-sec at 09/18/2019 03:59:19.7

Occultation of 61 delta Tau 3.76 by moon 67% illuminated at phase= 250 degrees
09/20/2019 03:25:18.1 Geocentric minimum 0.9 degrees
Global start/end: 09/20/2019 01:56:50.5   and   09/20/2019 04:53:42.6
Mid-occultation observing point (lat., long.) 77.2 172.6
At HVO the miss angle is 673.5 arc-sec at 09/20/2019 03:04:37.1

Occultation of 68v776 Tau 4.29 by moon 67% illuminated at phase= 251 degrees
09/20/2019 04:42:22.1 Geocentric minimum 0.7 degrees
Global start/end: 09/20/2019 02:50:25.4   and   09/20/2019 06:34:14.9
Mid-occultation observing point (lat., long.) 61.4 -127.6
At HVO the miss angle is 130.6 arc-sec at 09/20/2019 05:02:48.4

Occultation of 74 epsilon Tau 3.53 by moon 66% illuminated at phase= 251 degrees
09/20/2019 06:36:01.2 Geocentric minimum 0.4 degrees
Global start/end: 09/20/2019 04:28:28.7   and   09/20/2019 08:43:30.5
Mid-occultation observing point (lat., long.) -4.6 -130.4
At HVO the miss angle is 1721.2 arc-sec at 09/20/2019 07:40:15.6

Occultation of 102 iota Tau 4.64 by moon 60% illuminated at phase= 259 degrees
09/20/2019 22:16:56.5 Geocentric minimum 1.1 degrees
Global start/end: 09/20/2019 21:29:54.1   and   09/20/2019 23:03:57.8
Mid-occultation observing point (lat., long.) -67.5 24.0

Occultation of 1 Gem 4.16 by moon 48% illuminated at phase= 272 degrees
09/22/2019 00:11:04.0 Geocentric minimum 1.0 degrees
Global start/end: 09/21/2019 22:52:40.3   and   09/22/2019 01:29:24.3
Mid-occultation observing point (lat., long.) -67.7 -5.5
At HVO the miss angle is 5163.5 arc-sec at 09/21/2019 23:22:37.1

Occultation of Propus 3.28 by moon 46% illuminated at phase= 275 degrees
09/22/2019 04:31:00.3 Geocentric minimum 0.1 degrees
Global start/end: 09/22/2019 02:19:44.4   and   09/22/2019 06:42:15.0
Mid-occultation observing point (lat., long.) 19.3 -79.6
At HVO the miss angle is 750.2 arc-sec at 09/22/2019 04:00:34.4

Occultation of 13 mu Gem 2.88 by moon 45% illuminated at phase= 276 degrees
09/22/2019 07:50:35.6 Geocentric minimum 0.0 degrees
Global start/end: 09/22/2019 05:39:32.4   and   09/22/2019 10:01:37.8
Mid-occultation observing point (lat., long.) 25.0 -127.9
At HVO the miss angle is 291.4 arc-sec at 09/22/2019 08:31:54.8

Occultation of Wasat 3.53 by moon 34% illuminated at phase= 288 degrees
09/23/2019 07:01:56.8 Geocentric minimum 0.6 degrees
Global start/end: 09/23/2019 05:06:33.0   and   09/23/2019 08:57:15.0
Mid-occultation observing point (lat., long.) 57.0 -99.2

Occultation of Asellus Borealis 4.66 by moon 20% illuminated at phase= 306 degrees
09/24/2019 15:34:45.0 Geocentric minimum 1.2 degrees
Global start/end: 09/24/2019 14:48:10.9   and   09/24/2019 16:21:17.8
Mid-occultation observing point (lat., long.) -67.6 120.6

Occultation of 38 gamma Lib 3.91 by moon 16% illuminated at phase= 47 degrees
10/01/2019 20:46:36.6 Geocentric minimum 0.6 degrees
Global start/end: 10/01/2019 18:57:03.8   and   10/01/2019 22:36:15.7
Mid-occultation observing point (lat., long.) -53.7 147.9

Occultation of 46 theta Lib 4.15 by moon 19% illuminated at phase= 51 degrees
10/02/2019 04:58:40.1 Geocentric minimum 0.0 degrees
Global start/end: 10/02/2019 02:49:40.9   and   10/02/2019 07:07:40.9
Mid-occultation observing point (lat., long.) -18.4 47.7

Occultation of 7 chi Oph 4.42 by moon 24% illuminated at phase= 59 degrees
10/02/2019 19:06:24.4 Geocentric minimum 0.3 degrees
Global start/end: 10/02/2019 17:00:45.4   and   10/02/2019 21:12:09.0
Mid-occultation observing point (lat., long.) -37.9 -161.7

Occultation of 40 xi Oph 4.39 by moon 33% illuminated at phase= 71 degrees
10/03/2019 18:22:37.8 Geocentric minimum 0.1 degrees
Global start/end: 10/03/2019 16:10:36.4   and   10/03/2019 20:34:42.1
Mid-occultation observing point (lat., long.) -28.5 -133.8
At HVO the miss angle is 2615.9 arc-sec at 10/03/2019 19:02:34.2

Occultation of 58 Oph 4.87 by moon 38% illuminated at phase= 75 degrees
10/04/2019 04:00:41.4 Geocentric minimum 0.2 degrees
Global start/end: 10/04/2019 01:49:44.7   and   10/04/2019 06:11:42.6
Mid-occultation observing point (lat., long.) -36.3 86.1

Occultation of Saturn 0.5 by moon 52% illuminated at phase= 92 degrees
10/05/2019 13:36:50.0 Geocentric minimum 0.3 degrees
Global start/end: 10/05/2019 11:23:09.3   and   10/05/2019 15:50:33.9
Mid-occultation observing point (lat., long.) -38.7 -37.8

Occultation of 39 o Sgr 3.77 by moon 53% illuminated at phase= 93 degrees
10/05/2019 15:36:53.1 Geocentric minimum 1.0 degrees
Global start/end: 10/05/2019 14:31:14.9   and   10/05/2019 16:42:33.3
Mid-occultation observing point (lat., long.) -67.2 109.4

Occultation of Nashira 3.68 by moon 80% illuminated at phase= 127 degrees
10/08/2019 16:55:31.0 Geocentric minimum 0.6 degrees
Global start/end: 10/08/2019 14:56:40.5   and   10/08/2019 18:54:21.9
Mid-occultation observing point (lat., long.) -56.3 -32.6

Occultation of Deneb Algedi 2.87 by moon 81% illuminated at phase= 128 degrees
10/08/2019 20:27:52.5 Geocentric minimum 0.7 degrees
Global start/end: 10/08/2019 18:34:51.0   and   10/08/2019 22:20:54.4
Mid-occultation observing point (lat., long.) -61.3 -77.6
At HVO the miss angle is 4111.3 arc-sec at 10/08/2019 21:46:27.3

Occultation of 91 psi^1 Aqr 4.21 by moon 93% illuminated at phase= 149 degrees
10/10/2019 18:40:08.7 Geocentric minimum 0.5 degrees
Global start/end: 10/10/2019 16:33:54.5   and   10/10/2019 20:46:21.2
Mid-occultation observing point (lat., long.) -39.3 -40.8
At HVO the miss angle is 3834.8 arc-sec at 10/10/2019 18:14:13.0

Occultation of 93 psi^2 Aqr 4.39 by moon 93% illuminated at phase= 150 degrees
10/10/2019 19:32:16.3 Geocentric minimum 0.2 degrees
Global start/end: 10/10/2019 17:15:29.1   and   10/10/2019 21:49:02.0
Mid-occultation observing point (lat., long.) -22.5 -62.3
At HVO the miss angle is 2788.6 arc-sec at 10/10/2019 19:30:46.4

Occultation of 95 psi^3 Aqr 4.98 by moon 93% illuminated at phase= 150 degrees
10/10/2019 19:43:19.1 Geocentric minimum 0.3 degrees
Global start/end: 10/10/2019 17:27:51.7   and   10/10/2019 21:58:45.1
Mid-occultation observing point (lat., long.) 6.9 -76.5
At HVO the miss angle is 990.4 arc-sec at 10/10/2019 19:38:48.1

Occultation of 30 YY Psc 4.41 by moon 97% illuminated at phase= 160 degrees
10/11/2019 18:26:01.9 Geocentric minimum 0.9 degrees
Global start/end: 10/11/2019 16:55:11.9   and   10/11/2019 19:56:50.4
Mid-occultation observing point (lat., long.) 59.7 -87.4

---For observations at HVO:
10/11/2019 17:14:08.3 Start Total 3.09 3.21 (az101) 0.1
10/11/2019 17:46:19.1 OCCULTATION MID-POINT 8.58 8.61 (az107) -6.2 ***
10/11/2019 18:20:03.4 End Total 14.24 14.21 (az113) -12.3 ***

Occultation of 33 BC Psc 4.61 by moon 97% illuminated at phase= 161 degrees
10/11/2019 20:14:08.6 Geocentric minimum 0.9 degrees
Global start/end: 10/11/2019 18:48:28.2   and   10/11/2019 21:39:47.9
Mid-occultation observing point (lat., long.) 67.4 -146.9

---For observations at HVO:
10/11/2019 19:23:14.5 Start Total 23.85 24.01 (az125) -23.5 ***
10/11/2019 19:56:23.3 OCCULTATION MID-POINT 28.48 28.61 (az133) -29.2 ***
10/11/2019 20:30:42.8 End Total 32.68 32.82 (az141) -34.9 ***

Occultation of 106 nu Psc 4.44 by moon 100% illuminated at phase= 185 degrees
10/14/2019 01:06:25.0 Geocentric minimum 0.2 degrees
Global start/end: 10/13/2019 22:50:15.9   and   10/14/2019 03:22:33.3
Mid-occultation observing point (lat., long.) -3.9 -114.7
At HVO the miss angle is 1132.4 arc-sec at 10/14/2019 02:20:31.2

Occultation of 65 xi^1 Cet 4.37 by moon 99% illuminated at phase= 193 degrees
10/14/2019 17:53:02.6 Geocentric minimum 0.4 degrees
Global start/end: 10/14/2019 15:42:45.7   and   10/14/2019 20:03:18.1
Mid-occultation observing point (lat., long.) -12.7 5.4

Occultation of 61 delta Tau 3.76 by moon 87% illuminated at phase= 223 degrees
10/17/2019 08:55:44.7 Geocentric minimum 1.1 degrees
Global start/end: 10/17/2019 08:11:07.9   and   10/17/2019 09:40:21.0
Mid-occultation observing point (lat., long.) 67.2 17.7

Occultation of 68v776 Tau 4.29 by moon 86% illuminated at phase= 224 degrees
10/17/2019 10:12:59.3 Geocentric minimum 0.9 degrees
Global start/end: 10/17/2019 08:43:27.6   and   10/17/2019 11:42:29.0
Mid-occultation observing point (lat., long.) 77.5 52.3

Occultation of 74 epsilon Tau 3.53 by moon 86% illuminated at phase= 225 degrees
10/17/2019 12:07:04.7 Geocentric minimum 0.2 degrees
Global start/end: 10/17/2019 09:53:43.4   and   10/17/2019 14:20:25.8
Mid-occultation observing point (lat., long.) 9.6 116.9

Occultation of 102 iota Tau 4.64 by moon 81% illuminated at phase= 232 degrees
10/18/2019 03:52:13.4 Geocentric minimum 0.9 degrees
Global start/end: 10/18/2019 02:22:00.4   and   10/18/2019 05:22:24.3
Mid-occultation observing point (lat., long.) -47.9 -99.4
At HVO the miss angle is 3486.3 arc-sec at 10/18/2019 04:27:14.5

Occultation of 1 Gem 4.16 by moon 71% illuminated at phase= 245 degrees
10/19/2019 06:03:55.1 Geocentric minimum 0.7 degrees
Global start/end: 10/19/2019 04:17:24.2   and   10/19/2019 07:50:22.8
Mid-occultation observing point (lat., long.) -26.2 -128.6
At HVO the miss angle is 3019.2 arc-sec at 10/19/2019 06:45:08.4

Occultation of Propus 3.28 by moon 69% illuminated at phase= 248 degrees
10/19/2019 10:28:13.9 Geocentric minimum 0.2 degrees
Global start/end: 10/19/2019 08:17:44.4   and   10/19/2019 12:38:42.2
Mid-occultation observing point (lat., long.) 35.2 163.2

Occultation of 13 mu Gem 2.88 by moon 68% illuminated at phase= 249 degrees
10/19/2019 13:51:28.6 Geocentric minimum 0.3 degrees
Global start/end: 10/19/2019 11:43:23.3   and   10/19/2019 15:59:31.6
Mid-occultation observing point (lat., long.) 41.2 114.1

Occultation of Wasat 3.53 by moon 57% illuminated at phase= 262 degrees
10/20/2019 13:34:50.2 Geocentric minimum 0.8 degrees
Global start/end: 10/20/2019 11:57:44.0   and   10/20/2019 15:11:52.9
Mid-occultation observing point (lat., long.) 80.5 148.2

Occultation of Asellus Borealis 4.66 by moon 42% illuminated at phase= 279 degrees
10/21/2019 23:08:34.9 Geocentric minimum 0.9 degrees
Global start/end: 10/21/2019 21:43:19.6   and   10/22/2019 00:33:47.1
Mid-occultation observing point (lat., long.) -50.3 -7.3

Occultation of 30 eta Leo 3.52 by moon 26% illuminated at phase= 298 degrees
10/23/2019 09:34:47.0 Geocentric minimum 1.2 degrees
Global start/end: 10/23/2019 08:47:53.0   and   10/23/2019 10:21:40.1
Mid-occultation observing point (lat., long.) -67.3 -177.8
At HVO the miss angle is 5305.2 arc-sec at 10/23/2019 09:18:46.0

Occultation of 3 nu Vir 4.03 by moon 10% illuminated at phase= 323 degrees
10/25/2019 04:21:10.1 Geocentric minimum 0.2 degrees
Global start/end: 10/25/2019 02:18:44.9   and   10/25/2019 06:23:33.5
Mid-occultation observing point (lat., long.) 19.3 -21.7

---For observations at HVO:
10/25/2019 02:29:51.4 Start Total -5.5 -5.35 (az76) -41.1
10/25/2019 02:51:32.9 OCCULTATION MID-POINT -1.09 -1.16 (az80) -37.6
10/25/2019 03:13:47.6 End Total 2.55 2.3 (az83) -33.9 ***

Occultation of 8 pi Vir 4.66 by moon 9% illuminated at phase= 326 degrees
10/25/2019 09:52:36.1 Geocentric minimum 1.2 degrees
Global start/end: 10/25/2019 09:22:47.0   and   10/25/2019 10:22:25.1
Mid-occultation observing point (lat., long.) -67.2 175.7

Occultation of 16 Vir 4.96 by moon 6% illuminated at phase= 331 degrees
10/25/2019 19:08:09.1 Geocentric minimum 0.1 degrees
Global start/end: 10/25/2019 17:04:00.6   and   10/25/2019 21:12:16.5
Mid-occultation observing point (lat., long.) -0.2 117.7

Occultation of 38 gamma Lib 3.91 by moon 3% illuminated at phase= 20 degrees
10/29/2019 07:08:27.2 Geocentric minimum 0.8 degrees
Global start/end: 10/29/2019 05:30:18.2   and   10/29/2019 08:46:40.6
Mid-occultation observing point (lat., long.) -63.9 -48.2

Occultation of 46 theta Lib 4.15 by moon 4% illuminated at phase= 24 degrees
10/29/2019 15:11:12.3 Geocentric minimum 0.2 degrees
Global start/end: 10/29/2019 13:05:17.3   and   10/29/2019 17:17:10.7
Mid-occultation observing point (lat., long.) -27.7 -135.5
At HVO the miss angle is 2975.9 arc-sec at 10/29/2019 15:20:01.5

Occultation of 4 psi Oph 4.5 by moon 7% illuminated at phase= 31 degrees
10/30/2019 04:28:42.5 Geocentric minimum 1.2 degrees
Global start/end: 10/30/2019 03:47:34.5   and   10/30/2019 05:09:51.6
Mid-occultation observing point (lat., long.) 67.2 72.1

Occultation of 7 chi Oph 4.42 by moon 7% illuminated at phase= 31 degrees
10/30/2019 05:00:02.7 Geocentric minimum 0.5 degrees
Global start/end: 10/30/2019 03:03:12.8   and   10/30/2019 06:56:58.4
Mid-occultation observing point (lat., long.) -49.6 17.7

Occultation of 40 xi Oph 4.39 by moon 14% illuminated at phase= 43 degrees
10/31/2019 03:41:00.3 Geocentric minimum 0.3 degrees
Global start/end: 10/31/2019 01:35:37.3   and   10/31/2019 05:46:29.0
Mid-occultation observing point (lat., long.) -42.0 56.7

Occultation of 58 Oph 4.87 by moon 17% illuminated at phase= 48 degrees
10/31/2019 13:03:44.5 Geocentric minimum 0.5 degrees
Global start/end: 10/31/2019 11:02:29.9   and   10/31/2019 15:05:05.5
Mid-occultation observing point (lat., long.) -51.2 -79.8
At HVO the miss angle is 3395.7 arc-sec at 10/31/2019 11:38:48.5

Occultation of Saturn 0.6 by moon 30% illuminated at phase= 66 degrees
11/02/2019 00:22:28.5 Geocentric minimum 0.6 degrees
Global start/end: 11/01/2019 22:24:35.1   and   11/02/2019 02:20:28.4
Mid-occultation observing point (lat., long.) -61.9 136.9

Occultation of Nashira 3.68 by moon 58% illuminated at phase= 99 degrees
11/05/2019 00:00:44.4 Geocentric minimum 0.8 degrees
Global start/end: 11/04/2019 22:25:13.3   and   11/05/2019 01:36:17.2
Mid-occultation observing point (lat., long.) -74.8 -115.8

Occultation of Deneb Algedi 2.87 by moon 60% illuminated at phase= 101 degrees
11/05/2019 03:31:58.8 Geocentric minimum 0.9 degrees
Global start/end: 11/05/2019 02:06:09.8   and   11/05/2019 04:57:49.1
Mid-occultation observing point (lat., long.) -66.9 -99.0

Occultation of 91 psi^1 Aqr 4.21 by moon 77% illuminated at phase= 122 degrees
11/07/2019 01:40:44.7 Geocentric minimum 0.7 degrees
Global start/end: 11/06/2019 23:46:55.1   and   11/07/2019 03:34:33.3
Mid-occultation observing point (lat., long.) -52.2 -161.6

Occultation of 93 psi^2 Aqr 4.39 by moon 77% illuminated at phase= 122 degrees
11/07/2019 02:32:50.5 Geocentric minimum 0.4 degrees
Global start/end: 11/07/2019 00:21:47.2   and   11/07/2019 04:43:52.3
Mid-occultation observing point (lat., long.) -33.6 171.3

Occultation of 95 psi^3 Aqr 4.98 by moon 77% illuminated at phase= 122 degrees
11/07/2019 02:43:43.2 Geocentric minimum 0.1 degrees
Global start/end: 11/07/2019 00:24:18.7   and   11/07/2019 05:03:06.1
Mid-occultation observing point (lat., long.) -4.0 155.6

Occultation of 30 YY Psc 4.41 by moon 84% illuminated at phase= 133 degrees
11/08/2019 01:28:03.1 Geocentric minimum 0.7 degrees
Global start/end: 11/07/2019 23:39:56.7   and   11/08/2019 03:16:07.4
Mid-occultation observing point (lat., long.) 42.9 161.7

Occultation of 33 BC Psc 4.61 by moon 85% illuminated at phase= 134 degrees
11/08/2019 03:16:16.3 Geocentric minimum 0.8 degrees
Global start/end: 11/08/2019 01:32:06.8   and   11/08/2019 05:00:23.7
Mid-occultation observing point (lat., long.) 46.8 132.0

Occultation of 106 nu Psc 4.44 by moon 96% illuminated at phase= 158 degrees
11/10/2019 08:03:47.0 Geocentric minimum 0.2 degrees
Global start/end: 11/10/2019 05:48:38.6   and   11/10/2019 10:18:52.6
Mid-occultation observing point (lat., long.) -6.3 115.1

Occultation of 65 xi^1 Cet 4.37 by moon 98% illuminated at phase= 166 degrees
11/11/2019 00:43:33.7 Geocentric minimum 0.4 degrees
Global start/end: 11/10/2019 22:34:00.7   and   11/11/2019 02:53:03.5
Mid-occultation observing point (lat., long.) -13.0 -123.9
At HVO the miss angle is 1648.4 arc-sec at 11/11/2019 02:07:23.1

Occultation of 68v776 Tau 4.29 by moon 98% illuminated at phase= 196 degrees
11/13/2019 16:15:05.6 Geocentric minimum 1.0 degrees
Global start/end: 11/13/2019 15:02:54.3 and 11/13/2019 17:27:14.9
Mid-occultation observing point (lat., long.) 66.9 -119.0

Occultation of 74 epsilon Tau 3.53 by moon 98% illuminated at phase= 197 degrees
11/13/2019 18:07:53.9 Geocentric minimum 0.0 degrees
Global start/end: 11/13/2019 15:54:38.4 and 11/13/2019 20:21:10.0
Mid-occultation observing point (lat., long.) 16.9 -1.8

Occultation of 102 iota Tau 4.64 by moon 95% illuminated at phase= 205 degrees
11/14/2019 09:40:02.1 Geocentric minimum 0.7 degrees
Global start/end: 11/14/2019 07:55:18.5 and 11/14/2019 11:24:43.5
Mid-occultation observing point (lat., long.) -29.3 141.8

Occultation of 1 Gem 4.16 by moon 89% illuminated at phase= 218 degrees
11/15/2019 11:33:43.1 Geocentric minimum 0.5 degrees
Global start/end: 11/15/2019 09:35:39.9 and 11/15/2019 13:31:44.4
Mid-occultation observing point (lat., long.) -11.1 121.0

Occultation of Propus 3.28 by moon 88% illuminated at phase= 220 degrees
11/15/2019 15:55:39.4 Geocentric minimum 0.4 degrees
Global start/end: 11/15/2019 13:51:10.8 and 11/15/2019 18:00:06.8
Mid-occultation observing point (lat., long.) 47.1 53.3

Occultation of 13 mu Gem 2.88 by moon 87% illuminated at phase= 222 degrees
11/15/2019 19:17:23.7 Geocentric minimum 0.5 degrees
Global start/end: 11/15/2019 17:17:15.1 and 11/15/2019 21:17:30.6
Mid-occultation observing point (lat., long.) 53.9 4.5

Occultation of Wasat 3.53 by moon 79% illuminated at phase= 234 degrees
11/16/2019 18:56:07.1 Geocentric minimum 1.0 degrees
Global start/end: 11/16/2019 17:46:33.8 and 11/16/2019 20:05:39.4
Mid-occultation observing point (lat., long.) 66.8 -161.9

Occultation of Asellus Borealis 4.66 by moon 65% illuminated at phase= 252 degrees
11/18/2019 04:44:41.4 Geocentric minimum 0.7 degrees
Global start/end: 11/18/2019 02:58:20.6 and 11/18/2019 06:31:00.1
Mid-occultation observing point (lat., long.) -24.7 -110.8
At HVO the miss angle is 2917.1 arc-sec at 11/18/2019 04:21:23.9

Occultation of 30 eta Leo 3.52 by moon 49% illuminated at phase= 271 degrees
11/19/2019 15:53:45.1 Geocentric minimum 1.0 degrees
Global start/end: 11/19/2019 14:31:17.0 and 11/19/2019 17:16:11.5
Mid-occultation observing point (lat., long.) -56.7 78.3

Occultation of 3 nu Vir 4.03 by moon 29% illuminated at phase= 295 degrees
11/21/2019 12:02:19.0 Geocentric minimum 0.4 degrees
Global start/end: 11/21/2019 10:02:21.2 and 11/21/2019 14:02:15.0
Mid-occultation observing point (lat., long.) 29.2 -159.0
At HVO the miss angle is 690.8 arc-sec at 11/21/2019 12:38:23.8

Occultation of 8 pi Vir 4.66 by moon 26% illuminated at phase= 298 degrees
11/21/2019 17:44:55.7 Geocentric minimum 1.1 degrees
Global start/end: 11/21/2019 16:39:31.0 and 11/21/2019 18:50:19.4
Mid-occultation observing point (lat., long.) -67.0 30.7

Occultation of 16 Vir 4.96 by moon 22% illuminated at phase= 304 degrees
11/22/2019 03:20:03.5 Geocentric minimum 0.1 degrees
Global start/end: 11/22/2019 01:13:44.7 and 11/22/2019 05:26:21.0
Mid-occultation observing point (lat., long.) 7.7 -28.9

Occultation of 40 xi Oph 4.39 by moon 2% illuminated at phase= 16 degrees
11/27/2019 13:45:42.8 Geocentric minimum 0.4 degrees
Global start/end: 11/27/2019 11:44:55.5 and 11/27/2019 15:46:34.6
Mid-occultation observing point (lat., long.) -48.6 -123.5
At HVO the miss angle is 3872.2 arc-sec at 11/27/2019 13:46:10.8

Occultation of Jupiter -1.8 by moon 4% illuminated at phase= 23 degrees
11/28/2019 03:56:48.0 Geocentric minimum 0.7 degrees
Global start/end: 11/28/2019 02:09:12.8 and 11/28/2019 05:44:28.8
Mid-occultation observing point (lat., long.) 25.7 42.4

Occultation of 58 Oph 4.87 by moon 3% illuminated at phase= 21 degrees
11/27/2019 23:01:59.6 Geocentric minimum 0.6 degrees
Global start/end: 11/27/2019 21:07:47.4 and 11/28/2019 00:56:17.1
Mid-occultation observing point (lat., long.) -59.4 100.7

Occultation of Saturn 0.6 by moon 12% illuminated at phase= 40 degrees
11/29/2019 14:07:05.5 Geocentric minimum 0.9 degrees
Global start/end: 11/29/2019 12:41:30.1 and 11/29/2019 15:32:45.2
Mid-occultation observing point (lat., long.) -76.5 74.3
At HVO the miss angle is 5534.5 arc-sec at 11/29/2019 13:53:52.3

Occultation of Nashira 3.68 by moon 35% illuminated at phase= 72 degrees
12/02/2019 08:11:21.4 Geocentric minimum 1.0 degrees
Global start/end: 12/02/2019 07:08:21.7 and 12/02/2019 09:14:22.6
Mid-occultation observing point (lat., long.) -66.9 164.5

Occultation of Deneb Algedi 2.87 by moon 36% illuminated at phase= 73 degrees
12/02/2019 11:40:11.8 Geocentric minimum 1.1 degrees
Global start/end: 12/02/2019 10:57:08.4 and 12/02/2019 12:23:15.9
Mid-occultation observing point (lat., long.) -66.9 112.0

Occultation of 71 tau Aqr 4.01 by moon 48% illuminated at phase= 87 degrees
12/03/2019 18:07:22.7 Geocentric minimum 1.1 degrees
Global start/end: 12/03/2019 17:36:21.7 and 12/03/2019 18:38:23.8
Mid-occultation observing point (lat., long.) 66.9 -166.3

Occultation of 91 psi^1 Aqr 4.21 by moon 54% illuminated at phase= 94 degrees
12/04/2019 09:33:17.6 Geocentric minimum 0.8 degrees
Global start/end: 12/04/2019 07:58:19.8 and 12/04/2019 11:08:15.7
Mid-occultation observing point (lat., long.) -66.9 86.3

Occultation of 93 psi^2 Aqr 4.39 by moon 54% illuminated at phase= 95 degrees
12/04/2019 10:25:19.9 Geocentric minimum 0.6 degrees
Global start/end: 12/04/2019 08:24:18.0 and 12/04/2019 12:26:22.2
Mid-occultation observing point (lat., long.) -45.6 34.4

Occultation of 95 psi^3 Aqr 4.98 by moon 54% illuminated at phase= 95 degrees
12/04/2019 10:36:08.7 Geocentric minimum 0.1 degrees
Global start/end: 12/04/2019 08:16:28.6 and 12/04/2019 12:55:48.6
Mid-occultation observing point (lat., long.) -14.6 14.7

Occultation of 30 YY Psc 4.41 by moon 63% illuminated at phase= 105 degrees
12/05/2019 09:22:34.9 Geocentric minimum 0.6 degrees
Global start/end: 12/05/2019 07:20:36.8 and 12/05/2019 11:24:31.8
Mid-occultation observing point (lat., long.) 29.7 24.9

Occultation of 33 BC Psc 4.61 by moon 64% illuminated at phase= 106 degrees
12/05/2019 11:11:10.2 Geocentric minimum 0.6 degrees
Global start/end: 12/05/2019 09:12:03.1 and 12/05/2019 13:10:15.9
Mid-occultation observing point (lat., long.) 32.9 -3.3

Occultation of 20 Cet 4.77 by moon 73% illuminated at phase= 118 degrees
12/06/2019 12:53:30.6 Geocentric minimum 1.1 degrees
Global start/end: 12/06/2019 11:58:43.8 and 12/06/2019 13:48:16.5
Mid-occultation observing point (lat., long.) 67.0 -90.7

Occultation of 106 nu Psc 4.44 by moon 82% illuminated at phase= 130 degrees
12/07/2019 16:13:57.6 Geocentric minimum 0.3 degrees
Global start/end: 12/07/2019 14:01:03.5   and   12/07/2019 18:26:47.8
Mid-occultation observing point (lat., long.) -12.7 -31.6
At HVO the miss angle is 3131.8 arc-sec at 12/07/2019 15:42:45.7

Occultation of 65 xi^1 Cet 4.37 by moon 87% illuminated at phase= 138 degrees
12/08/2019 08:56:32.2 Geocentric minimum 0.5 degrees
Global start/end: 12/08/2019 06:50:19.9   and   12/08/2019 11:02:39.6
Mid-occultation observing point (lat., long.) -18.5 88.3

Occultation of 68v776 Tau 4.29 by moon 99% illuminated at phase= 169 degrees
12/11/2019 00:06:12.2 Geocentric minimum 1.0 degrees
Global start/end: 12/10/2019 22:53:14.9   and   12/11/2019 01:19:07.1
Mid-occultation observing point (lat., long.) 66.8 96.6
At HVO the miss angle is 1443.6 arc-sec at 12/11/2019 00:47:43.2

Occultation of 74 epsilon Tau 3.53 by moon 99% illuminated at phase= 170 degrees
12/11/2019 01:57:44.3 Geocentric minimum 0.0 degrees
Global start/end: 12/10/2019 23:45:24.0   and   12/11/2019 04:10:03.6
Mid-occultation observing point (lat., long.) 17.0 -146.2
At HVO the miss angle is 522.0 arc-sec at 12/11/2019 03:12:08.4

Occultation of 102 iota Tau 4.64 by moon 100% illuminated at phase= 177 degrees
12/11/2019 17:15:27.1 Geocentric minimum 0.7 degrees
Global start/end: 12/11/2019 15:29:21.5   and   12/11/2019 19:01:28.8
Mid-occultation observing point (lat., long.) -26.6 0.6
At HVO the miss angle is 4512.0 arc-sec at 12/11/2019 16:31:47.4

Occultation of 1 Gem 4.16 by moon 99% illuminated at phase= 191 degrees
12/12/2019 18:38:39.9 Geocentric minimum 0.5 degrees
Global start/end: 12/12/2019 16:39:07.2   and   12/12/2019 20:38:10.0
Mid-occultation observing point (lat., long.) -6.9 -12.4
At HVO the miss angle is 3426.9 arc-sec at 12/12/2019 17:46:08.5

Occultation of Propus 3.28 by moon 99% illuminated at phase= 193 degrees
12/12/2019 22:54:46.1 Geocentric minimum 0.5 degrees
Global start/end: 12/12/2019 20:54:01.4   and   12/13/2019 00:55:28.5
Mid-occultation observing point (lat., long.) 50.8 -79.0

---For observations at HVO:
12/12/2019 21:36:35.7 Start Total 46.25 46.43 (az104) -56.1 ***
12/12/2019 22:12:28.3 OCCULTATION MID-POINT 52.38 52.4 (az113) -61.4 ***
12/12/2019 22:49:58.6 End Total 58.33 58.22 (az123) -66.0 ***

Occultation of 13 mu Gem 2.88 by moon 98% illuminated at phase= 194 degrees
12/13/2019 02:12:05.1 Geocentric minimum 0.6 degrees
Global start/end: 12/13/2019 00:16:24.1   and   12/13/2019 04:07:43.6
Mid-occultation observing point (lat., long.) 58.0 -126.8

---For observations at HVO:
12/13/2019 02:25:09.3 Start Total 60.9 60.94 (az230) -51.5 ***
12/13/2019 02:52:47.4 OCCULTATION MID-POINT 56.84 56.98 (az240) -46.8 ***
12/13/2019 03:19:40.4 End Total 52.52 52.78 (az247) -42.1 ***

Occultation of Wasat 3.53 by moon 95% illuminated at phase= 207 degrees
12/14/2019 01:19:19.1 Geocentric minimum 1.1 degrees
Global start/end: 12/14/2019 00:25:38.7   and   12/14/2019 02:12:58.8
Mid-occultation observing point (lat., long.) 66.8 75.7
At HVO the miss angle is 1826.3 arc-sec at 12/14/2019 01:04:20.8

Occultation of Asellus Borealis 4.66 by moon 86% illuminated at phase= 224 degrees
12/15/2019 10:28:34.5 Geocentric minimum 0.6 degrees
Global start/end: 12/15/2019 08:35:53.7   and   12/15/2019 12:21:14.7
Mid-occultation observing point (lat., long.) -15.6 138.2

Occultation of 30 eta Leo 3.52 by moon 73% illuminated at phase= 243 degrees
12/16/2019 21:15:32.5 Geocentric minimum 0.8 degrees
Global start/end: 12/16/2019 19:40:05.2 and 12/16/2019 22:50:59.7
Mid-occultation observing point (lat., long.) -38.9 -16.1

Occultation of 78 iota Leo 3.94 by moon 57% illuminated at phase= 262 degrees
12/18/2019 06:34:14.0 Geocentric minimum 1.2 degrees
Global start/end: 12/18/2019 05:46:25.3 and 12/18/2019 07:22:02.7
Mid-occultation observing point (lat., long.) -67.0 172.7
At HVO the miss angle is 5292.0 arc-sec at 12/18/2019 05:50:44.5

Occultation of 3 nu Vir 4.03 by moon 52% illuminated at phase= 268 degrees
12/18/2019 17:38:16.9 Geocentric minimum 0.5 degrees
Global start/end: 12/18/2019 15:42:28.1 and 12/18/2019 19:34:05.5
Mid-occultation observing point (lat., long.) 36.5 94.5

Occultation of 8 pi Vir 4.66 by moon 49% illuminated at phase= 271 degrees
12/18/2019 23:26:09.0 Geocentric minimum 1.0 degrees
Global start/end: 12/18/2019 22:04:25.5 and 12/19/2019 00:47:52.8
Mid-occultation observing point (lat., long.) -61.7 -56.0

Occultation of 16 Vir 4.96 by moon 45% illuminated at phase= 276 degrees
12/19/2019 09:12:05.4 Geocentric minimum 0.2 degrees
Global start/end: 12/19/2019 07:05:40.9 and 12/19/2019 11:18:29.7
Mid-occultation observing point (lat., long.) 13.9 -141.1
At HVO the miss angle is 1237.4 arc-sec at 12/19/2019 09:26:32.5

Occultation of 38 gamma Lib 3.91 by moon 10% illuminated at phase= 324 degrees
12/23/2019 01:29:51.3 Geocentric minimum 0.8 degrees
Global start/end: 12/22/2019 23:49:23.1 and 12/23/2019 03:10:20.8
Mid-occultation observing point (lat., long.) -63.2 -16.8

Occultation of 46 theta Lib 4.15 by moon 7% illuminated at phase= 329 degrees
12/23/2019 09:47:32.9 Geocentric minimum 0.2 degrees
Global start/end: 12/23/2019 07:40:01.9 and 12/23/2019 11:55:03.9
Mid-occultation observing point (lat., long.) -28.1 -108.7
At HVO the miss angle is 2582.2 arc-sec at 12/23/2019 08:54:00.7

Occultation of 4 psi Oph 4.5 by moon 4% illuminated at phase= 336 degrees
12/23/2019 23:24:02.6 Geocentric minimum 1.1 degrees
Global start/end: 12/23/2019 22:34:16.8 and 12/24/2019 00:13:49.1
Mid-occultation observing point (lat., long.) 67.0 94.9

Occultation of 7 chi Oph 4.42 by moon 4% illuminated at phase= 336 degrees
12/23/2019 23:55:01.9 Geocentric minimum 0.6 degrees
Global start/end: 12/23/2019 21:59:45.9 and 12/24/2019 01:50:19.8
Mid-occultation observing point (lat., long.) -52.8 37.8

Eclipse of the Sun by moon 0% illuminated at phase= 0 degrees
12/25/2019 22:17:40.0 Geocentric minimum 0.4 degrees
Global start/end: 12/25/2019 19:29:48.1 and 12/26/2019 01:05:42.3
Mid-occultation observing point (lat., long.) 1.0 102.2

Occultation of Venus -3.9 by moon 8% illuminated at phase= 34 degrees
12/28/2019 18:55:40.0 Geocentric minimum 1.0 degrees
Global start/end: 12/28/2019 17:32:40.8 and 12/28/2019 20:18:42.9
Mid-occultation observing point (lat., long.) -67.0 -21.3

Occultation of Nashira 3.68 by moon 14% illuminated at phase= 44 degrees
12/29/2019 16:51:23.2 Geocentric minimum 1.1 degrees
Global start/end: 12/29/2019 16:03:59.1 and 12/29/2019 17:38:48.0
Mid-occultation observing point (lat., long.) -66.9 7.6

Occultation of Deneb Algedi 2.87 by moon 15% illuminated at phase= 46 degrees
12/29/2019 20:17:59.4 Geocentric minimum 1.2 degrees
Global start/end: 12/29/2019 20:11:48.8 and 12/29/2019 20:24:09.9
Mid-occultation observing point (lat., long.) 0.0 0.0

Occultation of 71 tau Aqr 4.01 by moon 25% illuminated at phase= 60 degrees
12/31/2019 02:28:49.8 Geocentric minimum 1.1 degrees
Global start/end: 12/31/2019 01:34:18.6   and   12/31/2019 03:23:21.8
Mid-occultation observing point (lat., long.) 66.9 41.4

Occultation of 91 psi^1 Aqr 4.21 by moon 30% illuminated at phase= 67 degrees
12/31/2019 17:49:54.8 Geocentric minimum 0.9 degrees
Global start/end: 12/31/2019 16:23:43.6   and   12/31/2019 19:16:07.7
Mid-occultation observing point (lat., long.) -66.8 -8.7

Occultation of 93 psi^2 Aqr 4.39 by moon 31% illuminated at phase= 67 degrees
12/31/2019 18:41:46.1 Geocentric minimum 0.6 degrees
Global start/end: 12/31/2019 16:45:36.0   and   12/31/2019 20:37:58.5
Mid-occultation observing point (lat., long.) -49.9 -112.6
At HVO the miss angle is 2969.9 arc-sec at 12/31/2019 20:31:38.9

Occultation of 95 psi^3 Aqr 4.98 by moon 31% illuminated at phase= 67 degrees
12/31/2019 18:52:32.6 Geocentric minimum 0.1 degrees
Global start/end: 12/31/2019 16:33:59.1   and   12/31/2019 21:11:08.0
Mid-occultation observing point (lat., long.) -18.2 -134.8
At HVO the miss angle is 1167.5 arc-sec at 12/31/2019 20:34:56.3

Occultation of 30 YY Psc 4.41 by moon 39% illuminated at phase= 77 degrees
01/01/2020 17:37:48.9 Geocentric minimum 0.5 degrees
Global start/end: 01/01/2020 15:32:05.4   and   01/01/2020 19:43:33.2
Mid-occultation observing point (lat., long.) 25.6 -123.7

---For observations at HVO:
01/01/2020 17:55:41.9 Start Total 39.03 38.83 (az194) -15.6 ***
01/01/2020 18:37:29.3 OCCULTATION MID-POINT 36.38 36.36 (az207) -22.9 ***
01/01/2020 19:18:00.7 End Total 32.46 32.65 (az218) -30.1 ***

Occultation of 33 BC Psc 4.61 by moon 40% illuminated at phase= 78 degrees
01/01/2020 19:26:37.1 Geocentric minimum 0.5 degrees
Global start/end: 01/01/2020 17:23:23.3   and   01/01/2020 21:29:51.5
Mid-occultation observing point (lat., long.) 28.7 -151.7

---For observations at HVO:
01/01/2020 20:25:46.0 Start Total 24.37 24.25 (az234) -42.2 ***
01/01/2020 20:55:27.0 OCCULTATION MID-POINT 19.89 19.94 (az241) -47.4 ***
01/01/2020 21:24:01.6 End Total 15.31 15.55 (az246) -52.3 ***

Occultation of 20 Cet 4.77 by moon 50% illuminated at phase= 90 degrees
01/02/2020 21:16:48.5 Geocentric minimum 1.0 degrees
Global start/end: 01/02/2020 20:09:41.4   and   01/02/2020 22:23:54.9
Mid-occultation observing point (lat., long.) 66.9 116.5

Occultation of 106 nu Psc 4.44 by moon 61% illuminated at phase= 102 degrees
01/04/2020 00:53:52.4 Geocentric minimum 0.4 degrees
Global start/end: 01/03/2020 22:41:28.7   and   01/04/2020 03:06:12.9
Mid-occultation observing point (lat., long.) -15.5 172.6

Occultation of 65 xi^1 Cet 4.37 by moon 67% illuminated at phase= 110 degrees
01/04/2020 17:48:52.2 Geocentric minimum 0.5 degrees
Global start/end: 01/04/2020 15:43:36.6   and   01/04/2020 19:54:03.5
Mid-occultation observing point (lat., long.) -21.2 -70.5
At HVO the miss angle is 2928.8 arc-sec at 01/04/2020 18:19:07.9

Occultation of 87 mu Cet 4.27 by moon 73% illuminated at phase= 117 degrees
01/05/2020 09:06:41.2 Geocentric minimum 1.2 degrees
Global start/end: 01/05/2020 08:55:51.0   and   01/05/2020 09:17:31.4
Mid-occultation observing point (lat., long.) 67.0 -63.1

Occultation of 68v776 Tau 4.29 by moon 89% illuminated at phase= 141 degrees
01/07/2020 09:34:46.1 Geocentric minimum 1.0 degrees
Global start/end: 01/07/2020 08:18:38.8   and   01/07/2020 10:50:49.9
Mid-occultation observing point (lat., long.) 66.8 -72.5

Occultation of 74 epsilon Tau 3.53 by moon 89% illuminated at phase= 142 degrees
01/07/2020 11:26:39.8 Geocentric minimum 0.1 degrees
Global start/end: 01/07/2020 09:13:56.6   and   01/07/2020 13:39:20.6
Mid-occultation observing point (lat., long.) 16.0 44.8

Occultation of 102 iota Tau 4.64 by moon 93% illuminated at phase= 150 degrees
01/08/2020 02:44:37.8 Geocentric minimum 0.7 degrees
Global start/end: 01/08/2020 00:59:19.9   and   01/08/2020 04:29:50.2
Mid-occultation observing point (lat., long.) -27.6 -168.5
At HVO the miss angle is 3487.6 arc-sec at 01/08/2020 03:54:32.0

Occultation of 1 Gem 4.16 by moon 98% illuminated at phase= 163 degrees
01/09/2020 03:57:33.8 Geocentric minimum 0.5 degrees
Global start/end: 01/09/2020 01:58:46.4   and   01/09/2020 05:56:16.3
Mid-occultation observing point (lat., long.) -7.2 -179.1
At HVO the miss angle is 2941.3 arc-sec at 01/09/2020 05:02:02.3

Occultation of Propus 3.28 by moon 98% illuminated at phase= 165 degrees
01/09/2020 08:10:33.7 Geocentric minimum 0.4 degrees
Global start/end: 01/09/2020 06:10:07.0   and   01/09/2020 10:10:55.8
Mid-occultation observing point (lat., long.) 50.1 115.2

Occultation of 13 mu Gem 2.88 by moon 99% illuminated at phase= 167 degrees
01/09/2020 11:25:14.7 Geocentric minimum 0.6 degrees
Global start/end: 01/09/2020 09:29:47.0   and   01/09/2020 13:20:37.7
Mid-occultation observing point (lat., long.) 57.3 68.0

Occultation of Wasat 3.53 by moon 100% illuminated at phase= 179 degrees
01/10/2020 10:07:50.0 Geocentric minimum 1.1 degrees
Global start/end: 01/10/2020 09:11:33.8   and   01/10/2020 11:04:04.9
Mid-occultation observing point (lat., long.) 66.8 -83.4

Occultation of Asellus Borealis 4.66 by moon 98% illuminated at phase= 197 degrees
01/11/2020 18:26:27.2 Geocentric minimum 0.6 degrees
Global start/end: 01/11/2020 16:35:14.0   and   01/11/2020 20:17:39.0
Mid-occultation observing point (lat., long.) -15.2 -8.1

Occultation of 30 eta Leo 3.52 by moon 91% illuminated at phase= 216 degrees
01/13/2020 04:11:38.2 Geocentric minimum 0.8 degrees
Global start/end: 01/13/2020 02:37:12.0   and   01/13/2020 05:46:04.6
Mid-occultation observing point (lat., long.) -38.2 -146.7
At HVO the miss angle is 4083.4 arc-sec at 01/13/2020 04:02:28.1

Occultation of 78 iota Leo 3.94 by moon 80% illuminated at phase= 234 degrees
01/14/2020 12:37:13.5 Geocentric minimum 1.2 degrees
Global start/end: 01/14/2020 11:49:26.1   and   01/14/2020 13:25:01.4
Mid-occultation observing point (lat., long.) -66.9 55.0

Occultation of 3 nu Vir 4.03 by moon 75% illuminated at phase= 240 degrees
01/14/2020 23:27:24.7 Geocentric minimum 0.5 degrees
Global start/end: 01/14/2020 21:32:04.4   and   01/15/2020 01:22:47.0
Mid-occultation observing point (lat., long.) 35.5 -20.2

---For observations at HVO:
01/14/2020 21:32:37.8 Start Total -0.49 -0.22 (az80) -51.6
01/14/2020 21:54:38.9 OCCULTATION MID-POINT 3.1 3.16 (az84) -55.1 ***
01/14/2020 22:17:17.8 End Total 7.05 6.91 (az88) -58.5 ***

Occultation of 8 pi Vir 4.66 by moon 73% illuminated at phase= 243 degrees
01/15/2020 05:08:55.5 Geocentric minimum 1.0 degrees
Global start/end: 01/15/2020 03:48:32.8   and   01/15/2020 06:29:19.7
Mid-occultation observing point (lat., long.) -62.6 -171.3
At HVO the miss angle is 4709.3 arc-sec at 01/15/2020 04:20:12.6

Occultation of 16 Vir 4.96 by moon 69% illuminated at phase= 248 degrees
01/15/2020 14:46:00.7 Geocentric minimum 0.2 degrees
Global start/end: 01/15/2020 12:40:15.9   and   01/15/2020 16:51:47.0
Mid-occultation observing point (lat., long.) 13.0 108.3

Occultation of 38 gamma Lib 3.91 by moon 28% illuminated at phase= 296 degrees
01/19/2020 07:27:15.5 Geocentric minimum 0.8 degrees
Global start/end: 01/19/2020 05:47:51.1   and   01/19/2020 09:06:41.9
Mid-occultation observing point (lat., long.) -65.1 -136.9
At HVO the miss angle is 4544.3 arc-sec at 01/19/2020 06:08:53.6

Occultation of 46 theta Lib 4.15 by moon 25% illuminated at phase= 301 degrees
01/19/2020 15:54:46.5 Geocentric minimum 0.2 degrees
Global start/end: 01/19/2020 13:46:03.6   and   01/19/2020 18:03:29.9
Mid-occultation observing point (lat., long.) -29.2 132.2

Occultation of 4 psi Oph 4.5 by moon 19% illuminated at phase= 308 degrees
01/20/2020 05:48:31.2 Geocentric minimum 1.1 degrees
Global start/end: 01/20/2020 04:56:21.2   and   01/20/2020 06:40:41.8
Mid-occultation observing point (lat., long.) 67.0 -28.2

Occultation of 7 chi Oph 4.42 by moon 19% illuminated at phase= 308 degrees
01/20/2020 06:20:14.4 Geocentric minimum 0.6 degrees
Global start/end: 01/20/2020 04:24:42.4   and   01/20/2020 08:15:48.4
Mid-occultation observing point (lat., long.) -54.3 -86.4
At HVO the miss angle is 3366.4 arc-sec at 01/20/2020 04:42:26.7

Occultation of 40 xi Oph 4.39 by moon 12% illuminated at phase= 320 degrees
01/21/2020 05:44:39.8 Geocentric minimum 0.5 degrees
Global start/end: 01/21/2020 03:42:26.9   and   01/21/2020 07:46:54.3
Mid-occultation observing point (lat., long.) -49.7 -57.5

Occultation of 58 Oph 4.87 by moon 9% illuminated at phase= 325 degrees
01/21/2020 15:18:35.6 Geocentric minimum 0.6 degrees
Global start/end: 01/21/2020 13:24:06.7   and   01/21/2020 17:13:06.6
Mid-occultation observing point (lat., long.) -61.2 161.8

Occultation of Jupiter -1.9 by moon 3% illuminated at phase= 339 degrees
01/22/2020 19:40:53.9 Geocentric minimum 0.4 degrees
Global start/end: 01/22/2020 17:30:50.4   and   01/22/2020 21:50:59.3
Mid-occultation observing point (lat., long.) -45.6 120.4

Occultation of Nashira 3.68 by moon 2% illuminated at phase= 16 degrees
01/26/2020 00:56:54.4 Geocentric minimum 1.1 degrees
Global start/end: 01/25/2020 23:58:26.7   and   01/26/2020 01:55:23.1
Mid-occultation observing point (lat., long.) -66.8 -140.9

Occultation of Deneb Algedi 2.87 by moon 2% illuminated at phase= 18 degrees
01/26/2020 04:23:03.9 Geocentric minimum 1.1 degrees
Global start/end: 01/26/2020 03:46:03.7   and   01/26/2020 05:00:04.5
Mid-occultation observing point (lat., long.) -66.9 167.3

Occultation of 71 tau Aqr 4.01 by moon 8% illuminated at phase= 32 degrees
01/27/2020 10:26:46.1 Geocentric minimum 1.1 degrees
Global start/end: 01/27/2020 09:54:30.9   and   01/27/2020 10:59:01.5
Mid-occultation observing point (lat., long.) 66.9 -105.1

Occultation of 91 psi^1 Aqr 4.21 by moon 11% illuminated at phase= 39 degrees
01/28/2020 01:44:10.7 Geocentric minimum 0.8 degrees
Global start/end: 01/28/2020 00:08:53.5   and   01/28/2020 03:19:29.8
Mid-occultation observing point (lat., long.) -66.2 146.7

Occultation of 93 psi^2 Aqr 4.39 by moon 11% illuminated at phase= 39 degrees
01/28/2020 02:35:47.8 Geocentric minimum 0.6 degrees
Global start/end: 01/28/2020 00:35:03.7   and   01/28/2020 04:36:34.7
Mid-occultation observing point (lat., long.) -45.0 97.5

Occultation of 95 psi^3 Aqr 4.98 by moon 11% illuminated at phase= 39 degrees
01/28/2020 02:46:28.3 Geocentric minimum 0.1 degrees
Global start/end: 01/28/2020 00:27:43.8   and   01/28/2020 05:05:14.8
Mid-occultation observing point (lat., long.) -14.1 78.1

Occultation of 30 YY Psc 4.41 by moon 18% illuminated at phase= 49 degrees
01/29/2020 01:28:02.1 Geocentric minimum 0.6 degrees
Global start/end: 01/28/2020 23:27:57.9   and   01/29/2020 03:28:08.3
Mid-occultation observing point (lat., long.) 31.4 88.6

Occultation of 33 BC Psc 4.61 by moon 18% illuminated at phase= 50 degrees
01/29/2020 03:16:43.7 Geocentric minimum 0.6 degrees
Global start/end: 01/29/2020 01:19:42.8   and   01/29/2020 05:13:46.3
Mid-occultation observing point (lat., long.) 34.9 60.1

Occultation of 20 Cet 4.77 by moon 27% illuminated at phase= 62 degrees
01/30/2020 05:09:30.4 Geocentric minimum 1.1 degrees
Global start/end: 01/30/2020 04:30:01.2   and   01/30/2020 05:48:59.6
Mid-occultation observing point (lat., long.) 66.9 -28.6

Occultation of 106 nu Psc 4.44 by moon 37% illuminated at phase= 75 degrees
01/31/2020 08:59:45.6 Geocentric minimum 0.3 degrees
Global start/end: 01/31/2020 06:43:29.1   and   01/31/2020 11:16:01.5
Mid-occultation observing point (lat., long.) -9.5 21.6

Occultation of 65 xi^1 Cet 4.37 by moon 43% illuminated at phase= 82 degrees
02/01/2020 02:08:21.2 Geocentric minimum 0.4 degrees
Global start/end: 01/31/2020 23:57:17.7   and   02/01/2020 04:19:22.5
Mid-occultation observing point (lat., long.) -14.7 134.8

Occultation of 68v776 Tau 4.29 by moon 70% illuminated at phase= 113 degrees
02/03/2020 19:10:43.8 Geocentric minimum 1.1 degrees
Global start/end: 02/03/2020 18:12:36.7   and   02/03/2020 20:08:48.7
Mid-occultation observing point (lat., long.) 66.8 116.4
At HVO the miss angle is 1514.5 arc-sec at 02/03/2020 19:05:46.2

Occultation of 74 epsilon Tau 3.53 by moon 70% illuminated at phase= 114 degrees
02/03/2020 21:04:52.1 Geocentric minimum 0.0 degrees
Global start/end: 02/03/2020 18:50:20.4   and   02/03/2020 23:19:22.0
Mid-occultation observing point (lat., long.) 21.3 -128.1
At HVO the miss angle is 154.3 arc-sec at 02/03/2020 22:02:13.1

Occultation of 102 iota Tau 4.64 by moon 76% illuminated at phase= 122 degrees
02/04/2020 12:41:14.1 Geocentric minimum 0.6 degrees
Global start/end: 02/04/2020 10:48:53.3   and   02/04/2020 14:33:28.3
Mid-occultation observing point (lat., long.) -21.0 13.9

Occultation of 1 Gem 4.16 by moon 85% illuminated at phase= 135 degrees
02/05/2020 14:18:16.6 Geocentric minimum 0.4 degrees
Global start/end: 02/05/2020 12:15:53.5   and   02/05/2020 16:20:33.2
Mid-occultation observing point (lat., long.) -3.1 -1.6

Occultation of Propus 3.28 by moon 87% illuminated at phase= 137 degrees
02/05/2020 18:34:23.2 Geocentric minimum 0.5 degrees
Global start/end: 02/05/2020 16:35:39.5   and   02/05/2020 20:33:00.2
Mid-occultation observing point (lat., long.) 54.2 -68.4

---For observations at HVO:
02/05/2020 17:05:56.2 Start Total 36.59 36.77 (az93) 0.1
02/05/2020 17:39:16.2 OCCULTATION MID-POINT 42.54 42.56 (az100) -6.1 ***
02/05/2020 18:14:14.2 End Total 48.66 48.52 (az107) -12.3 ***

Occultation of 13 mu Gem 2.88 by moon 88% illuminated at phase= 139 degrees
02/05/2020 21:51:06.2 Geocentric minimum 0.6 degrees
Global start/end: 02/05/2020 19:58:00.1   and   02/05/2020 23:44:05.7
Mid-occultation observing point (lat., long.) 61.5 -116.1

---For observations at HVO:
02/05/2020 22:00:26.4 Start Total 66.39 66.6 (az208) -51.0 ***
02/05/2020 22:11:43.2 OCCULTATION MID-POINT 65.36 65.59 (az214) -52.6 ***
02/05/2020 22:22:56.1 End Total 64.17 64.43 (az219) -54.1 ***

Occultation of Wasat 3.53 by moon 94% illuminated at phase= 151 degrees
02/06/2020 20:41:02.5 Geocentric minimum 1.2 degrees
Global start/end: 02/06/2020 19:51:31.3   and   02/06/2020 21:30:31.9
Mid-occultation observing point (lat., long.) 66.8 90.9
At HVO the miss angle is 1813.3 arc-sec at 02/06/2020 19:53:15.5

Occultation of Asellus Borealis 4.66 by moon 99% illuminated at phase= 169 degrees
02/08/2020 04:46:21.4 Geocentric minimum 0.6 degrees
Global start/end: 02/08/2020 02:56:01.1   and   02/08/2020 06:36:37.9
Mid-occultation observing point (lat., long.) -15.4 169.8
At HVO the miss angle is 4027.0 arc-sec at 02/08/2020 05:30:12.1

Occultation of 30 eta Leo 3.52 by moon 100% illuminated at phase= 188 degrees
02/09/2020 13:49:16.0 Geocentric minimum 0.9 degrees
Global start/end: 02/09/2020 12:19:49.0   and   02/09/2020 15:18:41.9
Mid-occultation observing point (lat., long.) -42.5 39.5

Occultation of 78 iota Leo 3.94 by moon 95% illuminated at phase= 206 degrees
02/10/2020 21:13:51.9 Geocentric minimum 1.3 degrees
Global start/end: 02/10/2020 20:50:46.5   and   02/10/2020 21:36:57.3
Mid-occultation observing point (lat., long.) -66.8 -101.3

Occultation of 3 nu Vir 4.03 by moon 92% illuminated at phase= 212 degrees
02/11/2020 07:41:37.0 Geocentric minimum 0.4 degrees
Global start/end: 02/11/2020 05:44:09.2   and   02/11/2020 09:39:06.7
Mid-occultation observing point (lat., long.) 28.9 -174.5
At HVO the miss angle is 825.0 arc-sec at 02/11/2020 08:19:39.1

Occultation of 8 pi Vir 4.66 by moon 91% illuminated at phase= 215 degrees
02/11/2020 13:10:46.1 Geocentric minimum 1.1 degrees
Global start/end: 02/11/2020 12:04:32.4   and   02/11/2020 14:17:00.7
Mid-occultation observing point (lat., long.) -66.9 18.4

Occultation of 16 Vir 4.96 by moon 88% illuminated at phase= 221 degrees
02/11/2020 22:27:36.7 Geocentric minimum 0.1 degrees
Global start/end: 02/11/2020 20:23:05.7   and   02/12/2020 00:32:09.2
Mid-occultation observing point (lat., long.) 6.5 -36.9
At HVO the miss angle is 65.9 arc-sec at 02/11/2020 20:56:38.9

Occultation of 38 gamma Lib 3.91 by moon 51% illuminated at phase= 269 degrees
02/15/2020 12:56:11.1 Geocentric minimum 1.0 degrees
Global start/end: 02/15/2020 11:32:58.2   and   02/15/2020 14:19:27.1
Mid-occultation observing point (lat., long.) -72.8 50.3

Occultation of 46 theta Lib 4.15 by moon 48% illuminated at phase= 273 degrees
02/15/2020 21:19:48.6 Geocentric minimum 0.4 degrees
Global start/end: 02/15/2020 19:15:12.2   and   02/15/2020 23:24:28.5
Mid-occultation observing point (lat., long.) -38.2 20.5

Occultation of 14 nu Sco 4.01 by moon 44% illuminated at phase= 278 degrees
02/16/2020 05:59:39.8 Geocentric minimum 1.1 degrees
Global start/end: 02/16/2020 05:05:23.4   and   02/16/2020 06:53:57.5
Mid-occultation observing point (lat., long.) 66.9 -57.9
At HVO the miss angle is 275.1 arc-sec at 02/16/2020 05:23:57.8

Occultation of 4 psi Oph 4.5 by moon 41% illuminated at phase= 280 degrees
02/16/2020 11:10:41.2 Geocentric minimum 1.0 degrees
Global start/end: 02/16/2020 09:51:06.4   and   02/16/2020 12:30:18.7
Mid-occultation observing point (lat., long.) 67.1 -135.7

Occultation of 7 chi Oph 4.42 by moon 41% illuminated at phase= 281 degrees
02/16/2020 11:42:32.1 Geocentric minimum 0.7 degrees
Global start/end: 02/16/2020 09:56:40.7   and   02/16/2020 13:28:27.4
Mid-occultation observing point (lat., long.) -65.0 155.7

Occultation of 40 xi Oph 4.39 by moon 31% illuminated at phase= 293 degrees
02/17/2020 11:11:48.8 Geocentric minimum 0.6 degrees
Global start/end: 02/17/2020 09:15:51.3   and   02/17/2020 13:07:49.6
Mid-occultation observing point (lat., long.) -59.0 -170.1

Occultation of Mars 1.2 by moon 24% illuminated at phase= 302 degrees
02/18/2020 06:24:19.4 Geocentric minimum 0.8 degrees
Global start/end: 02/18/2020 04:34:17.9   and   02/18/2020 08:14:24.7
Mid-occultation observing point (lat., long.) 29.4 -73.2

---For observations at HVO:
02/18/2020 04:45:20.1 Start Partial 8.07 8.25 (az135) -22.8 ***
02/18/2020 04:45:33.0 Start Total 8.1 8.27 (az135) -22.8 ***
02/18/2020 05:24:29.9 OCCULTATION MID-POINT 12.71 12.7 (az142) -15.8 ***
02/18/2020 06:05:43.5 End Total 16.77 16.61 (az151) -8.5 ***
02/18/2020 06:05:57.9 End Partial 16.79 16.63 (az151) -8.4 ***

Occultation of 58 Oph 4.87 by moon 27% illuminated at phase= 297 degrees
02/17/2020 20:50:30.7 Geocentric minimum 0.7 degrees
Global start/end: 02/17/2020 19:04:24.6   and   02/17/2020 22:36:39.9
Mid-occultation observing point (lat., long.) -71.6 44.7

Occultation of Jupiter -1.9 by moon 14% illuminated at phase= 317 degrees
02/19/2020 12:40:01.2 Geocentric minimum 0.9 degrees
Global start/end: 02/19/2020 11:14:01.8   and   02/19/2020 14:06:02.4
Mid-occultation observing point (lat., long.) -66.6 19.1

Occultation of 30 YY Psc 4.41 by moon 4% illuminated at phase= 22 degrees
02/25/2020 08:24:48.0 Geocentric minimum 0.7 degrees
Global start/end: 02/25/2020 06:35:27.4   and   02/25/2020 10:14:10.0
Mid-occultation observing point (lat., long.) 41.5 -49.5

Occultation of 33 BC Psc 4.61 by moon 4% illuminated at phase= 23 degrees
02/25/2020 10:13:20.1 Geocentric minimum 0.8 degrees
Global start/end: 02/25/2020 08:28:19.2   and   02/25/2020 11:58:22.3
Mid-occultation observing point (lat., long.) 45.8 -79.6

Occultation of 106 nu Psc 4.44 by moon 16% illuminated at phase= 47 degrees
02/27/2020 15:58:03.6 Geocentric minimum 0.1 degrees
Global start/end: 02/27/2020 13:38:38.3   and   02/27/2020 18:17:30.2
Mid-occultation observing point (lat., long.) 1.7 -114.5
At HVO the miss angle is 799.5 arc-sec at 02/27/2020 17:09:56.6

Occultation of 65 xi^1 Cet 4.37 by moon 21% illuminated at phase= 55 degrees
02/28/2020 09:12:52.9 Geocentric minimum 0.2 degrees
Global start/end: 02/28/2020 06:55:18.8   and   02/28/2020 11:30:27.5
Mid-occultation observing point (lat., long.) -2.3 -3.2

Occultation of 74 epsilon Tau 3.53 by moon 47% illuminated at phase= 86 degrees
03/02/2020 05:18:23.3 Geocentric minimum 0.3 degrees
Global start/end: 03/02/2020 03:05:09.5   and   03/02/2020 07:31:34.0
Mid-occultation observing point (lat., long.) 34.8 77.7

Occultation of 102 iota Tau 4.64 by moon 54% illuminated at phase= 94 degrees
03/02/2020 21:20:03.3 Geocentric minimum 0.4 degrees
Global start/end: 03/02/2020 19:14:04.8   and   03/02/2020 23:25:56.5
Mid-occultation observing point (lat., long.) -5.5 -145.6
At HVO the miss angle is 2034.6 arc-sec at 03/02/2020 22:28:55.9

Occultation of 1 Gem 4.16 by moon 65% illuminated at phase= 107 degrees
03/03/2020 23:42:17.8 Geocentric minimum 0.2 degrees
Global start/end: 03/03/2020 21:31:57.1   and   03/04/2020 01:52:34.0
Mid-occultation observing point (lat., long.) 9.2 -170.6
At HVO the miss angle is 1844.6 arc-sec at 03/04/2020 00:51:09.5

Occultation of Propus 3.28 by moon 67% illuminated at phase= 109 degrees
03/04/2020 04:06:15.1 Geocentric minimum 0.7 degrees
Global start/end: 03/04/2020 02:17:53.8   and   03/04/2020 05:54:29.9
Mid-occultation observing point (lat., long.) 69.6 117.7

Occultation of 13 mu Gem 2.88 by moon 68% illuminated at phase= 111 degrees
03/04/2020 07:28:47.5 Geocentric minimum 0.8 degrees
Global start/end: 03/04/2020 05:48:49.4   and   03/04/2020 09:08:39.5
Mid-occultation observing point (lat., long.) 78.9 64.9

Occultation of Asellus Borealis 4.66 by moon 89% illuminated at phase= 141 degrees
03/06/2020 15:41:24.4 Geocentric minimum 0.5 degrees
Global start/end: 03/06/2020 13:45:18.9   and   03/06/2020 17:37:24.3
Mid-occultation observing point (lat., long.) -8.7 -19.9
At HVO the miss angle is 2926.4 arc-sec at 03/06/2020 14:32:29.8

Occultation of 30 eta Leo 3.52 by moon 97% illuminated at phase= 160 degrees
03/08/2020 00:57:45.1 Geocentric minimum 0.9 degrees
Global start/end: 03/07/2020 23:25:47.0   and   03/08/2020 02:29:40.0
Mid-occultation observing point (lat., long.) -39.5 -153.3
At HVO the miss angle is 4324.7 arc-sec at 03/08/2020 00:54:46.2

Occultation of 3 nu Vir 4.03 by moon 100% illuminated at phase= 185 degrees
03/09/2020 18:20:30.8 Geocentric minimum 0.3 degrees
Global start/end: 03/09/2020 16:22:05.7   and   03/09/2020 20:18:55.8
Mid-occultation observing point (lat., long.) 24.5 -3.5

Occultation of 8 pi Vir 4.66 by moon 100% illuminated at phase= 188 degrees
03/09/2020 23:41:34.2 Geocentric minimum 1.2 degrees
Global start/end: 03/09/2020 22:49:06.8   and   03/10/2020 00:34:01.7
Mid-occultation observing point (lat., long.) -66.7 -166.5

Occultation of 16 Vir 4.96 by moon 99% illuminated at phase= 193 degrees
03/10/2020 08:44:19.7 Geocentric minimum 0.0 degrees
Global start/end: 03/10/2020 06:41:35.3   and   03/10/2020 10:47:04.7
Mid-occultation observing point (lat., long.) 0.8 139.5

Occultation of 38 gamma Lib 3.91 by moon 74% illuminated at phase= 241 degrees
03/13/2020 20:12:49.7 Geocentric minimum 1.2 degrees
Global start/end: 03/13/2020 19:31:12.0   and   03/13/2020 20:54:28.6
Mid-occultation observing point (lat., long.) -66.5 -117.7

Occultation of 46 theta Lib 4.15 by moon 71% illuminated at phase= 246 degrees
03/14/2020 04:20:18.0 Geocentric minimum 0.6 degrees
Global start/end: 03/14/2020 02:28:10.8   and   03/14/2020 06:12:31.1
Mid-occultation observing point (lat., long.) -53.1 -120.5
At HVO the miss angle is 4069.0 arc-sec at 03/14/2020 03:15:50.3

Occultation of 14 nu Sco 4.01 by moon 67% illuminated at phase= 250 degrees
03/14/2020 12:44:39.7 Geocentric minimum 0.9 degrees
Global start/end: 03/14/2020 11:12:17.8   and   03/14/2020 14:17:06.5
Mid-occultation observing point (lat., long.) 41.5 151.6

Occultation of 4 psi Oph 4.5 by moon 65% illuminated at phase= 253 degrees
03/14/2020 17:46:56.0 Geocentric minimum 0.7 degrees
Global start/end: 03/14/2020 16:01:49.0   and   03/14/2020 19:32:08.5
Mid-occultation observing point (lat., long.) 26.9 72.8

Occultation of 7 chi Oph 4.42 by moon 65% illuminated at phase= 253 degrees
03/14/2020 18:17:47.4 Geocentric minimum 1.0 degrees
Global start/end: 03/14/2020 16:57:23.3   and   03/14/2020 19:38:15.4
Mid-occultation observing point (lat., long.) -66.3 -90.1

Occultation of 40 xi Oph 4.39 by moon 54% illuminated at phase= 265 degrees
03/15/2020 17:14:24.9 Geocentric minimum 0.8 degrees
Global start/end: 03/15/2020 15:38:24.0   and   03/15/2020 18:50:30.2
Mid-occultation observing point (lat., long.) -78.8 40.0

Occultation of 58 Oph 4.87 by moon 50% illuminated at phase= 270 degrees
03/16/2020 02:43:04.7 Geocentric minimum 1.0 degrees
Global start/end: 03/16/2020 01:23:36.3   and   03/16/2020 04:02:36.4
Mid-occultation observing point (lat., long.) -66.3 142.5

Occultation of Mars 0.9 by moon 31% illuminated at phase= 293 degrees
03/18/2020 01:24:29.1 Geocentric minimum 0.7 degrees
Global start/end: 03/17/2020 23:32:15.9   and   03/18/2020 03:16:46.9
Mid-occultation observing point (lat., long.) -75.0 2.8

Occultation of Nashira 3.68 by moon 11% illuminated at phase= 321 degrees
03/20/2020 13:34:48.8 Geocentric minimum 1.1 degrees
Global start/end: 03/20/2020 13:13:52.5   and   03/20/2020 13:55:45.2
Mid-occultation observing point (lat., long.) -66.6 -24.9

Occultation of 71 tau Aqr 4.01 by moon 4% illuminated at phase= 337 degrees
03/21/2020 23:25:44.4 Geocentric minimum 1.1 degrees
Global start/end: 03/21/2020 23:20:17.9   and   03/21/2020 23:31:10.9
Mid-occultation observing point (lat., long.) 0.0 0.0

Occultation of 91 psi^1 Aqr 4.21 by moon 2% illuminated at phase= 344 degrees
03/22/2020 14:50:07.5 Geocentric minimum 0.8 degrees
Global start/end: 03/22/2020 13:05:44.9   and   03/22/2020 16:34:30.5
Mid-occultation observing point (lat., long.) -59.3 -122.0

Occultation of 93 psi^2 Aqr 4.39 by moon 2% illuminated at phase= 344 degrees
03/22/2020 15:41:42.6 Geocentric minimum 0.5 degrees
Global start/end: 03/22/2020 13:35:49.3   and   03/22/2020 17:47:36.5
Mid-occultation observing point (lat., long.) -39.2 -156.7

Occultation of 95 psi^3 Aqr 4.98 by moon 2% illuminated at phase= 344 degrees
03/22/2020 15:51:59.7 Geocentric minimum 0.0 degrees
Global start/end: 03/22/2020 13:32:53.8   and   03/22/2020 18:11:04.8
Mid-occultation observing point (lat., long.) -9.2 -174.1

Occultation of 106 nu Psc 4.44 by moon 3% illuminated at phase= 20 degrees
03/25/2020 22:05:08.6 Geocentric minimum 0.1 degrees
Global start/end: 03/25/2020 19:46:17.6   and   03/26/2020 00:24:00.4
Mid-occultation observing point (lat., long.) 10.3 123.2

Occultation of 65 xi^1 Cet 4.37 by moon 6% illuminated at phase= 28 degrees
03/26/2020 15:18:19.0 Geocentric minimum 0.0 degrees
Global start/end: 03/26/2020 12:59:18.7   and   03/26/2020 17:37:20.7
Mid-occultation observing point (lat., long.) 8.3 -125.6
At HVO the miss angle is 393.8 arc-sec at 03/26/2020 16:35:09.3

Occultation of 74 epsilon Tau 3.53 by moon 24% illuminated at phase= 59 degrees
03/29/2020 11:44:54.8 Geocentric minimum 0.5 degrees
Global start/end: 03/29/2020 09:41:29.9   and   03/29/2020 13:48:16.9
Mid-occultation observing point (lat., long.) 51.9 -53.3

Occultation of 102 iota Tau 4.64 by moon 30% illuminated at phase= 67 degrees
03/30/2020 04:02:22.9 Geocentric minimum 0.2 degrees
Global start/end: 03/30/2020 01:47:27.2   and   03/30/2020 06:17:17.7
Mid-occultation observing point (lat., long.) 11.5 84.1

Occultation of 1 Gem 4.16 by moon 41% illuminated at phase= 80 degrees
03/31/2020 07:01:06.0 Geocentric minimum 0.0 degrees
Global start/end: 03/31/2020 04:46:36.7   and   03/31/2020 09:15:35.3
Mid-occultation observing point (lat., long.) 25.7 51.5

Occultation of Propus 3.28 by moon 43% illuminated at phase= 82 degrees
03/31/2020 11:32:25.6 Geocentric minimum 1.0 degrees
Global start/end: 03/31/2020 10:13:12.2   and   03/31/2020 12:51:35.9
Mid-occultation observing point (lat., long.) 66.2 174.7

Occultation of 13 mu Gem 2.88 by moon 45% illuminated at phase= 84 degrees
03/31/2020 15:00:46.2 Geocentric minimum 1.1 degrees
Global start/end: 03/31/2020 13:58:43.3   and   03/31/2020 16:02:47.1
Mid-occultation observing point (lat., long.) 66.3 122.5

Occultation of Asellus Borealis 4.66 by moon 70% illuminated at phase= 114 degrees
04/03/2020 01:05:14.8 Geocentric minimum 0.3 degrees
Global start/end: 04/02/2020 22:59:48.9   and   04/03/2020 03:10:36.0
Mid-occultation observing point (lat., long.) 4.6 174.5
At HVO the miss angle is 2845.9 arc-sec at 04/03/2020 01:52:32.4

Occultation of 30 eta Leo 3.52 by moon 84% illuminated at phase= 133 degrees
04/04/2020 11:23:21.4 Geocentric minimum 0.7 degrees
Global start/end: 04/04/2020 09:39:04.3   and   04/04/2020 13:07:33.4
Mid-occultation observing point (lat., long.) -27.0 28.6

Occultation of 78 iota Leo 3.94 by moon 94% illuminated at phase= 151 degrees
04/05/2020 19:07:45.9 Geocentric minimum 1.2 degrees
Global start/end: 04/05/2020 18:34:21.3   and   04/05/2020 19:41:10.0
Mid-occultation observing point (lat., long.) -66.5 -124.3

Occultation of 3 nu Vir 4.03 by moon 96% illuminated at phase= 157 degrees
04/06/2020 05:31:00.4 Geocentric minimum 0.4 degrees
Global start/end: 04/06/2020 03:33:16.6   and   04/06/2020 07:28:41.7
Mid-occultation observing point (lat., long.) 26.9 163.2

Occultation of 8 pi Vir 4.66 by moon 97% illuminated at phase= 160 degrees
04/06/2020 10:53:34.7 Geocentric minimum 1.1 degrees
Global start/end: 04/06/2020 09:56:04.3   and   04/06/2020 11:51:04.3
Mid-occultation observing point (lat., long.) -66.5 -1.7

Occultation of 16 Vir 4.96 by moon 99% illuminated at phase= 166 degrees
04/06/2020 19:58:17.1 Geocentric minimum 0.0 degrees
Global start/end: 04/06/2020 17:55:29.5   and   04/06/2020 22:01:03.9
Mid-occultation observing point (lat., long.) 1.0 -56.0
At HVO the miss angle is 447.8 arc-sec at 04/06/2020 18:31:07.3

Occultation of 46 theta Lib 4.15 by moon 89% illuminated at phase= 219 degrees
04/10/2020 13:44:22.6 Geocentric minimum 0.8 degrees
Global start/end: 04/10/2020 12:08:22.9   and   04/10/2020 15:20:27.3
Mid-occultation observing point (lat., long.) -67.4 51.2

Occultation of 14 nu Sco 4.01 by moon 87% illuminated at phase= 223 degrees
04/10/2020 21:52:02.9 Geocentric minimum 0.6 degrees
Global start/end: 04/10/2020 20:03:00.0   and   04/10/2020 23:41:11.8
Mid-occultation observing point (lat., long.) 19.8 -19.5

Occultation of 4 psi Oph 4.5 by moon 85% illuminated at phase= 226 degrees
04/11/2020 02:43:53.7 Geocentric minimum 0.5 degrees
Global start/end: 04/11/2020 00:46:52.4   and   04/11/2020 04:41:01.0
Mid-occultation observing point (lat., long.) 9.1 -92.8
At HVO the miss angle is 195.9 arc-sec at 04/11/2020 02:00:56.6

Occultation of 7 chi Oph 4.42 by moon 85% illuminated at phase= 226 degrees
04/11/2020 03:13:15.5 Geocentric minimum 1.2 degrees
Global start/end: 04/11/2020 02:36:19.4   and   04/11/2020 03:50:12.6
Mid-occultation observing point (lat., long.) -66.3 109.3

Occultation of 40 xi Oph 4.39 by moon 76% illuminated at phase= 238 degrees
04/12/2020 01:23:06.9 Geocentric minimum 1.1 degrees
Global start/end: 04/12/2020 00:21:31.1   and   04/12/2020 02:24:45.4
Mid-occultation observing point (lat., long.) -66.2 135.9

Occultation of 58 Oph 4.87 by moon 73% illuminated at phase= 243 degrees
04/12/2020 10:33:19.6 Geocentric minimum 1.2 degrees
Global start/end: 04/12/2020 10:30:04.1   and   04/12/2020 10:36:35.1
Mid-occultation observing point (lat., long.) 0.0 0.0

Occultation of 71 tau Aqr 4.01 by moon 18% illuminated at phase= 310 degrees
04/18/2020 05:21:37.1 Geocentric minimum 1.0 degrees
Global start/end: 04/18/2020 04:10:43.1   and   04/18/2020 06:32:31.6
Mid-occultation observing point (lat., long.) 66.4 -110.2

---For observations at HVO:
04/18/2020 04:17:35.7 Start Total 4.87 5.08 (az114) -8.7 ***
04/18/2020 04:45:11.2 OCCULTATION MID-POINT 9.24 9.38 (az119) -3.8 ***
04/18/2020 05:13:53.3 End Total 13.6 13.69 (az124) 1.3

Occultation of 91 psi^1 Aqr 4.21 by moon 14% illuminated at phase= 317 degrees
04/18/2020 20:48:53.1 Geocentric minimum 0.9 degrees
Global start/end: 04/18/2020 19:20:29.7   and   04/18/2020 22:17:16.9
Mid-occultation observing point (lat., long.) -68.6 172.6

Occultation of 93 psi^2 Aqr 4.39 by moon 13% illuminated at phase= 317 degrees
04/18/2020 21:40:29.3 Geocentric minimum 0.6 degrees
Global start/end: 04/18/2020 19:42:44.9   and   04/18/2020 23:38:13.8
Mid-occultation observing point (lat., long.) -48.2 94.2

Occultation of 95 psi^3 Aqr 4.98 by moon 13% illuminated at phase= 317 degrees
04/18/2020 21:50:35.0 Geocentric minimum 0.1 degrees
Global start/end: 04/18/2020 19:31:46.5   and   04/19/2020 00:09:22.3
Mid-occultation observing point (lat., long.) -16.8 72.6

Occultation of 30 YY Psc 4.41 by moon 8% illuminated at phase= 328 degrees
04/19/2020 20:36:51.4 Geocentric minimum 0.7 degrees
Global start/end: 04/19/2020 18:43:00.8   and   04/19/2020 22:30:41.5
Mid-occultation observing point (lat., long.) 37.4 76.3

Occultation of 33 BC Psc 4.61 by moon 7% illuminated at phase= 329 degrees
04/19/2020 22:25:41.0 Geocentric minimum 0.7 degrees
Global start/end: 04/19/2020 20:36:28.1   and   04/20/2020 00:14:53.5
Mid-occultation observing point (lat., long.) 42.0 46.4

Occultation of 74 epsilon Tau 3.53 by moon 8% illuminated at phase= 32 degrees
04/25/2020 17:21:30.4 Geocentric minimum 0.7 degrees
Global start/end: 04/25/2020 15:30:42.0   and   04/25/2020 19:12:16.7
Mid-occultation observing point (lat., long.) 64.9 -176.5
At HVO the miss angle is 234.1 arc-sec at 04/25/2020 18:50:25.4

Occultation of 102 iota Tau 4.64 by moon 12% illuminated at phase= 40 degrees
04/26/2020 09:38:24.6 Geocentric minimum 0.0 degrees
Global start/end: 04/26/2020 07:22:25.8   and   04/26/2020 11:54:24.6
Mid-occultation observing point (lat., long.) 23.4 -29.0
At HVO the miss angle is 1530.9 arc-sec at 04/26/2020 08:44:27.3

Occultation of 1 Gem 4.16 by moon 20% illuminated at phase= 53 degrees
04/27/2020 12:44:24.4 Geocentric minimum 0.3 degrees
Global start/end: 04/27/2020 10:32:45.5   and   04/27/2020 14:56:02.2
Mid-occultation observing point (lat., long.) 39.5 -62.6

Occultation of Mebsuta 2.98 by moon 26% illuminated at phase= 62 degrees
04/28/2020 05:55:45.3 Geocentric minimum 1.2 degrees
Global start/end: 04/28/2020 05:30:35.2   and   04/28/2020 06:20:55.1
Mid-occultation observing point (lat., long.) -66.2 52.0

Occultation of 77 kappa Gem 3.57 by moon 37% illuminated at phase= 74 degrees
04/29/2020 07:15:49.9 Geocentric minimum 1.0 degrees
Global start/end: 04/29/2020 06:02:18.1   and   04/29/2020 08:29:19.3
Mid-occultation observing point (lat., long.) -66.4 30.8

Occultation of Asellus Borealis 4.66 by moon 48% illuminated at phase= 87 degrees
04/30/2020 08:05:53.1 Geocentric minimum 0.1 degrees
Global start/end: 04/30/2020 05:55:10.3   and   04/30/2020 10:16:35.3
Mid-occultation observing point (lat., long.) 18.3 45.0

Occultation of 30 eta Leo 3.52 by moon 64% illuminated at phase= 106 degrees
05/01/2020 19:32:46.2 Geocentric minimum 0.5 degrees
Global start/end: 05/01/2020 17:35:33.8   and   05/01/2020 21:29:53.9
Mid-occultation observing point (lat., long.) -13.2 -115.9
At HVO the miss angle is 2412.9 arc-sec at 05/01/2020 19:00:22.5

Occultation of 78 iota Leo 3.94 by moon 78% illuminated at phase= 124 degrees
05/03/2020 04:24:19.1 Geocentric minimum 1.1 degrees
Global start/end: 05/03/2020 03:18:58.4   and   05/03/2020 05:29:37.8
Mid-occultation observing point (lat., long.) -66.3 69.5

Occultation of 3 nu Vir 4.03 by moon 83% illuminated at phase= 131 degrees
05/03/2020 15:08:22.1 Geocentric minimum 0.5 degrees
Global start/end: 05/03/2020 13:13:55.1   and   05/03/2020 17:02:45.4
Mid-occultation observing point (lat., long.) 35.1 -3.3

Occultation of 8 pi Vir 4.66 by moon 85% illuminated at phase= 134 degrees
05/03/2020 20:40:20.6 Geocentric minimum 1.0 degrees
Global start/end: 05/03/2020 19:25:00.9   and   05/03/2020 21:55:38.2
Mid-occultation observing point (lat., long.) -66.3 -175.4
At HVO the miss angle is 4427.4 arc-sec at 05/03/2020 19:30:04.1

Occultation of 16 Vir 4.96 by moon 88% illuminated at phase= 139 degrees
05/04/2020 06:00:52.8 Geocentric minimum 0.1 degrees
Global start/end: 05/04/2020 03:56:24.1   and   05/04/2020 08:05:20.0
Mid-occultation observing point (lat., long.) 6.5 128.7

Occultation of 46 theta Lib 4.15 by moon 99% illuminated at phase= 192 degrees
05/08/2020 00:23:30.0 Geocentric minimum 0.9 degrees
Global start/end: 05/07/2020 22:56:42.5   and   05/08/2020 01:50:20.4
Mid-occultation observing point (lat., long.) -73.3 -163.2
At HVO the miss angle is 5101.3 arc-sec at 05/07/2020 23:06:45.4

Occultation of Graffias 2.62 by moon 98% illuminated at phase= 195 degrees
05/08/2020 06:06:27.4 Geocentric minimum 1.3 degrees
Global start/end: 05/08/2020 06:01:24.9   and   05/08/2020 06:11:29.9
Mid-occultation observing point (lat., long.) 0.0 0.0

Occultation of 8 beta^2 Sco 4.92 by moon 98% illuminated at phase= 195 degrees
05/08/2020 06:06:28.4 Geocentric minimum 1.3 degrees
Global start/end: 05/08/2020 05:55:34.8   and   05/08/2020 06:17:22.0
Mid-occultation observing point (lat., long.) 66.2 -140.8

Occultation of 14 nu Sco 4.01 by moon 98% illuminated at phase= 196 degrees
05/08/2020 08:24:04.6 Geocentric minimum 0.5 degrees
Global start/end: 05/08/2020 06:30:08.1   and   05/08/2020 10:18:05.3
Mid-occultation observing point (lat., long.) 11.7 153.4

Occultation of 4 psi Oph 4.5 by moon 97% illuminated at phase= 199 degrees
05/08/2020 13:10:39.1 Geocentric minimum 0.4 degrees
Global start/end: 05/08/2020 11:10:26.1   and   05/08/2020 15:10:56.1
Mid-occultation observing point (lat., long.) 1.3 81.7

Occultation of 40 xi Oph 4.39 by moon 93% illuminated at phase= 212 degrees
05/09/2020 11:19:28.0 Geocentric minimum 1.2 degrees
Global start/end: 05/09/2020 11:05:37.0   and   05/09/2020 11:33:19.1
Mid-occultation observing point (lat., long.) -66.1 -39.9

Occultation of 71 tau Aqr 4.01 by moon 38% illuminated at phase= 284 degrees
05/15/2020 12:05:47.4 Geocentric minimum 0.8 degrees
Global start/end: 05/15/2020 10:26:20.5   and   05/15/2020 13:45:16.3
Mid-occultation observing point (lat., long.) 45.1 156.0

Occultation of 91 psi^1 Aqr 4.21 by moon 33% illuminated at phase= 291 degrees
05/16/2020 03:28:14.2 Geocentric minimum 1.1 degrees
Global start/end: 05/16/2020 02:32:18.9   and   05/16/2020 04:24:09.9
Mid-occultation observing point (lat., long.) -66.1 71.4
At HVO the miss angle is 5928.5 arc-sec at 05/16/2020 02:43:36.0

Occultation of 93 psi^2 Aqr 4.39 by moon 32% illuminated at phase= 291 degrees
05/16/2020 04:19:34.3 Geocentric minimum 0.8 degrees
Global start/end: 05/16/2020 02:37:11.3   and   05/16/2020 06:01:58.5
Mid-occultation observing point (lat., long.) -61.0 -13.2
At HVO the miss angle is 4936.0 arc-sec at 05/16/2020 03:58:34.4

Occultation of 95 psi^3 Aqr 4.98 by moon 32% illuminated at phase= 291 degrees
05/16/2020 04:29:31.1 Geocentric minimum 0.3 degrees
Global start/end: 05/16/2020 02:14:21.4   and   05/16/2020 06:44:41.4
Mid-occultation observing point (lat., long.) -26.8 -49.3
At HVO the miss angle is 3144.8 arc-sec at 05/16/2020 04:09:53.1

Occultation of 30 YY Psc 4.41 by moon 24% illuminated at phase= 301 degrees
05/17/2020 03:12:29.5 Geocentric minimum 0.5 degrees
Global start/end: 05/17/2020 01:07:46.1   and   05/17/2020 05:17:12.6
Mid-occultation observing point (lat., long.) 26.4 -42.8

Occultation of 33 BC Psc 4.61 by moon 24% illuminated at phase= 302 degrees
05/17/2020 05:01:13.0 Geocentric minimum 0.6 degrees
Global start/end: 05/17/2020 02:59:57.2   and   05/17/2020 07:02:28.6
Mid-occultation observing point (lat., long.) 30.5 -71.4

Occultation of 106 nu Psc 4.44 by moon 8% illuminated at phase= 327 degrees
05/19/2020 10:41:45.1 Geocentric minimum 0.0 degrees
Global start/end: 05/19/2020 08:22:43.4   and   05/19/2020 13:00:45.1
Mid-occultation observing point (lat., long.) 7.6 -118.5
At HVO the miss angle is 392.1 arc-sec at 05/19/2020 11:53:31.3

Occultation of 65 xi^1 Cet 4.37 by moon 5% illuminated at phase= 334 degrees
05/20/2020 03:49:05.3 Geocentric minimum 0.0 degrees
Global start/end: 05/20/2020 01:30:34.2   and   05/20/2020 06:07:35.0
Mid-occultation observing point (lat., long.) 9.0 -7.3

Occultation of 102 iota Tau 4.64 by moon 1% illuminated at phase= 14 degrees
05/23/2020 15:33:47.5 Geocentric minimum 0.1 degrees
Global start/end: 05/23/2020 13:19:11.8   and   05/23/2020 17:48:22.7
Mid-occultation observing point (lat., long.) 27.7 -145.6
At HVO the miss angle is 31.0 arc-sec at 05/23/2020 16:45:23.5

Occultation of 1 Gem 4.16 by moon 5% illuminated at phase= 27 degrees
05/24/2020 18:23:03.3 Geocentric minimum 0.4 degrees
Global start/end: 05/24/2020 16:15:16.5   and   05/24/2020 20:30:48.4
Mid-occultation observing point (lat., long.) 45.9 -175.1

---For observations at HVO:
05/24/2020 19:20:08.5 Start Total 20.47 20.22 (az283) 0.1
05/24/2020 19:41:17.3 OCCULTATION MID-POINT 16.8 16.68 (az286) -3.3 ***
05/24/2020 20:01:49.4 End Total 13.31 13.31 (az289) -6.7 ***

Occultation of Mebsuta 2.98 by moon 9% illuminated at phase= 35 degrees
05/25/2020 11:26:21.3 Geocentric minimum 1.1 degrees
Global start/end: 05/25/2020 10:24:20.1   and   05/25/2020 12:28:21.4
Mid-occultation observing point (lat., long.) -66.2 -57.3
At HVO the miss angle is 4533.6 arc-sec at 05/25/2020 10:48:32.5

Occultation of 77 kappa Gem 3.57 by moon 17% illuminated at phase= 48 degrees
05/26/2020 12:40:42.6 Geocentric minimum 0.9 degrees
Global start/end: 05/26/2020 11:09:25.3   and   05/26/2020 14:11:57.8
Mid-occultation observing point (lat., long.) -42.8 -70.4
At HVO the miss angle is 3630.7 arc-sec at 05/26/2020 11:51:48.8

Occultation of Asellus Borealis 4.66 by moon 26% illuminated at phase= 61 degrees
05/27/2020 13:35:58.5 Geocentric minimum 0.1 degrees
Global start/end: 05/27/2020 11:25:09.0   and   05/27/2020 15:46:48.0
Mid-occultation observing point (lat., long.) 26.7 -62.6
At HVO the miss angle is 43.2 arc-sec at 05/27/2020 12:27:29.0

Occultation of 30 eta Leo 3.52 by moon 41% illuminated at phase= 80 degrees
05/29/2020 01:32:57.1 Geocentric minimum 0.4 degrees
Global start/end: 05/28/2020 23:29:06.5   and   05/29/2020 03:36:45.5
Mid-occultation observing point (lat., long.) -4.3 129.9

Occultation of 78 iota Leo 3.94 by moon 57% illuminated at phase= 98 degrees
05/30/2020 11:14:56.3 Geocentric minimum 1.0 degrees
Global start/end: 05/30/2020 09:52:01.9   and   05/30/2020 12:37:48.5
Mid-occultation observing point (lat., long.) -57.6 -34.2

Occultation of 3 nu Vir 4.03 by moon 62% illuminated at phase= 104 degrees
05/30/2020 22:19:10.2 Geocentric minimum 0.6 degrees
Global start/end: 05/30/2020 20:29:48.4   and   05/31/2020 00:08:29.0
Mid-occultation observing point (lat., long.) 43.3 -131.6

---For observations at HVO:
05/30/2020 22:21:32.8 Start Total 32.77 32.56 (az244) -20.9 ***
05/30/2020 22:46:51.3 OCCULTATION MID-POINT 28.59 28.42 (az249) -22.3 ***
05/30/2020 23:11:26.0 End Total 24.39 24.28 (az254) -23.3 ***

Occultation of 8 pi Vir 4.66 by moon 65% illuminated at phase= 107 degrees
05/31/2020 04:01:38.6 Geocentric minimum 0.9 degrees
Global start/end: 05/31/2020 02:32:40.7   and   05/31/2020 05:30:34.2
Mid-occultation observing point (lat., long.) -51.9 89.9

Occultation of 16 Vir 4.96 by moon 69% illuminated at phase= 113 degrees
05/31/2020 13:40:52.1 Geocentric minimum 0.2 degrees
Global start/end: 05/31/2020 11:35:16.1   and   05/31/2020 15:46:26.4
Mid-occultation observing point (lat., long.) 12.6 -10.5

Occultation of 46 theta Lib 4.15 by moon 98% illuminated at phase= 166 degrees
06/04/2020 10:25:17.4 Geocentric minimum 0.9 degrees
Global start/end: 06/04/2020 08:58:12.0   and   06/04/2020 11:52:24.1
Mid-occultation observing point (lat., long.) -73.3 18.4

Occultation of 8 beta^2 Sco 4.92 by moon 99% illuminated at phase= 169 degrees
06/04/2020 16:12:17.6 Geocentric minimum 1.3 degrees
Global start/end: 06/04/2020 16:06:04.4   and   06/04/2020 16:18:30.8
Mid-occultation observing point (lat., long.) 0.0 0.0

Occultation of 14 nu Sco 4.01 by moon 99% illuminated at phase= 170 degrees
06/04/2020 18:30:55.4 Geocentric minimum 0.5 degrees
Global start/end: 06/04/2020 16:36:24.1   and   06/04/2020 20:25:28.5
Mid-occultation observing point (lat., long.) 11.5 -25.3

Occultation of 4 psi Oph 4.5 by moon 100% illuminated at phase= 173 degrees
06/04/2020 23:19:31.3 Geocentric minimum 0.4 degrees
Global start/end: 06/04/2020 21:18:41.8   and   06/05/2020 01:20:22.6
Mid-occultation observing point (lat., long.) 0.6 -97.6
At HVO the miss angle is 729.1 arc-sec at 06/04/2020 22:38:50.8

Occultation of 52 Sgr 4.6 by moon 91% illuminated at phase= 214 degrees
06/08/2020 03:48:50.9 Geocentric minimum 1.2 degrees
Global start/end: 06/08/2020 03:19:39.0   and   06/08/2020 04:18:03.5
Mid-occultation observing point (lat., long.) 66.1 -136.7

Occultation of 71 tau Aqr 4.01 by moon 61% illuminated at phase= 257 degrees
06/11/2020 19:56:44.1 Geocentric minimum 0.7 degrees
Global start/end: 06/11/2020 18:07:20.6   and   06/11/2020 21:46:11.3
Mid-occultation observing point (lat., long.) 34.3 18.2

Occultation of 91 psi^1 Aqr 4.21 by moon 55% illuminated at phase= 264 degrees
06/12/2020 11:08:15.5 Geocentric minimum 1.2 degrees
Global start/end: 06/12/2020 10:51:29.5   and   06/12/2020 11:25:01.5
Mid-occultation observing point (lat., long.) -66.1 -70.5

Occultation of 93 psi^2 Aqr 4.39 by moon 55% illuminated at phase= 265 degrees
06/12/2020 11:59:03.4 Geocentric minimum 0.9 degrees
Global start/end: 06/12/2020 10:28:20.4   and   06/12/2020 13:29:48.7
Mid-occultation observing point (lat., long.) -67.9 -123.7

Occultation of 95 psi^3 Aqr 4.98 by moon 55% illuminated at phase= 265 degrees
06/12/2020 12:08:53.1 Geocentric minimum 0.4 degrees
Global start/end: 06/12/2020 09:57:44.1   and   06/12/2020 14:20:04.9
Mid-occultation observing point (lat., long.) -32.5 172.0

Occultation of 30 YY Psc 4.41 by moon 46% illuminated at phase= 275 degrees
06/13/2020 10:41:17.7 Geocentric minimum 0.4 degrees
Global start/end: 06/13/2020 08:31:49.1   and   06/13/2020 12:50:47.6
Mid-occultation observing point (lat., long.) 20.4 -178.8

Occultation of 33 BC Psc 4.61 by moon 45% illuminated at phase= 276 degrees
06/13/2020 12:29:26.7 Geocentric minimum 0.5 degrees
Global start/end: 06/13/2020 10:22:44.2   and   06/13/2020 14:36:10.5
Mid-occultation observing point (lat., long.) 24.2 153.1

Occultation of 20 Cet 4.77 by moon 35% illuminated at phase= 288 degrees
06/14/2020 14:16:31.7 Geocentric minimum 1.1 degrees
Global start/end: 06/14/2020 13:56:42.2   and   06/14/2020 14:36:21.3
Mid-occultation observing point (lat., long.) 66.1 60.3

Occultation of 106 nu Psc 4.44 by moon 25% illuminated at phase= 300 degrees
06/15/2020 18:06:40.4 Geocentric minimum 0.0 degrees
Global start/end: 06/15/2020 15:47:12.1   and   06/15/2020 20:26:07.1
Mid-occultation observing point (lat., long.) 4.0 104.9

Occultation of 65 xi^1 Cet 4.37 by moon 19% illuminated at phase= 308 degrees
06/16/2020 11:15:40.3 Geocentric minimum 0.1 degrees
Global start/end: 06/16/2020 08:56:52.6   and   06/16/2020 13:34:26.0
Mid-occultation observing point (lat., long.) 5.9 -144.6
At HVO the miss angle is 412.6 arc-sec at 06/16/2020 12:49:03.5

Occultation of Venus -4.4 by moon 4% illuminated at phase= 337 degrees
06/19/2020 01:31:59.9 Geocentric minimum 0.7 degrees
Global start/end: 06/18/2020 23:46:05.0   and   06/19/2020 03:17:52.5
Mid-occultation observing point (lat., long.) 65.9 -1.2

Occultation of 74 epsilon Tau 3.53 by moon 3% illuminated at phase= 340 degrees
06/19/2020 06:45:58.9 Geocentric minimum 0.7 degrees
Global start/end: 06/19/2020 04:58:38.9   and   06/19/2020 08:33:14.9
Mid-occultation observing point (lat., long.) 67.1 -75.4

Eclipse of the Sun by moon 0% illuminated at phase= 360 degrees
06/20/2020 23:40:05.1 Geocentric minimum 0.1 degrees
Global start/end: 06/20/2020 20:45:59.6   and   06/21/2020 02:34:02.7
Mid-occultation observing point (lat., long.) 30.5 79.7

Occultation of 77 kappa Gem 3.57 by moon 4% illuminated at phase= 22 degrees
06/22/2020 18:51:17.4 Geocentric minimum 0.9 degrees
Global start/end: 06/22/2020 17:18:07.9   and   06/22/2020 20:24:24.8
Mid-occultation observing point (lat., long.) -39.1 170.7
At HVO the miss angle is 4634.8 arc-sec at 06/22/2020 19:38:27.7

Occultation of Asellus Borealis 4.66 by moon 9% illuminated at phase= 35 degrees
06/23/2020 19:23:19.9 Geocentric minimum 0.1 degrees
Global start/end: 06/23/2020 17:13:53.5   and   06/23/2020 21:32:46.8
Mid-occultation observing point (lat., long.) 28.2 -176.0
At HVO the miss angle is 1303.0 arc-sec at 06/23/2020 20:15:24.1

Occultation of 30 eta Leo 3.52 by moon 21% illuminated at phase= 54 degrees
06/25/2020 06:58:18.5 Geocentric minimum 0.3 degrees
Global start/end: 06/25/2020 04:54:07.6   and   06/25/2020 09:02:28.7
Mid-occultation observing point (lat., long.) -2.6 22.3

Occultation of 78 iota Leo 3.94 by moon 35% illuminated at phase= 72 degrees
06/26/2020 16:40:53.2 Geocentric minimum 0.9 degrees
Global start/end: 06/26/2020 15:15:06.1   and   06/26/2020 18:06:39.4
Mid-occultation observing point (lat., long.) -53.9 -136.9
At HVO the miss angle is 3991.7 arc-sec at 06/26/2020 15:38:10.3

Occultation of 3 nu Vir 4.03 by moon 40% illuminated at phase= 78 degrees
06/27/2020 03:50:48.2 Geocentric minimum 0.7 degrees
Global start/end: 06/27/2020 02:02:42.3   and   06/27/2020 05:38:53.1
Mid-occultation observing point (lat., long.) 45.2 120.3

Occultation of 8 pi Vir 4.66 by moon 43% illuminated at phase= 81 degrees
06/27/2020 09:37:12.5 Geocentric minimum 0.9 degrees
Global start/end: 06/27/2020 08:05:47.5   and   06/27/2020 11:08:36.6
Mid-occultation observing point (lat., long.) -49.9 -18.4

Occultation of 16 Vir 4.96 by moon 47% illuminated at phase= 87 degrees
06/27/2020 19:24:48.3 Geocentric minimum 0.2 degrees
Global start/end: 06/27/2020 17:18:32.9   and   06/27/2020 21:31:03.4
Mid-occultation observing point (lat., long.) 13.9 -122.7
At HVO the miss angle is 857.0 arc-sec at 06/27/2020 19:13:49.0

Occultation of 46 theta Lib 4.15 by moon 88% illuminated at phase= 139 degrees
07/01/2020 18:29:37.1 Geocentric minimum 0.9 degrees
Global start/end: 07/01/2020 17:01:42.5   and   07/01/2020 19:57:32.2
Mid-occultation observing point (lat., long.) -73.5 -131.5

Occultation of 14 nu Sco 4.01 by moon 90% illuminated at phase= 144 degrees
07/02/2020 02:47:31.6 Geocentric minimum 0.5 degrees
Global start/end: 07/02/2020 00:52:05.8   and   07/02/2020 04:42:58.1
Mid-occultation observing point (lat., long.) 12.3 -176.2

Occultation of 4 psi Oph 4.5 by moon 92% illuminated at phase= 147 degrees
07/02/2020 07:43:00.7 Geocentric minimum 0.4 degrees
Global start/end: 07/02/2020 05:40:59.8   and   07/02/2020 09:45:02.0
Mid-occultation observing point (lat., long.) 1.2 109.7

Occultation of 52 Sgr 4.6 by moon 100% illuminated at phase= 188 degrees
07/05/2020 13:05:49.6 Geocentric minimum 1.2 degrees
Global start/end: 07/05/2020 12:41:25.6   and   07/05/2020 13:30:13.9
Mid-occultation observing point (lat., long.) 66.1 57.1

Occultation of 71 tau Aqr 4.01 by moon 81% illuminated at phase= 231 degrees
07/09/2020 04:25:08.4 Geocentric minimum 0.7 degrees
Global start/end: 07/09/2020 02:38:37.5   and   07/09/2020 06:11:43.6
Mid-occultation observing point (lat., long.) 36.3 -137.0

Occultation of 91 psi^1 Aqr 4.21 by moon 76% illuminated at phase= 238 degrees
07/09/2020 19:26:13.1 Geocentric minimum 1.1 degrees
Global start/end: 07/09/2020 18:49:52.5   and   07/09/2020 20:02:34.3
Mid-occultation observing point (lat., long.) -66.1 138.0

Occultation of 93 psi^2 Aqr 4.39 by moon 76% illuminated at phase= 239 degrees
07/09/2020 20:16:27.5 Geocentric minimum 0.8 degrees
Global start/end: 07/09/2020 18:42:11.0   and   07/09/2020 21:50:47.2
Mid-occultation observing point (lat., long.) -65.7 69.7

Occultation of 95 psi^3 Aqr 4.98 by moon 76% illuminated at phase= 239 degrees
07/09/2020 20:26:09.7 Geocentric minimum 0.4 degrees
Global start/end: 07/09/2020 18:14:43.6   and   07/09/2020 22:37:39.6
Mid-occultation observing point (lat., long.) -30.7 19.7

Occultation of 30 YY Psc 4.41 by moon 68% illuminated at phase= 249 degrees
07/10/2020 18:46:06.3 Geocentric minimum 0.5 degrees
Global start/end: 07/10/2020 16:38:48.2   and   07/10/2020 20:53:27.6
Mid-occultation observing point (lat., long.) 22.4 32.0

Occultation of 33 BC Psc 4.61 by moon 67% illuminated at phase= 250 degrees
07/10/2020 20:33:28.0 Geocentric minimum 0.5 degrees
Global start/end: 07/10/2020 18:29:08.0   and   07/10/2020 22:37:50.8
Mid-occultation observing point (lat., long.) 26.3 3.9

Occultation of 106 nu Psc 4.44 by moon 46% illuminated at phase= 274 degrees
07/13/2020 02:03:40.6 Geocentric minimum 0.0 degrees
Global start/end: 07/12/2020 23:43:49.0   and   07/13/2020 04:23:31.9
Mid-occultation observing point (lat., long.) 6.2 -42.3
At HVO the miss angle is 1948.5 arc-sec at 07/13/2020 01:32:58.1

Occultation of 65 xi^1 Cet 4.37 by moon 40% illuminated at phase= 282 degrees
07/13/2020 19:16:34.3 Geocentric minimum 0.0 degrees
Global start/end: 07/13/2020 16:57:03.9   and   07/13/2020 21:36:04.0
Mid-occultation observing point (lat., long.) 8.2 67.3

Occultation of 74 epsilon Tau 3.53 by moon 15% illuminated at phase= 314 degrees
07/16/2020 15:09:50.3 Geocentric minimum 0.7 degrees
Global start/end: 07/16/2020 13:24:35.7   and   07/16/2020 16:55:00.0
Mid-occultation observing point (lat., long.) 69.4 127.2

Occultation of 102 iota Tau 4.64 by moon 11% illuminated at phase= 322 degrees
07/17/2020 07:10:14.3 Geocentric minimum 0.1 degrees
Global start/end: 07/17/2020 04:56:08.8   and   07/17/2020 09:24:16.8
Mid-occultation observing point (lat., long.) 28.6 -73.8
At HVO the miss angle is 428.4 arc-sec at 07/17/2020 06:38:28.9

Occultation of 1 Gem 4.16 by moon 5% illuminated at phase= 335 degrees
07/18/2020 09:35:51.5 Geocentric minimum 0.4 degrees
Global start/end: 07/18/2020 07:29:40.4   and   07/18/2020 11:41:57.9
Mid-occultation observing point (lat., long.) 46.6 -97.2

Occultation of Mebsuta 2.98 by moon 2% illuminated at phase= 343 degrees
07/19/2020 02:15:37.8 Geocentric minimum 1.0 degrees
Global start/end: 07/19/2020 01:09:33.3   and   07/19/2020 03:21:40.1
Mid-occultation observing point (lat., long.) -66.2 26.5

Occultation of 30 eta Leo 3.52 by moon 6% illuminated at phase= 28 degrees
07/22/2020 13:37:43.5 Geocentric minimum 0.4 degrees
Global start/end: 07/22/2020 11:36:49.6   and   07/22/2020 15:38:36.5
Mid-occultation observing point (lat., long.) -5.9 -105.5
At HVO the miss angle is 1856.8 arc-sec at 07/22/2020 12:57:29.0

Occultation of 78 iota Leo 3.94 by moon 15% illuminated at phase= 46 degrees
07/23/2020 22:37:35.7 Geocentric minimum 1.0 degrees
Global start/end: 07/23/2020 21:21:21.5   and   07/23/2020 23:53:49.8
Mid-occultation observing point (lat., long.) -66.2 75.4

Occultation of 3 nu Vir 4.03 by moon 19% illuminated at phase= 52 degrees
07/24/2020 09:36:08.7 Geocentric minimum 0.6 degrees
Global start/end: 07/24/2020 07:43:53.8   and   07/24/2020 11:28:24.0
Mid-occultation observing point (lat., long.) 39.5 2.4

Occultation of 8 pi Vir 4.66 by moon 22% illuminated at phase= 55 degrees
07/24/2020 15:17:13.5 Geocentric minimum 1.0 degrees
Global start/end: 07/24/2020 13:55:18.1   and   07/24/2020 16:39:09.4
Mid-occultation observing point (lat., long.) -59.8 -147.2
At HVO the miss angle is 4189.7 arc-sec at 07/24/2020 14:05:40.2

Occultation of 16 Vir 4.96 by moon 26% illuminated at phase= 61 degrees
07/25/2020 00:57:26.5 Geocentric minimum 0.1 degrees
Global start/end: 07/24/2020 22:50:53.0   and   07/25/2020 03:04:01.0
Mid-occultation observing point (lat., long.) 9.0 125.1

Occultation of 46 theta Lib 4.15 by moon 70% illuminated at phase= 113 degrees
07/29/2020 00:32:54.1 Geocentric minimum 1.0 degrees
Global start/end: 07/28/2020 23:14:58.9   and   07/29/2020 01:50:50.3
Mid-occultation observing point (lat., long.) -65.8 41.8

Occultation of Graffias 2.62 by moon 72% illuminated at phase= 117 degrees
07/29/2020 06:35:41.4 Geocentric minimum 1.2 degrees
Global start/end: 07/29/2020 06:01:03.4   and   07/29/2020 07:10:19.7
Mid-occultation observing point (lat., long.) 66.1 131.2

Occultation of 8 beta^2 Sco 4.92 by moon 72% illuminated at phase= 117 degrees
07/29/2020 06:35:42.5 Geocentric minimum 1.2 degrees
Global start/end: 07/29/2020 05:59:41.5   and   07/29/2020 07:11:43.7
Mid-occultation observing point (lat., long.) 66.1 131.2

Occultation of 14 nu Sco 4.01 by moon 74% illuminated at phase= 118 degrees
07/29/2020 09:00:44.8 Geocentric minimum 0.5 degrees
Global start/end: 07/29/2020 07:00:39.0   and   07/29/2020 11:00:51.6
Mid-occultation observing point (lat., long.) 7.4 62.3

Occultation of 4 psi Oph 4.5 by moon 76% illuminated at phase= 121 degrees
07/29/2020 14:02:29.3 Geocentric minimum 0.3 degrees
Global start/end: 07/29/2020 11:56:56.1   and   07/29/2020 16:08:03.2
Mid-occultation observing point (lat., long.) -3.2 -13.1

Occultation of 9 omega Oph 4.45 by moon 77% illuminated at phase= 123 degrees
07/29/2020 17:47:58.2 Geocentric minimum 1.2 degrees
Global start/end: 07/29/2020 17:32:18.4   and   07/29/2020 18:03:38.2
Mid-occultation observing point (lat., long.) 66.1 -37.4

Occultation of 52 Sgr 4.6 by moon 98% illuminated at phase= 162 degrees
08/01/2020 20:57:59.8 Geocentric minimum 1.2 degrees
Global start/end: 08/01/2020 20:36:16.9   and   08/01/2020 21:19:42.8
Mid-occultation observing point (lat., long.) 66.1 -88.1

Occultation of 71 tau Aqr 4.01 by moon 95% illuminated at phase= 205 degrees
08/05/2020 12:37:19.6 Geocentric minimum 0.8 degrees
Global start/end: 08/05/2020 11:00:52.6   and   08/05/2020 14:13:49.8
Mid-occultation observing point (lat., long.) 46.2 66.1

Occultation of 91 psi^1 Aqr 4.21 by moon 92% illuminated at phase= 212 degrees
08/06/2020 03:34:20.0 Geocentric minimum 1.0 degrees
Global start/end: 08/06/2020 02:27:35.2   and   08/06/2020 04:41:06.4
Mid-occultation observing point (lat., long.) -66.0 -11.0

Occultation of 93 psi^2 Aqr 4.39 by moon 92% illuminated at phase= 213 degrees
08/06/2020 04:24:14.3 Geocentric minimum 0.7 degrees
Global start/end: 08/06/2020 02:38:36.3   and   08/06/2020 06:09:55.9
Mid-occultation observing point (lat., long.) -57.0 -102.7

Occultation of 95 psi^3 Aqr 4.98 by moon 92% illuminated at phase= 213 degrees
08/06/2020 04:33:47.0 Geocentric minimum 0.2 degrees
Global start/end: 08/06/2020 02:19:37.9   and   08/06/2020 06:47:59.4
Mid-occultation observing point (lat., long.) -24.2 -132.5
At HVO the miss angle is 1491.9 arc-sec at 08/06/2020 06:16:51.6

Occultation of 30 YY Psc 4.41 by moon 87% illuminated at phase= 223 degrees
08/07/2020 02:46:03.7 Geocentric minimum 0.6 degrees
Global start/end: 08/07/2020 00:47:00.0   and   08/07/2020 04:45:10.9
Mid-occultation observing point (lat., long.) 31.1 -119.8

---For observations at HVO:
08/07/2020 02:49:57.5 Start Total 40.01 39.87 (az180) -18.2 ***
08/07/2020 03:32:07.4 OCCULTATION MID-POINT 39.14 39.15 (az193) -12.6 ***
08/07/2020 04:13:32.4 End Total 36.63 36.83 (az206) -6.5 ***

Occultation of 33 BC Psc 4.61 by moon 86% illuminated at phase= 224 degrees
08/07/2020 04:32:50.5 Geocentric minimum 0.6 degrees
Global start/end: 08/07/2020 02:37:51.7   and   08/07/2020 06:27:52.5
Mid-occultation observing point (lat., long.) 35.5 -148.5

Occultation of Mars -1.3 by moon 72% illuminated at phase= 244 degrees
08/09/2020 01:38:32.4 Geocentric minimum 0.7 degrees
Global start/end: 08/08/2020 23:43:06.7   and   08/09/2020 03:33:58.8
Mid-occultation observing point (lat., long.) -40.3 -42.4
At HVO the miss angle is 4090.2 arc-sec at 08/09/2020 02:00:17.8

Occultation of 106 nu Psc 4.44 by moon 69% illuminated at phase= 248 degrees
08/09/2020 09:55:50.9 Geocentric minimum 0.2 degrees
Global start/end: 08/09/2020 07:37:23.4   and   08/09/2020 12:14:19.3
Mid-occultation observing point (lat., long.) 15.3 168.7

Occultation of 65 xi^1 Cet 4.37 by moon 62% illuminated at phase= 256 degrees
08/10/2020 03:12:29.4 Geocentric minimum 0.1 degrees
Global start/end: 08/10/2020 00:53:42.5   and   08/10/2020 05:31:16.7
Mid-occultation observing point (lat., long.) 17.5 -82.6
At HVO the miss angle is 727.3 arc-sec at 08/10/2020 03:19:15.8

Occultation of 74 epsilon Tau 3.53 by moon 35% illuminated at phase= 288 degrees
08/12/2020 23:49:29.0 Geocentric minimum 0.9 degrees
Global start/end: 08/12/2020 22:20:01.1   and   08/13/2020 01:18:53.4
Mid-occultation observing point (lat., long.) 76.3 -104.4

Occultation of 102 iota Tau 4.64 by moon 29% illuminated at phase= 295 degrees
08/13/2020 16:03:04.8 Geocentric minimum 0.2 degrees
Global start/end: 08/13/2020 13:50:05.7   and   08/13/2020 18:15:59.7
Mid-occultation observing point (lat., long.) 36.8 124.1

Occultation of 1 Gem 4.16 by moon 19% illuminated at phase= 308 degrees
08/14/2020 18:47:50.6 Geocentric minimum 0.5 degrees
Global start/end: 08/14/2020 16:45:17.4   and   08/14/2020 20:50:17.6
Mid-occultation observing point (lat., long.) 53.9 96.6

Occultation of Mebsuta 2.98 by moon 14% illuminated at phase= 317 degrees
08/15/2020 11:35:26.8 Geocentric minimum 1.0 degrees
Global start/end: 08/15/2020 10:15:05.2   and   08/15/2020 12:55:44.4
Mid-occultation observing point (lat., long.) -66.2 -140.7
At HVO the miss angle is 4056.4 arc-sec at 08/15/2020 12:13:02.0

Occultation of 77 kappa Gem 3.57 by moon 7% illuminated at phase= 330 degrees
08/16/2020 12:09:08.6 Geocentric minimum 0.8 degrees
Global start/end: 08/16/2020 10:32:13.8   and   08/16/2020 13:45:58.2
Mid-occultation observing point (lat., long.) -33.7 -142.2
At HVO the miss angle is 3641.0 arc-sec at 08/16/2020 12:33:05.7

Occultation of Asellus Borealis 4.66 by moon 2% illuminated at phase= 342 degrees
08/17/2020 12:06:34.6 Geocentric minimum 0.1 degrees
Global start/end: 08/17/2020 09:58:54.8   and   08/17/2020 14:14:12.6
Mid-occultation observing point (lat., long.) 26.9 -120.9
At HVO the miss angle is 300.2 arc-sec at 08/17/2020 12:20:44.0

Occultation of 78 iota Leo 3.94 by moon 3% illuminated at phase= 20 degrees
08/20/2020 06:33:33.6 Geocentric minimum 1.1 degrees
Global start/end: 08/20/2020 05:31:48.6   and   08/20/2020 07:35:18.2
Mid-occultation observing point (lat., long.) -66.0 -70.7

Occultation of 3 nu Vir 4.03 by moon 5% illuminated at phase= 26 degrees
08/20/2020 17:14:07.9 Geocentric minimum 0.5 degrees
Global start/end: 08/20/2020 15:17:53.9   and   08/20/2020 19:10:22.3
Mid-occultation observing point (lat., long.) 31.9 -144.0
At HVO the miss angle is 377.1 arc-sec at 08/20/2020 17:41:38.2

Occultation of 8 pi Vir 4.66 by moon 6% illuminated at phase= 29 degrees
08/20/2020 22:45:08.5 Geocentric minimum 1.1 degrees
Global start/end: 08/20/2020 21:40:02.4   and   08/20/2020 23:50:14.7
Mid-occultation observing point (lat., long.) -66.0 45.7

Occultation of 16 Vir 4.96 by moon 9% illuminated at phase= 35 degrees
08/21/2020 08:09:00.9 Geocentric minimum 0.0 degrees
Global start/end: 08/21/2020 06:04:00.1   and   08/21/2020 10:14:02.9
Mid-occultation observing point (lat., long.) 1.5 -13.1

Occultation of 98 kappa Vir 4.19 by moon 28% illuminated at phase= 64 degrees
08/23/2020 11:16:29.2 Geocentric minimum 1.1 degrees
Global start/end: 08/23/2020 10:11:29.6   and   08/23/2020 12:21:30.3
Mid-occultation observing point (lat., long.) 66.0 36.2

Occultation of 46 theta Lib 4.15 by moon 48% illuminated at phase= 87 degrees
08/25/2020 05:55:20.9 Geocentric minimum 1.2 degrees
Global start/end: 08/25/2020 05:15:22.6   and   08/25/2020 06:35:19.9
Mid-occultation observing point (lat., long.) -65.8 -65.7

Occultation of Graffias 2.62 by moon 51% illuminated at phase= 91 degrees
08/25/2020 11:56:59.0 Geocentric minimum 1.0 degrees
Global start/end: 08/25/2020 10:40:38.0   and   08/25/2020 13:13:22.1
Mid-occultation observing point (lat., long.) 66.1 24.0

Occultation of 8 beta^2 Sco 4.92 by moon 51% illuminated at phase= 91 degrees
08/25/2020 11:57:00.1 Geocentric minimum 1.0 degrees
Global start/end: 08/25/2020 10:40:07.1   and   08/25/2020 13:13:55.1
Mid-occultation observing point (lat., long.) 66.1 24.0

Occultation of 14 nu Sco 4.01 by moon 52% illuminated at phase= 92 degrees
08/25/2020 14:21:54.4 Geocentric minimum 0.3 degrees
Global start/end: 08/25/2020 12:15:40.9   and   08/25/2020 16:28:10.0
Mid-occultation observing point (lat., long.) -4.5 -47.8

Occultation of 4 psi Oph 4.5 by moon 54% illuminated at phase= 95 degrees
08/25/2020 19:23:38.2 Geocentric minimum 0.1 degrees
Global start/end: 08/25/2020 17:14:40.8   and   08/25/2020 21:32:36.5
Mid-occultation observing point (lat., long.) -14.4 -122.9
At HVO the miss angle is 1916.7 arc-sec at 08/25/2020 19:23:44.3

Occultation of 9 omega Oph 4.45 by moon 56% illuminated at phase= 97 degrees
08/25/2020 23:09:18.6 Geocentric minimum 1.0 degrees
Global start/end: 08/25/2020 21:59:05.2   and   08/26/2020 00:19:33.8
Mid-occultation observing point (lat., long.) 66.1 -144.7

Occultation of 52 Sgr 4.6 by moon 86% illuminated at phase= 136 degrees
08/29/2020 03:09:32.9 Geocentric minimum 1.1 degrees
Global start/end: 08/29/2020 02:13:05.4   and   08/29/2020 04:06:01.4
Mid-occultation observing point (lat., long.) 66.0 151.7

Occultation of 71 tau Aqr 4.01 by moon 100% illuminated at phase= 179 degrees
09/01/2020 19:50:20.2 Geocentric minimum 0.9 degrees
Global start/end: 09/01/2020 18:20:36.5   and   09/01/2020 21:20:05.8
Mid-occultation observing point (lat., long.) 54.2 -77.6

---For observations at HVO:
09/01/2020 18:37:34.9 Start Total -1.71 -1.57 (az107) -1.9
09/01/2020 19:09:52.1 OCCULTATION MID-POINT 3.41 3.44 (az112) -8.1 ***
09/01/2020 19:43:46.1 End Total 8.8 8.75 (az118) -13.8 ***

Occultation of 91 psi^1 Aqr 4.21 by moon 100% illuminated at phase= 186 degrees
09/02/2020 10:51:14.9 Geocentric minimum 0.9 degrees
Global start/end: 09/02/2020 09:30:30.2   and   09/02/2020 12:12:01.3
Mid-occultation observing point (lat., long.) -65.8 -147.4

Occultation of 93 psi^2 Aqr 4.39 by moon 100% illuminated at phase= 186 degrees
09/02/2020 11:41:09.1 Geocentric minimum 0.7 degrees
Global start/end: 09/02/2020 09:48:32.0   and   09/02/2020 13:33:48.7
Mid-occultation observing point (lat., long.) -50.9 113.0

Occultation of 95 psi^3 Aqr 4.98 by moon 100% illuminated at phase= 186 degrees
09/02/2020 11:50:30.5 Geocentric minimum 0.2 degrees
Global start/end: 09/02/2020 09:34:41.0   and   09/02/2020 14:06:21.4
Mid-occultation observing point (lat., long.) -19.4 89.3

Occultation of 30 YY Psc 4.41 by moon 98% illuminated at phase= 197 degrees
09/03/2020 10:03:27.4 Geocentric minimum 0.7 degrees
Global start/end: 09/03/2020 08:14:18.3   and   09/03/2020 11:52:39.0
Mid-occultation observing point (lat., long.) 40.4 97.2

Occultation of 33 BC Psc 4.61 by moon 98% illuminated at phase= 198 degrees
09/03/2020 11:50:09.8 Geocentric minimum 0.8 degrees
Global start/end: 09/03/2020 10:06:41.4   and   09/03/2020 13:33:40.5
Mid-occultation observing point (lat., long.) 46.0 66.3

Occultation of Mars -1.9 by moon 86% illuminated at phase= 224 degrees
09/05/2020 21:44:48.0 Geocentric minimum 0.0 degrees
Global start/end: 09/05/2020 19:24:48.5   and   09/06/2020 00:04:48.2
Mid-occultation observing point (lat., long.) 8.3 -30.0
At HVO the miss angle is 1948.8 arc-sec at 09/05/2020 21:07:20.4

Occultation of 106 nu Psc 4.44 by moon 87% illuminated at phase= 222 degrees
09/05/2020 17:10:01.7 Geocentric minimum 0.4 degrees
Global start/end: 09/05/2020 14:57:24.7   and   09/05/2020 19:22:40.3
Mid-occultation observing point (lat., long.) 27.0 27.3

Occultation of 65 xi^1 Cet 4.37 by moon 82% illuminated at phase= 230 degrees
09/06/2020 10:28:05.2 Geocentric minimum 0.4 degrees
Global start/end: 09/06/2020 08:15:09.3   and   09/06/2020 12:41:02.3
Mid-occultation observing point (lat., long.) 30.3 135.2

Occultation of 74 epsilon Tau 3.53 by moon 58% illuminated at phase= 261 degrees
09/09/2020 07:45:02.0 Geocentric minimum 1.1 degrees
Global start/end: 09/09/2020 07:12:23.9   and   09/09/2020 08:17:39.7
Mid-occultation observing point (lat., long.) 65.8 71.8

Occultation of 102 iota Tau 4.64 by moon 51% illuminated at phase= 269 degrees
09/10/2020 00:16:49.5 Geocentric minimum 0.5 degrees
Global start/end: 09/09/2020 22:11:36.1   and   09/10/2020 02:21:58.6
Mid-occultation observing point (lat., long.) 52.7 -31.9

---For observations at HVO:
09/09/2020 23:10:40.8 Start Total 10.19 10.01 (az70) -40.4 ***
09/09/2020 23:17:01.6 OCCULTATION MID-POINT 11.26 11.05 (az71) -40.6 ***
09/09/2020 23:23:25.6 End Total 12.34 12.1 (az72) -40.8 ***

Occultation of 1 Gem 4.16 by moon 40% illuminated at phase= 282 degrees
09/11/2020 03:36:16.7 Geocentric minimum 0.7 degrees
Global start/end: 09/11/2020 01:46:59.3   and   09/11/2020 05:25:28.4
Mid-occultation observing point (lat., long.) 71.9 -69.3

---For observations at HVO:
09/11/2020 02:08:34.2 Start Total 32.46 32.72 (az88) -32.4 ***
09/11/2020 02:30:13.7 OCCULTATION MID-POINT 36.36 36.51 (az92) -29.7 ***
09/11/2020 02:52:37.3 End Total 40.37 40.42 (az96) -26.6 ***

Occultation of Mebsuta 2.98 by moon 33% illuminated at phase= 290 degrees
09/11/2020 20:46:14.8 Geocentric minimum 0.8 degrees
Global start/end: 09/11/2020 19:02:10.9   and   09/11/2020 22:30:12.7
Mid-occultation observing point (lat., long.) -28.3 53.6

Occultation of 77 kappa Gem 3.57 by moon 23% illuminated at phase= 303 degrees
09/12/2020 21:50:45.6 Geocentric minimum 0.6 degrees
Global start/end: 09/12/2020 19:59:14.0   and   09/12/2020 23:42:10.5
Mid-occultation observing point (lat., long.) -18.0 47.0

Occultation of Asellus Borealis 4.66 by moon 14% illuminated at phase= 316 degrees
09/13/2020 22:11:25.0 Geocentric minimum 0.2 degrees
Global start/end: 09/13/2020 20:04:26.0   and   09/14/2020 00:18:19.5
Mid-occultation observing point (lat., long.) 34.5 62.8

Occultation of 30 eta Leo 3.52 by moon 5% illuminated at phase= 335 degrees
09/15/2020 08:39:11.5 Geocentric minimum 0.4 degrees
Global start/end: 09/15/2020 06:39:06.6   and   09/15/2020 10:39:12.0
Mid-occultation observing point (lat., long.) -5.1 -84.8
At HVO the miss angle is 1630.8 arc-sec at 09/15/2020 07:36:50.4

Occultation of 98 kappa Vir 4.19 by moon 10% illuminated at phase= 37 degrees
09/19/2020 19:17:01.3 Geocentric minimum 0.9 degrees
Global start/end: 09/19/2020 17:47:33.7   and   09/19/2020 20:46:31.5
Mid-occultation observing point (lat., long.) 46.2 -150.8

---For observations at HVO:
09/19/2020 19:27:59.8 Start Total 0.56 0.44 (az256) -17.3 ***
09/19/2020 19:56:00.7 OCCULTATION MID-POINT -4.81 -4.84 (az260) -21.9
09/19/2020 20:23:03.2 End Total -9.74 -9.64 (az265) -26.2

Occultation of Graffias 2.62 by moon 28% illuminated at phase= 64 degrees
09/21/2020 18:27:32.8 Geocentric minimum 0.8 degrees
Global start/end: 09/21/2020 16:45:43.8   and   09/21/2020 20:09:26.8
Mid-occultation observing point (lat., long.) 28.4 -128.2

---For observations at HVO:
09/21/2020 18:26:10.3 Start Total 17.27 17.06 (az217) -7.2 ***
09/21/2020 18:54:54.7 OCCULTATION MID-POINT 13.93 13.77 (az223) -12.2 ***
09/21/2020 19:22:46.0 End Total 10.34 10.26 (az229) -17.1 ***

Occultation of 8 beta^2 Sco 4.92 by moon 28% illuminated at phase= 64 degrees
09/21/2020 18:27:33.8 Geocentric minimum 0.8 degrees
Global start/end: 09/21/2020 16:45:27.7   and   09/21/2020 20:09:44.9
Mid-occultation observing point (lat., long.) 28.0 -128.3

---For observations at HVO:
09/21/2020 18:26:36.3 Start Total 17.23 17.01 (az218) -7.2 ***
09/21/2020 18:54:56.5 OCCULTATION MID-POINT 13.93 13.77 (az223) -12.2 ***
09/21/2020 19:22:25.0 End Total 10.39 10.31 (az229) -17.0 ***

Occultation of 14 nu Sco 4.01 by moon 29% illuminated at phase= 65 degrees
09/21/2020 20:48:38.8 Geocentric minimum 0.0 degrees
Global start/end: 09/21/2020 18:41:13.3   and   09/21/2020 22:56:05.3
Mid-occultation observing point (lat., long.) -18.9 -175.1

Occultation of 4 psi Oph 4.5 by moon 31% illuminated at phase= 68 degrees
09/22/2020 01:42:47.5 Geocentric minimum 0.1 degrees
Global start/end: 09/21/2020 23:35:54.7   and   09/22/2020 03:49:42.9
Mid-occultation observing point (lat., long.) -28.7 111.5

Occultation of 9 omega Oph 4.45 by moon 33% illuminated at phase= 70 degrees
09/22/2020 05:23:10.1 Geocentric minimum 0.8 degrees
Global start/end: 09/22/2020 03:43:40.7   and   09/22/2020 07:02:44.2
Mid-occultation observing point (lat., long.) 30.6 73.0

Occultation of 44 Oph 4.17 by moon 43% illuminated at phase= 82 degrees
09/23/2020 03:24:14.0 Geocentric minimum 1.1 degrees
Global start/end: 09/23/2020 02:19:33.1   and   09/23/2020 04:28:57.2
Mid-occultation observing point (lat., long.) 65.9 123.4

Occultation of Kaus Borealis 2.81 by moon 54% illuminated at phase= 95 degrees
09/24/2020 04:14:25.0 Geocentric minimum 1.0 degrees
Global start/end: 09/24/2020 03:03:03.5   and   09/24/2020 05:25:48.9
Mid-occultation observing point (lat., long.) 65.9 109.7

Occultation of 52 Sgr 4.6 by moon 67% illuminated at phase= 109 degrees
09/25/2020 08:35:25.0 Geocentric minimum 0.9 degrees
Global start/end: 09/25/2020 07:03:28.1   and   09/25/2020 10:07:25.1
Mid-occultation observing point (lat., long.) 42.6 49.3

Occultation of 71 tau Aqr 4.01 by moon 94% illuminated at phase= 152 degrees
09/29/2020 01:58:49.3 Geocentric minimum 0.8 degrees
Global start/end: 09/29/2020 00:20:57.4   and   09/29/2020 03:36:42.8
Mid-occultation observing point (lat., long.) 45.2 172.1

Occultation of 30 YY Psc 4.41 by moon 99% illuminated at phase= 170 degrees
09/30/2020 16:27:33.4 Geocentric minimum 0.7 degrees
Global start/end: 09/30/2020 14:39:55.0   and   09/30/2020 18:15:13.0
Mid-occultation observing point (lat., long.) 41.9 -27.2

Occultation of 91 psi^1 Aqr 4.21 by moon 97% illuminated at phase= 159 degrees
09/29/2020 17:07:57.0 Geocentric minimum 1.0 degrees
Global start/end: 09/29/2020 15:52:59.5   and   09/29/2020 18:22:55.9
Mid-occultation observing point (lat., long.) -65.6 91.3

Occultation of 93 psi^2 Aqr 4.39 by moon 97% illuminated at phase= 160 degrees
09/29/2020 17:58:04.8 Geocentric minimum 0.7 degrees
Global start/end: 09/29/2020 16:07:48.7   and   09/29/2020 19:48:22.6
Mid-occultation observing point (lat., long.) -53.3 -4.8

Occultation of 95 psi^3 Aqr 4.98 by moon 97% illuminated at phase= 160 degrees
09/29/2020 18:07:15.6 Geocentric minimum 0.2 degrees
Global start/end: 09/29/2020 15:51:27.6   and   09/29/2020 20:23:04.0
Mid-occultation observing point (lat., long.) -21.2 -30.9

Occultation of 33 BC Psc 4.61 by moon 99% illuminated at phase= 171 degrees
09/30/2020 18:14:41.4 Geocentric minimum 0.8 degrees
Global start/end: 09/30/2020 16:33:25.8   and   09/30/2020 19:55:58.1
Mid-occultation observing point (lat., long.) 48.0 -59.2

---For observations at HVO:
09/30/2020 17:04:43.9 Start Total -6.48 -6.44 (az92) 4.7
09/30/2020 17:34:08.7 OCCULTATION MID-POINT -0.57 -0.61 (az97) -0.2
09/30/2020 18:04:49.9 End Total 4.49 4.35 (az102) -6.3 ***

Occultation of Mars -2.5 by moon 99% illuminated at phase= 194 degrees
10/02/2020 21:00:08.3 Geocentric minimum 0.7 degrees
Global start/end: 10/02/2020 19:09:27.0   and   10/02/2020 22:50:50.2
Mid-occultation observing point (lat., long.) -37.2 -26.5
At HVO the miss angle is 4244.3 arc-sec at 10/02/2020 20:46:28.2

Occultation of 106 nu Psc 4.44 by moon 98% illuminated at phase= 195 degrees
10/02/2020 23:38:38.9 Geocentric minimum 0.5 degrees
Global start/end: 10/02/2020 21:32:25.6   and   10/03/2020 01:44:53.1
Mid-occultation observing point (lat., long.) 35.1 -101.8

---For observations at HVO:
10/02/2020 23:12:49.3 Start Total 46.41 46.28 (az145) -49.5 ***
10/02/2020 23:51:21.2 OCCULTATION MID-POINT 49.68 49.59 (az159) -50.0 ***
10/03/2020 00:30:37.4 End Total 51.35 51.39 (az174) -48.7 ***

Occultation of 65 xi^1 Cet 4.37 by moon 96% illuminated at phase= 203 degrees
10/03/2020 16:55:48.3 Geocentric minimum 0.5 degrees
Global start/end: 10/03/2020 14:51:01.0   and   10/03/2020 19:00:36.1
Mid-occultation observing point (lat., long.) 40.4 4.7

Occultation of 102 iota Tau 4.64 by moon 73% illuminated at phase= 242 degrees
10/07/2020 07:10:13.9 Geocentric minimum 0.7 degrees
Global start/end: 10/07/2020 05:23:18.7   and   10/07/2020 08:57:06.8
Mid-occultation observing point (lat., long.) 73.1 176.7
At HVO the miss angle is 358.5 arc-sec at 10/07/2020 08:39:07.0

Occultation of 1 Gem 4.16 by moon 63% illuminated at phase= 255 degrees
10/08/2020 10:59:42.0 Geocentric minimum 1.0 degrees
Global start/end: 10/08/2020 09:41:23.7   and   10/08/2020 12:17:57.8
Mid-occultation observing point (lat., long.) 65.3 -5.8

Occultation of Mebsuta 2.98 by moon 56% illuminated at phase= 264 degrees
10/09/2020 04:34:26.4 Geocentric minimum 0.5 degrees
Global start/end: 10/09/2020 02:31:08.4   and   10/09/2020 06:37:39.7
Mid-occultation observing point (lat., long.) -7.0 -90.6
At HVO the miss angle is 2031.6 arc-sec at 10/09/2020 04:18:30.2

Occultation of 77 kappa Gem 3.57 by moon 45% illuminated at phase= 276 degrees
10/10/2020 06:21:36.0 Geocentric minimum 0.4 degrees
Global start/end: 10/10/2020 04:15:32.7   and   10/10/2020 08:27:34.0
Mid-occultation observing point (lat., long.) -0.5 -106.0
At HVO the miss angle is 1663.5 arc-sec at 10/10/2020 06:11:38.2

Occultation of Asellus Borealis 4.66 by moon 34% illuminated at phase= 289 degrees
10/11/2020 07:27:17.1 Geocentric minimum 0.4 degrees
Global start/end: 10/11/2020 05:24:57.8   and   10/11/2020 09:29:30.3
Mid-occultation observing point (lat., long.) 48.4 -98.2

Occultation of 30 eta Leo 3.52 by moon 19% illuminated at phase= 308 degrees
10/12/2020 18:52:58.5 Geocentric minimum 0.2 degrees
Global start/end: 10/12/2020 16:47:08.7   and   10/12/2020 20:58:44.1
Mid-occultation observing point (lat., long.) 4.3 97.7

Occultation of 78 iota Leo 3.94 by moon 8% illuminated at phase= 326 degrees
10/14/2020 03:24:16.1 Geocentric minimum 1.0 degrees
Global start/end: 10/14/2020 02:11:48.0   and   10/14/2020 04:36:41.4
Mid-occultation observing point (lat., long.) -65.7 -77.8

Occultation of 3 nu Vir 4.03 by moon 6% illuminated at phase= 332 degrees
10/14/2020 14:01:14.3 Geocentric minimum 0.5 degrees
Global start/end: 10/14/2020 12:05:58.6   and   10/14/2020 15:56:25.9
Mid-occultation observing point (lat., long.) 32.4 -149.3
At HVO the miss angle is 431.3 arc-sec at 10/14/2020 14:31:13.6

Occultation of 8 pi Vir 4.66 by moon 5% illuminated at phase= 336 degrees
10/14/2020 19:26:18.1 Geocentric minimum 1.1 degrees
Global start/end: 10/14/2020 18:22:24.7   and   10/14/2020 20:30:09.7
Mid-occultation observing point (lat., long.) -65.6 41.1

Occultation of 16 Vir 4.96 by moon 3% illuminated at phase= 341 degrees
10/15/2020 04:39:19.1 Geocentric minimum 0.1 degrees
Global start/end: 10/15/2020 02:36:06.5   and   10/15/2020 06:42:30.4
Mid-occultation observing point (lat., long.) -1.6 -16.1

Occultation of Graffias 2.62 by moon 10% illuminated at phase= 37 degrees
10/19/2020 03:25:17.6 Geocentric minimum 0.6 degrees
Global start/end: 10/19/2020 01:33:06.1   and   10/19/2020 05:17:33.8
Mid-occultation observing point (lat., long.) 13.0 65.9

Occultation of 8 beta^2 Sco 4.92 by moon 10% illuminated at phase= 37 degrees
10/19/2020 03:25:18.5 Geocentric minimum 0.6 degrees
Global start/end: 10/19/2020 01:32:56.2   and   10/19/2020 05:17:45.5
Mid-occultation observing point (lat., long.) 12.8 65.8

Occultation of 14 nu Sco 4.01 by moon 11% illuminated at phase= 38 degrees
10/19/2020 05:41:19.8 Geocentric minimum 0.2 degrees
Global start/end: 10/19/2020 03:37:35.1   and   10/19/2020 07:45:07.4
Mid-occultation observing point (lat., long.) -29.8 21.3

Occultation of 4 psi Oph 4.5 by moon 12% illuminated at phase= 41 degrees
10/19/2020 10:25:17.7 Geocentric minimum 0.4 degrees
Global start/end: 10/19/2020 08:24:48.9   and   10/19/2020 12:25:50.9
Mid-occultation observing point (lat., long.) -40.2 -50.1

Occultation of 9 omega Oph 4.45 by moon 13% illuminated at phase= 43 degrees
10/19/2020 13:58:18.1 Geocentric minimum 0.6 degrees
Global start/end: 10/19/2020 12:06:25.8   and   10/19/2020 15:50:15.7
Mid-occultation observing point (lat., long.) 13.1 -87.1

Occultation of 44 Oph 4.17 by moon 21% illuminated at phase= 55 degrees
10/20/2020 11:14:13.9 Geocentric minimum 0.8 degrees
Global start/end: 10/20/2020 09:39:26.8   and   10/20/2020 12:49:06.3
Mid-occultation observing point (lat., long.) 33.8 -32.9

Occultation of Kaus Borealis 2.81 by moon 31% illuminated at phase= 68 degrees
10/21/2020 11:18:06.0 Geocentric minimum 0.8 degrees
Global start/end: 10/21/2020 09:37:22.3   and   10/21/2020 12:58:55.6
Mid-occultation observing point (lat., long.) 28.1 -26.1

Occultation of 52 Sgr 4.6 by moon 43% illuminated at phase= 82 degrees
10/22/2020 14:57:31.9 Geocentric minimum 0.6 degrees
Global start/end: 10/22/2020 13:04:09.7   and   10/22/2020 16:51:00.3
Mid-occultation observing point (lat., long.) 16.1 -70.2

Occultation of 71 tau Aqr 4.01 by moon 79% illuminated at phase= 125 degrees
10/26/2020 07:44:26.3 Geocentric minimum 0.7 degrees
Global start/end: 10/26/2020 05:50:25.6   and   10/26/2020 09:38:29.1
Mid-occultation observing point (lat., long.) 29.3 68.7

Occultation of 91 psi^1 Aqr 4.21 by moon 84% illuminated at phase= 132 degrees
10/26/2020 22:57:56.4 Geocentric minimum 1.1 degrees
Global start/end: 10/26/2020 22:18:00.3   and   10/26/2020 23:37:52.8
Mid-occultation observing point (lat., long.) -65.4 -23.2

Occultation of 93 psi^2 Aqr 4.39 by moon 84% illuminated at phase= 133 degrees
10/26/2020 23:48:12.3 Geocentric minimum 0.8 degrees
Global start/end: 10/26/2020 22:11:42.2   and   10/27/2020 01:24:43.6
Mid-occultation observing point (lat., long.) -64.0 -95.3

Occultation of 95 psi^3 Aqr 4.98 by moon 84% illuminated at phase= 133 degrees
10/26/2020 23:57:14.5 Geocentric minimum 0.3 degrees
Global start/end: 10/26/2020 21:44:38.9   and   10/27/2020 02:09:50.7
Mid-occultation observing point (lat., long.) -29.4 -141.0
At HVO the miss angle is 1607.1 arc-sec at 10/27/2020 01:44:43.1

Occultation of 30 YY Psc 4.41 by moon 90% illuminated at phase= 143 degrees
10/27/2020 22:23:55.4 Geocentric minimum 0.6 degrees
Global start/end: 10/27/2020 20:27:19.1   and   10/28/2020 00:20:32.5
Mid-occultation observing point (lat., long.) 33.8 -137.2

---For observations at HVO:
10/27/2020 22:58:23.5 Start Total 36.03 35.95 (az208) -58.1 ***
10/27/2020 23:31:06.7 OCCULTATION MID-POINT 32.85 32.92 (az217) -59.2 ***
10/28/2020 00:02:54.0 End Total 29.07 29.31 (az225) -58.7 ***

Occultation of 33 BC Psc 4.61 by moon 90% illuminated at phase= 144 degrees
10/28/2020 00:11:33.8 Geocentric minimum 0.7 degrees
Global start/end: 10/27/2020 22:20:22.7   and   10/28/2020 02:02:45.6
Mid-occultation observing point (lat., long.) 39.3 -167.3
At HVO the miss angle is 326.9 arc-sec at 10/28/2020 01:43:39.9

Occultation of 106 nu Psc 4.44 by moon 99% illuminated at phase= 168 degrees
10/30/2020 05:45:04.7 Geocentric minimum 0.5 degrees
Global start/end: 10/30/2020 03:38:59.4   and   10/30/2020 07:51:09.7
Mid-occultation observing point (lat., long.) 35.2 139.5

Occultation of 65 xi^1 Cet 4.37 by moon 100% illuminated at phase= 176 degrees
10/30/2020 23:01:28.6 Geocentric minimum 0.5 degrees
Global start/end: 10/30/2020 20:58:58.5   and   10/31/2020 01:03:58.2
Mid-occultation observing point (lat., long.) 42.6 -115.5

---For observations at HVO:
10/30/2020 22:42:02.5 Start Total 53.5 53.47 (az161) -58.0 ***
10/30/2020 23:23:01.0 OCCULTATION MID-POINT 54.84 54.89 (az178) -60.0 ***
10/31/2020 00:04:23.7 End Total 53.93 54.14 (az196) -59.6 ***

Occultation of 102 iota Tau 4.64 by moon 91% illuminated at phase= 215 degrees
11/03/2020 13:02:42.9 Geocentric minimum 0.9 degrees
Global start/end: 11/03/2020 11:35:26.3   and   11/03/2020 14:29:58.4
Mid-occultation observing point (lat., long.) 73.7 -48.0

Occultation of 1 Gem 4.16 by moon 83% illuminated at phase= 228 degrees
11/04/2020 16:58:50.5 Geocentric minimum 1.2 degrees
Global start/end: 11/04/2020 16:35:03.0   and   11/04/2020 17:22:37.4
Mid-occultation observing point (lat., long.) 65.3 -122.2

Occultation of Mebsuta 2.98 by moon 78% illuminated at phase= 236 degrees
11/05/2020 10:44:36.0 Geocentric minimum 0.3 degrees
Global start/end: 11/05/2020 08:32:42.6   and   11/05/2020 12:56:27.8
Mid-occultation observing point (lat., long.) 6.4 149.9

Occultation of 77 kappa Gem 3.57 by moon 68% illuminated at phase= 249 degrees
11/06/2020 12:58:35.9 Geocentric minimum 0.2 degrees
Global start/end: 11/06/2020 10:45:27.3   and   11/06/2020 15:11:43.0
Mid-occultation observing point (lat., long.) 12.6 129.1

Occultation of Asellus Borealis 4.66 by moon 57% illuminated at phase= 262 degrees
11/07/2020 14:43:12.5 Geocentric minimum 0.7 degrees
Global start/end: 11/07/2020 12:50:59.0 and 11/07/2020 16:35:21.3
Mid-occultation observing point (lat., long.) 63.3 135.8

Occultation of 30 eta Leo 3.52 by moon 41% illuminated at phase= 281 degrees
11/09/2020 03:20:04.3 Geocentric minimum 0.0 degrees
Global start/end: 11/09/2020 01:09:50.6 and 11/09/2020 05:30:16.9
Mid-occultation observing point (lat., long.) 14.7 -52.7
At HVO the miss angle is 407.0 arc-sec at 11/09/2020 01:56:10.9

Occultation of 78 iota Leo 3.94 by moon 26% illuminated at phase= 299 degrees
11/10/2020 13:01:52.9 Geocentric minimum 0.9 degrees
Global start/end: 11/10/2020 11:32:11.1 and 11/10/2020 14:31:30.2
Mid-occultation observing point (lat., long.) -48.2 148.4
At HVO the miss angle is 5471.0 arc-sec at 11/10/2020 13:30:54.8

Occultation of 3 nu Vir 4.03 by moon 21% illuminated at phase= 305 degrees
11/11/2020 00:00:45.0 Geocentric minimum 0.6 degrees
Global start/end: 11/10/2020 22:10:03.3 and 11/11/2020 01:51:21.4
Mid-occultation observing point (lat., long.) 40.7 39.9

Occultation of 8 pi Vir 4.66 by moon 19% illuminated at phase= 308 degrees
11/11/2020 05:35:44.1 Geocentric minimum 1.0 degrees
Global start/end: 11/11/2020 04:15:34.5 and 11/11/2020 06:55:50.2
Mid-occultation observing point (lat., long.) -61.0 -115.6

Occultation of 16 Vir 4.96 by moon 16% illuminated at phase= 314 degrees
11/11/2020 15:05:22.6 Geocentric minimum 0.0 degrees
Global start/end: 11/11/2020 12:59:57.5 and 11/11/2020 17:10:46.3
Mid-occultation observing point (lat., long.) 4.0 162.8

Occultation of 98 kappa Vir 4.19 by moon 2% illuminated at phase= 343 degrees
11/13/2020 16:56:29.5 Geocentric minimum 0.8 degrees
Global start/end: 11/13/2020 15:20:03.2 and 11/13/2020 18:32:54.1
Mid-occultation observing point (lat., long.) 37.6 -176.2

Occultation of 4 psi Oph 4.5 by moon 1% illuminated at phase= 14 degrees
11/15/2020 21:14:43.8 Geocentric minimum 0.4 degrees
Global start/end: 11/15/2020 19:18:09.9 and 11/15/2020 23:11:20.6
Mid-occultation observing point (lat., long.) -44.8 118.3

Occultation of 9 omega Oph 4.45 by moon 2% illuminated at phase= 16 degrees
11/16/2020 00:43:24.0 Geocentric minimum 0.5 degrees
Global start/end: 11/15/2020 22:48:43.4 and 11/16/2020 02:38:08.0
Mid-occultation observing point (lat., long.) 6.9 83.2

Occultation of 44 Oph 4.17 by moon 6% illuminated at phase= 27 degrees
11/16/2020 21:26:37.7 Geocentric minimum 0.7 degrees
Global start/end: 11/16/2020 19:43:22.0 and 11/16/2020 23:09:58.3
Mid-occultation observing point (lat., long.) 21.8 145.1

Occultation of Kaus Borealis 2.81 by moon 12% illuminated at phase= 40 degrees
11/17/2020 20:45:52.0 Geocentric minimum 0.6 degrees
Global start/end: 11/17/2020 18:56:04.9 and 11/17/2020 22:35:45.3
Mid-occultation observing point (lat., long.) 14.8 164.6

Occultation of 52 Sgr 4.6 by moon 21% illuminated at phase= 55 degrees
11/18/2020 23:31:04.6 Geocentric minimum 0.5 degrees
Global start/end: 11/18/2020 21:30:42.7 and 11/19/2020 01:31:33.1
Mid-occultation observing point (lat., long.) 3.7 135.5

Occultation of 71 tau Aqr 4.01 by moon 57% illuminated at phase= 98 degrees
11/22/2020 14:17:37.8 Geocentric minimum 0.5 degrees
Global start/end: 11/22/2020 12:13:35.6 and 11/22/2020 16:21:44.0
Mid-occultation observing point (lat., long.) 17.7 -51.2

Occultation of 93 psi^2 Aqr 4.39 by moon 63% illuminated at phase= 105 degrees
11/23/2020 06:13:41.7 Geocentric minimum 1.0 degrees
Global start/end: 11/23/2020 04:57:07.0   and   11/23/2020 07:30:18.3
Mid-occultation observing point (lat., long.) -65.3 -158.5

Occultation of 95 psi^3 Aqr 4.98 by moon 63% illuminated at phase= 105 degrees
11/23/2020 06:22:36.4 Geocentric minimum 0.5 degrees
Global start/end: 11/23/2020 04:16:11.9   and   11/23/2020 08:29:03.7
Mid-occultation observing point (lat., long.) -37.9 101.1

Occultation of 30 YY Psc 4.41 by moon 72% illuminated at phase= 116 degrees
11/24/2020 04:44:11.8 Geocentric minimum 0.5 degrees
Global start/end: 11/24/2020 02:39:00.0   and   11/24/2020 06:49:25.2
Mid-occultation observing point (lat., long.) 24.9 106.2

Occultation of 33 BC Psc 4.61 by moon 72% illuminated at phase= 116 degrees
11/24/2020 06:31:40.5 Geocentric minimum 0.6 degrees
Global start/end: 11/24/2020 04:30:38.3   and   11/24/2020 08:32:44.2
Mid-occultation observing point (lat., long.) 29.8 77.3

Occultation of 106 nu Psc 4.44 by moon 89% illuminated at phase= 141 degrees
11/26/2020 12:08:52.9 Geocentric minimum 0.4 degrees
Global start/end: 11/26/2020 09:58:52.1   and   11/26/2020 14:18:52.4
Mid-occultation observing point (lat., long.) 30.7 19.5

Occultation of 65 xi^1 Cet 4.37 by moon 93% illuminated at phase= 149 degrees
11/27/2020 05:26:21.6 Geocentric minimum 0.5 degrees
Global start/end: 11/27/2020 03:20:33.5   and   11/27/2020 07:32:08.0
Mid-occultation observing point (lat., long.) 39.2 124.0

Occultation of 102 iota Tau 4.64 by moon 100% illuminated at phase= 188 degrees
11/30/2020 19:03:29.3 Geocentric minimum 0.9 degrees
Global start/end: 11/30/2020 17:41:42.6   and   11/30/2020 20:25:14.5
Mid-occultation observing point (lat., long.) 65.1 -179.1

---For observations at HVO:
11/30/2020 17:44:24.8 Start Total 9.54 9.79 (az69) -15.4 ***
11/30/2020 17:58:07.8 OCCULTATION MID-POINT 11.85 12.03 (az71) -17.8 ***
11/30/2020 18:12:05.4 End Total 14.23 14.35 (az73) -20.3 ***

Occultation of Mebsuta 2.98 by moon 94% illuminated at phase= 209 degrees
12/02/2020 16:23:07.4 Geocentric minimum 0.2 degrees
Global start/end: 12/02/2020 14:10:12.6   and   12/02/2020 18:36:01.4
Mid-occultation observing point (lat., long.) 10.8 38.4

Occultation of 77 kappa Gem 3.57 by moon 87% illuminated at phase= 222 degrees
12/03/2020 18:31:44.5 Geocentric minimum 0.1 degrees
Global start/end: 12/03/2020 16:17:48.1   and   12/03/2020 20:45:41.3
Mid-occultation observing point (lat., long.) 17.6 19.4

Occultation of Asellus Borealis 4.66 by moon 79% illuminated at phase= 234 degrees
12/04/2020 20:22:09.1 Geocentric minimum 0.7 degrees
Global start/end: 12/04/2020 18:36:50.0   and   12/04/2020 22:07:25.5
Mid-occultation observing point (lat., long.) 70.4 34.3

Occultation of 30 eta Leo 3.52 by moon 65% illuminated at phase= 253 degrees
12/06/2020 09:32:21.1 Geocentric minimum 0.1 degrees
Global start/end: 12/06/2020 07:20:50.1   and   12/06/2020 11:43:52.4
Mid-occultation observing point (lat., long.) 19.7 -170.8
At HVO the miss angle is 1717.2 arc-sec at 12/06/2020 10:12:13.4

Occultation of 78 iota Leo 3.94 by moon 49% illuminated at phase= 271 degrees
12/07/2020 20:11:10.1 Geocentric minimum 0.8 degrees
Global start/end: 12/07/2020 18:33:25.7   and   12/07/2020 21:48:50.8
Mid-occultation observing point (lat., long.) -41.4 20.3

Occultation of 3 nu Vir 4.03 by moon 44% illuminated at phase= 277 degrees
12/08/2020 07:33:05.4 Geocentric minimum 0.7 degrees
Global start/end: 12/08/2020 05:45:46.8   and   12/08/2020 09:20:20.0
Mid-occultation observing point (lat., long.) 46.3 -94.9

---For observations at HVO:
12/08/2020 06:49:23.7 Start Total 52.06 52.25 (az189) -5.0 ***
12/08/2020 07:25:46.2 OCCULTATION MID-POINT 50.32 50.39 (az202) 1.0
12/08/2020 08:01:28.7 End Total 47.22 47.25 (az215) 5.9

Occultation of 8 pi Vir 4.66 by moon 41% illuminated at phase= 281 degrees
12/08/2020 13:20:09.1 Geocentric minimum 0.9 degrees
Global start/end: 12/08/2020 11:51:47.7   and   12/08/2020 14:48:27.3
Mid-occultation observing point (lat., long.) -53.0 118.4

Occultation of 16 Vir 4.96 by moon 36% illuminated at phase= 286 degrees
12/08/2020 23:11:16.8 Geocentric minimum 0.1 degrees
Global start/end: 12/08/2020 21:03:37.3   and   12/09/2020 01:18:54.8
Mid-occultation observing point (lat., long.) 7.7 16.1

Occultation of 98 kappa Vir 4.19 by moon 15% illuminated at phase= 315 degrees
12/11/2020 02:52:01.8 Geocentric minimum 0.8 degrees
Global start/end: 12/11/2020 01:17:59.7   and   12/11/2020 04:26:01.6
Mid-occultation observing point (lat., long.) 41.8 11.2

Occultation of Venus -3.9 by moon 5% illuminated at phase= 335 degrees
12/12/2020 14:06:17.3 Geocentric minimum 0.8 degrees
Global start/end: 12/12/2020 12:16:08.8   and   12/12/2020 15:56:25.2
Mid-occultation observing point (lat., long.) 27.9 -148.6

---For observations at HVO:
12/12/2020 14:24:23.4 Start Partial 4.18 3.95 (az240) 13.8
12/12/2020 14:24:52.9 Start Total 4.11 3.88 (az240) 13.7
12/12/2020 14:52:03.9 OCCULTATION MID-POINT 0.14 0.02 (az245) 10.6
12/12/2020 15:18:11.9 End Total -4.69 -4.72 (az249) 7.4
12/12/2020 15:18:39.2 End Partial -4.77 -4.8 (az249) 7.3

Occultation of Graffias 2.62 by moon 3% illuminated at phase= 342 degrees
12/13/2020 01:20:29.1 Geocentric minimum 0.5 degrees
Global start/end: 12/12/2020 23:25:51.2   and   12/13/2020 03:15:07.0
Mid-occultation observing point (lat., long.) 8.7 41.9

Occultation of 8 beta^2 Sco 4.92 by moon 3% illuminated at phase= 342 degrees
12/13/2020 01:20:29.9 Geocentric minimum 0.5 degrees
Global start/end: 12/12/2020 23:25:42.7   and   12/13/2020 03:15:17.1
Mid-occultation observing point (lat., long.) 8.5 41.9

Occultation of 9 omega^1 Sco 3.96 by moon 2% illuminated at phase= 342 degrees
12/13/2020 02:13:27.0 Geocentric minimum 1.2 degrees
Global start/end: 12/13/2020 01:40:40.2   and   12/13/2020 02:46:13.8
Mid-occultation observing point (lat., long.) 65.3 61.6

Occultation of 14 nu Sco 4.01 by moon 2% illuminated at phase= 343 degrees
12/13/2020 03:35:14.1 Geocentric minimum 0.3 degrees
Global start/end: 12/13/2020 01:33:20.8   and   12/13/2020 05:37:07.3
Mid-occultation observing point (lat., long.) -33.7 -2.7

Occultation of 4 psi Oph 4.5 by moon 2% illuminated at phase= 346 degrees
12/13/2020 08:16:12.3 Geocentric minimum 0.4 degrees
Global start/end: 12/13/2020 06:19:09.4   and   12/13/2020 10:13:15.7
Mid-occultation observing point (lat., long.) -44.8 -74.2
At HVO the miss angle is 2759.9 arc-sec at 12/13/2020 06:43:09.3

Eclipse of the Sun by moon 0% illuminated at phase= 360 degrees
12/14/2020 09:13:27.4 Geocentric minimum 0.3 degrees
Global start/end: 12/14/2020 06:33:54.0   and   12/14/2020 11:53:07.2
Mid-occultation observing point (lat., long.) -40.3 -68.0

Occultation of 52 Sgr 4.6 by moon 5% illuminated at phase= 27 degrees
12/16/2020 09:53:06.6 Geocentric minimum 0.4 degrees
Global start/end: 12/16/2020 07:53:03.2 and 12/16/2020 11:53:15.4
Mid-occultation observing point (lat., long.) 1.6 -46.9

Occultation of 71 tau Aqr 4.01 by moon 33% illuminated at phase= 70 degrees
12/19/2020 22:26:20.0 Geocentric minimum 0.5 degrees
Global start/end: 12/19/2020 20:21:55.5 and 12/20/2020 00:30:50.3
Mid-occultation observing point (lat., long.) 15.4 160.6

Occultation of 93 psi^2 Aqr 4.39 by moon 39% illuminated at phase= 78 degrees
12/20/2020 14:03:33.9 Geocentric minimum 1.0 degrees
Global start/end: 12/20/2020 12:50:46.5 and 12/20/2020 15:16:23.8
Mid-occultation observing point (lat., long.) -65.2 57.1
At HVO the miss angle is 5745.3 arc-sec at 12/20/2020 13:51:01.6

Occultation of 95 psi^3 Aqr 4.98 by moon 39% illuminated at phase= 78 degrees
12/20/2020 14:12:18.6 Geocentric minimum 0.5 degrees
Global start/end: 12/20/2020 12:08:11.3 and 12/20/2020 16:16:30.9
Mid-occultation observing point (lat., long.) -39.3 -42.3
At HVO the miss angle is 3948.4 arc-sec at 12/20/2020 13:59:51.6

Occultation of 30 YY Psc 4.41 by moon 48% illuminated at phase= 88 degrees
12/21/2020 12:13:57.4 Geocentric minimum 0.5 degrees
Global start/end: 12/21/2020 10:07:58.0 and 12/21/2020 14:20:00.4
Mid-occultation observing point (lat., long.) 23.2 -32.3

Occultation of 33 BC Psc 4.61 by moon 49% illuminated at phase= 89 degrees
12/21/2020 14:00:10.8 Geocentric minimum 0.5 degrees
Global start/end: 12/21/2020 11:58:02.7 and 12/21/2020 16:02:22.5
Mid-occultation observing point (lat., long.) 28.0 -60.7
At HVO the miss angle is 173.2 arc-sec at 12/21/2020 13:27:54.3

Occultation of 106 nu Psc 4.44 by moon 70% illuminated at phase= 113 degrees
12/23/2020 19:20:57.8 Geocentric minimum 0.4 degrees
Global start/end: 12/23/2020 17:10:03.7 and 12/23/2020 21:31:51.5
Mid-occultation observing point (lat., long.) 30.0 -115.0

---For observations at HVO:
12/23/2020 19:21:01.9 Start Total 51.49 51.31 (az179) -31.6 ***
12/23/2020 20:02:38.4 OCCULTATION MID-POINT 50.54 50.5 (az195) -39.1 ***
12/23/2020 20:43:54.4 End Total 47.62 47.79 (az210) -46.4 ***

Occultation of 65 xi^1 Cet 4.37 by moon 76% illuminated at phase= 121 degrees
12/24/2020 12:39:19.3 Geocentric minimum 0.5 degrees
Global start/end: 12/24/2020 10:32:33.4 and 12/24/2020 14:46:03.6
Mid-occultation observing point (lat., long.) 38.6 -10.7

Occultation of 102 iota Tau 4.64 by moon 97% illuminated at phase= 160 degrees
12/28/2020 02:12:52.1 Geocentric minimum 0.9 degrees
Global start/end: 12/28/2020 00:49:41.4 and 12/28/2020 03:36:00.4
Mid-occultation observing point (lat., long.) 65.1 46.6

Occultation of Mebsuta 2.98 by moon 100% illuminated at phase= 181 degrees
12/29/2020 23:03:37.1 Geocentric minimum 0.2 degrees
Global start/end: 12/29/2020 20:52:07.6 and 12/30/2020 01:15:04.5
Mid-occultation observing point (lat., long.) 9.9 -88.6
At HVO the miss angle is 1138.2 arc-sec at 12/29/2020 22:42:45.1

Occultation of 77 kappa Gem 3.57 by moon 99% illuminated at phase= 194 degrees
12/31/2020 00:48:25.7 Geocentric minimum 0.1 degrees
Global start/end: 12/30/2020 22:36:04.5 and 12/31/2020 03:00:46.4
Mid-occultation observing point (lat., long.) 16.2 -101.8
At HVO the miss angle is 685.5 arc-sec at 12/31/2020 00:36:05.8

Occultation of Asellus Borealis 4.66 by moon 95% illuminated at phase= 207 degrees
01/01/2021 02:14:55.5 Geocentric minimum 0.7 degrees
Global start/end: 01/01/2021 00:27:42.1   and   01/01/2021 04:02:06.5
Mid-occultation observing point (lat., long.) 67.6 -85.6
At HVO the miss angle is 280.9 arc-sec at 01/01/2021 02:19:36.8

Occultation of 30 eta Leo 3.52 by moon 85% illuminated at phase= 225 degrees
01/02/2021 15:00:27.2 Geocentric minimum 0.0 degrees
Global start/end: 01/02/2021 12:49:32.3   and   01/02/2021 17:11:23.4
Mid-occultation observing point (lat., long.) 17.1 79.4

Occultation of 78 iota Leo 3.94 by moon 72% illuminated at phase= 244 degrees
01/04/2021 01:38:33.3 Geocentric minimum 0.9 degrees
Global start/end: 01/04/2021 00:06:25.0   and   01/04/2021 03:10:40.1
Mid-occultation observing point (lat., long.) -47.4 -93.8
At HVO the miss angle is 3328.8 arc-sec at 01/04/2021 00:11:24.6

Occultation of 3 nu Vir 4.03 by moon 67% illuminated at phase= 250 degrees
01/04/2021 13:06:33.2 Geocentric minimum 0.6 degrees
Global start/end: 01/04/2021 11:15:13.4   and   01/04/2021 14:57:51.2
Mid-occultation observing point (lat., long.) 42.8 151.5

Occultation of 8 pi Vir 4.66 by moon 65% illuminated at phase= 253 degrees
01/04/2021 18:57:53.1 Geocentric minimum 1.0 degrees
Global start/end: 01/04/2021 17:36:51.4   and   01/04/2021 20:18:53.6
Mid-occultation observing point (lat., long.) -62.9 -17.2

Occultation of 16 Vir 4.96 by moon 60% illuminated at phase= 258 degrees
01/05/2021 04:58:23.4 Geocentric minimum 0.0 degrees
Global start/end: 01/05/2021 02:49:22.9   and   01/05/2021 07:07:24.2
Mid-occultation observing point (lat., long.) 4.4 -99.0
At HVO the miss angle is 757.3 arc-sec at 01/05/2021 04:02:10.9

Occultation of 98 kappa Vir 4.19 by moon 35% illuminated at phase= 287 degrees
01/07/2021 10:02:36.7 Geocentric minimum 0.8 degrees
Global start/end: 01/07/2021 08:23:03.6   and   01/07/2021 11:42:08.1
Mid-occultation observing point (lat., long.) 37.8 -126.4

Occultation of Graffias 2.62 by moon 15% illuminated at phase= 314 degrees
01/09/2021 10:07:36.1 Geocentric minimum 0.5 degrees
Global start/end: 01/09/2021 08:09:43.6   and   01/09/2021 12:05:27.5
Mid-occultation observing point (lat., long.) 6.7 -117.4
At HVO the miss angle is 658.3 arc-sec at 01/09/2021 10:05:19.1

Occultation of 8 beta^2 Sco 4.92 by moon 15% illuminated at phase= 314 degrees
01/09/2021 10:07:36.9 Geocentric minimum 0.5 degrees
Global start/end: 01/09/2021 08:09:35.6   and   01/09/2021 12:05:37.2
Mid-occultation observing point (lat., long.) 6.5 -117.4
At HVO the miss angle is 671.9 arc-sec at 01/09/2021 10:05:18.3

Occultation of 9 omega^1 Sco 3.96 by moon 15% illuminated at phase= 314 degrees
01/09/2021 11:02:13.6 Geocentric minimum 1.2 degrees
Global start/end: 01/09/2021 10:22:28.2   and   01/09/2021 11:41:58.8
Mid-occultation observing point (lat., long.) 65.3 -97.7

Occultation of 14 nu Sco 4.01 by moon 15% illuminated at phase= 315 degrees
01/09/2021 12:26:46.9 Geocentric minimum 0.3 degrees
Global start/end: 01/09/2021 10:23:41.2   and   01/09/2021 14:29:51.4
Mid-occultation observing point (lat., long.) -36.0 -163.4

Occultation of 4 psi Oph 4.5 by moon 13% illuminated at phase= 318 degrees
01/09/2021 17:16:38.8 Geocentric minimum 0.5 degrees
Global start/end: 01/09/2021 15:19:10.0   and   01/09/2021 19:14:06.4
Mid-occultation observing point (lat., long.) -47.3 122.6

Occultation of 9 omega Oph 4.45 by moon 12% illuminated at phase= 320 degrees
01/09/2021 20:53:19.0 Geocentric minimum 0.5 degrees
Global start/end: 01/09/2021 18:55:33.3   and   01/09/2021 22:51:04.2
Mid-occultation observing point (lat., long.) 5.4 86.4

Occultation of 44 Oph 4.17 by moon 6% illuminated at phase= 332 degrees
01/10/2021 18:11:40.2 Geocentric minimum 0.7 degrees
Global start/end: 01/10/2021 16:26:09.2   and   01/10/2021 19:57:11.8
Mid-occultation observing point (lat., long.) 20.2 139.5

Occultation of Kaus Borealis 2.81 by moon 2% illuminated at phase= 345 degrees
01/11/2021 17:43:43.4 Geocentric minimum 0.6 degrees
Global start/end: 01/11/2021 15:53:15.2   and   01/11/2021 19:34:13.5
Mid-occultation observing point (lat., long.) 13.6 156.0

Occultation of 71 tau Aqr 4.01 by moon 13% illuminated at phase= 42 degrees
01/16/2021 07:45:51.6 Geocentric minimum 0.6 degrees
Global start/end: 01/16/2021 05:48:09.6   and   01/16/2021 09:43:39.5
Mid-occultation observing point (lat., long.) 21.9 -9.1

Occultation of 91 psi^1 Aqr 4.21 by moon 17% illuminated at phase= 49 degrees
01/16/2021 22:17:18.0 Geocentric minimum 1.2 degrees
Global start/end: 01/16/2021 21:55:34.2   and   01/16/2021 22:39:01.9
Mid-occultation observing point (lat., long.) -65.3 -93.9

Occultation of 93 psi^2 Aqr 4.39 by moon 18% illuminated at phase= 50 degrees
01/16/2021 23:05:20.8 Geocentric minimum 0.9 degrees
Global start/end: 01/16/2021 21:35:52.9   and   01/17/2021 00:34:52.9
Mid-occultation observing point (lat., long.) -66.7 -149.4

Occultation of 95 psi^3 Aqr 4.98 by moon 18% illuminated at phase= 50 degrees
01/16/2021 23:13:52.0 Geocentric minimum 0.4 degrees
Global start/end: 01/16/2021 21:06:00.5   and   01/17/2021 01:21:49.0
Mid-occultation observing point (lat., long.) -32.4 150.9

Occultation of 30 YY Psc 4.41 by moon 25% illuminated at phase= 60 degrees
01/17/2021 20:51:41.1 Geocentric minimum 0.6 degrees
Global start/end: 01/17/2021 18:53:56.3   and   01/17/2021 22:49:30.8
Mid-occultation observing point (lat., long.) 31.1 166.7

Occultation of 33 BC Psc 4.61 by moon 26% illuminated at phase= 61 degrees
01/17/2021 22:36:09.4 Geocentric minimum 0.7 degrees
Global start/end: 01/17/2021 20:43:24.3   and   01/18/2021 00:28:59.2
Mid-occultation observing point (lat., long.) 36.4 137.8

Occultation of 106 nu Psc 4.44 by moon 46% illuminated at phase= 85 degrees
01/20/2021 03:22:19.3 Geocentric minimum 0.5 degrees
Global start/end: 01/20/2021 01:18:34.6   and   01/20/2021 05:26:05.6
Mid-occultation observing point (lat., long.) 38.2 92.1

Occultation of 65 xi^1 Cet 4.37 by moon 53% illuminated at phase= 93 degrees
01/20/2021 20:37:57.1 Geocentric minimum 0.6 degrees
Global start/end: 01/20/2021 18:39:25.5   and   01/20/2021 22:36:29.1
Mid-occultation observing point (lat., long.) 47.2 -164.7
At HVO the miss angle is 237.6 arc-sec at 01/20/2021 22:07:44.2

Occultation of 102 iota Tau 4.64 by moon 84% illuminated at phase= 132 degrees
01/24/2021 10:33:08.1 Geocentric minimum 1.0 degrees
Global start/end: 01/24/2021 09:23:28.4   and   01/24/2021 11:42:45.8
Mid-occultation observing point (lat., long.) 65.1 -105.7

Occultation of Mebsuta 2.98 by moon 95% illuminated at phase= 153 degrees
01/26/2021 07:22:49.5 Geocentric minimum 0.2 degrees
Global start/end: 01/26/2021 05:10:49.6   and   01/26/2021 09:34:45.9
Mid-occultation observing point (lat., long.) 11.9 119.6

Occultation of 77 kappa Gem 3.57 by moon 99% illuminated at phase= 166 degrees
01/27/2021 08:53:56.2 Geocentric minimum 0.1 degrees
Global start/end: 01/27/2021 06:42:24.2   and   01/27/2021 11:05:25.8
Mid-occultation observing point (lat., long.) 15.9 109.9

Occultation of Asellus Borealis 4.66 by moon 100% illuminated at phase= 179 degrees
01/28/2021 09:57:02.5 Geocentric minimum 0.7 degrees
Global start/end: 01/28/2021 08:07:22.7   and   01/28/2021 11:46:38.6
Mid-occultation observing point (lat., long.) 63.9 127.6

Occultation of 30 eta Leo 3.52 by moon 98% illuminated at phase= 198 degrees
01/29/2021 21:55:16.9 Geocentric minimum 0.1 degrees
Global start/end: 01/29/2021 19:46:26.1   and   01/30/2021 00:04:07.7
Mid-occultation observing point (lat., long.) 11.8 -53.1
At HVO the miss angle is 584.7 arc-sec at 01/29/2021 20:32:04.0

Occultation of 78 iota Leo 3.94 by moon 91% illuminated at phase= 216 degrees
01/31/2021 07:45:46.1 Geocentric minimum 1.0 degrees
Global start/end: 01/31/2021 06:30:29.2   and   01/31/2021 09:01:02.4
Mid-occultation observing point (lat., long.) -65.3 108.9
At HVO the miss angle is 5868.9 arc-sec at 01/31/2021 08:14:53.8

Occultation of 3 nu Vir 4.03 by moon 87% illuminated at phase= 222 degrees
01/31/2021 19:00:11.2 Geocentric minimum 0.5 degrees
Global start/end: 01/31/2021 17:02:06.7   and   01/31/2021 20:58:15.4
Mid-occultation observing point (lat., long.) 33.2 29.0

Occultation of 8 pi Vir 4.66 by moon 85% illuminated at phase= 225 degrees
02/01/2021 00:44:49.8 Geocentric minimum 1.1 degrees
Global start/end: 01/31/2021 23:48:46.6   and   02/01/2021 01:40:52.7
Mid-occultation observing point (lat., long.) -65.3 -146.3

Occultation of 16 Vir 4.96 by moon 82% illuminated at phase= 231 degrees
02/01/2021 10:35:50.3 Geocentric minimum 0.1 degrees
Global start/end: 02/01/2021 08:28:47.7   and   02/01/2021 12:42:53.6
Mid-occultation observing point (lat., long.) -4.4 145.8

Occultation of 98 kappa Vir 4.19 by moon 59% illuminated at phase= 260 degrees
02/03/2021 15:25:08.6 Geocentric minimum 0.6 degrees
Global start/end: 02/03/2021 13:32:46.1   and   02/03/2021 17:17:31.8
Mid-occultation observing point (lat., long.) 24.1 118.0

Occultation of Graffias 2.62 by moon 36% illuminated at phase= 286 degrees
02/05/2021 16:15:54.2 Geocentric minimum 0.3 degrees
Global start/end: 02/05/2021 14:11:16.0   and   02/05/2021 18:20:32.4
Mid-occultation observing point (lat., long.) -3.2 121.0

Occultation of 8 beta^2 Sco 4.92 by moon 36% illuminated at phase= 286 degrees
02/05/2021 16:15:55.1 Geocentric minimum 0.3 degrees
Global start/end: 02/05/2021 14:11:11.3   and   02/05/2021 18:20:38.9
Mid-occultation observing point (lat., long.) -3.4 121.0

Occultation of 9 omega^1 Sco 3.96 by moon 36% illuminated at phase= 287 degrees
02/05/2021 17:11:42.8 Geocentric minimum 1.0 degrees
Global start/end: 02/05/2021 15:59:38.1   and   02/05/2021 18:23:47.6
Mid-occultation observing point (lat., long.) 65.4 142.9

Occultation of 10 omega^2 Sco 4.32 by moon 36% illuminated at phase= 287 degrees
02/05/2021 17:31:03.2 Geocentric minimum 1.2 degrees
Global start/end: 02/05/2021 16:51:01.8   and   02/05/2021 18:11:04.2
Mid-occultation observing point (lat., long.) 65.2 137.8

Occultation of 14 nu Sco 4.01 by moon 35% illuminated at phase= 287 degrees
02/05/2021 18:38:33.9 Geocentric minimum 0.5 degrees
Global start/end: 02/05/2021 16:39:08.1   and   02/05/2021 20:37:59.9
Mid-occultation observing point (lat., long.) -46.0 72.1

Occultation of 4 psi Oph 4.5 by moon 33% illuminated at phase= 290 degrees
02/05/2021 23:35:43.3 Geocentric minimum 0.6 degrees
Global start/end: 02/05/2021 21:44:47.3   and   02/06/2021 01:26:39.8
Mid-occultation observing point (lat., long.) -58.0 -6.4

Occultation of 9 omega Oph 4.45 by moon 31% illuminated at phase= 292 degrees
02/06/2021 03:17:51.9 Geocentric minimum 0.3 degrees
Global start/end: 02/06/2021 01:13:25.7   and   02/06/2021 05:22:18.0
Mid-occultation observing point (lat., long.) -3.9 -38.7

Occultation of 44 Oph 4.17 by moon 22% illuminated at phase= 304 degrees
02/07/2021 01:11:35.1 Geocentric minimum 0.6 degrees
Global start/end: 02/06/2021 23:17:05.0   and   02/07/2021 03:06:05.8
Mid-occultation observing point (lat., long.) 10.9 6.2

Occultation of Kaus Borealis 2.81 by moon 14% illuminated at phase= 317 degrees
02/08/2021 01:23:41.8 Geocentric minimum 0.5 degrees
Global start/end: 02/07/2021 23:26:55.1   and   02/08/2021 03:20:29.4
Mid-occultation observing point (lat., long.) 7.3 13.7

Occultation of 52 Sgr 4.6 by moon 6% illuminated at phase= 331 degrees
02/09/2021 04:30:50.7 Geocentric minimum 0.4 degrees
Global start/end: 02/09/2021 02:28:53.2   and   02/09/2021 06:32:49.4
Mid-occultation observing point (lat., long.) 0.7 -20.3

Occultation of 71 tau Aqr 4.01 by moon 2% illuminated at phase= 14 degrees
02/12/2021 16:50:23.7 Geocentric minimum 0.7 degrees
Global start/end: 02/12/2021 15:00:57.9   and   02/12/2021 18:39:53.9
Mid-occultation observing point (lat., long.) 30.3 -176.4

Occultation of 91 psi^1 Aqr 4.21 by moon 3% illuminated at phase= 21 degrees
02/13/2021 07:17:40.9 Geocentric minimum 1.0 degrees
Global start/end: 02/13/2021 06:11:47.1   and   02/13/2021 08:23:36.7
Mid-occultation observing point (lat., long.) -65.1 103.8

Occultation of 93 psi^2 Aqr 4.39 by moon 4% illuminated at phase= 22 degrees
02/13/2021 08:05:17.3 Geocentric minimum 0.8 degrees
Global start/end: 02/13/2021 06:21:15.2   and   02/13/2021 09:49:23.5
Mid-occultation observing point (lat., long.) -56.2 14.1

Occultation of 95 psi^3 Aqr 4.98 by moon 4% illuminated at phase= 22 degrees
02/13/2021 08:13:34.1 Geocentric minimum 0.3 degrees
Global start/end: 02/13/2021 06:02:01.4   and   02/13/2021 10:25:10.4
Mid-occultation observing point (lat., long.) -24.3 -15.5

Occultation of 30 YY Psc 4.41 by moon 8% illuminated at phase= 32 degrees
02/14/2021 05:39:43.5 Geocentric minimum 0.8 degrees
Global start/end: 02/14/2021 03:56:49.3   and   02/14/2021 07:22:42.0
Mid-occultation observing point (lat., long.) 44.5 -2.9

Occultation of 33 BC Psc 4.61 by moon 8% illuminated at phase= 33 degrees
02/14/2021 07:23:08.3 Geocentric minimum 0.8 degrees
Global start/end: 02/14/2021 05:47:45.9   and   02/14/2021 08:58:34.4
Mid-occultation observing point (lat., long.) 51.7 -36.7

Occultation of 106 nu Psc 4.44 by moon 23% illuminated at phase= 57 degrees
02/16/2021 11:39:11.8 Geocentric minimum 0.8 degrees
Global start/end: 02/16/2021 09:54:24.1   and   02/16/2021 13:24:02.1
Mid-occultation observing point (lat., long.) 54.6 -77.5

Occultation of 65 xi^1 Cet 4.37 by moon 29% illuminated at phase= 65 degrees
02/17/2021 04:49:11.6 Geocentric minimum 0.8 degrees
Global start/end: 02/17/2021 03:14:22.6   and   02/17/2021 06:24:02.1
Mid-occultation observing point (lat., long.) 65.0 8.5

Occultation of 94 tau Tau 4.28 by moon 59% illuminated at phase= 100 degrees
02/20/2021 10:21:26.8 Geocentric minimum 1.1 degrees
Global start/end: 02/20/2021 09:34:51.6   and   02/20/2021 11:08:01.3
Mid-occultation observing point (lat., long.) -65.1 50.6

Occultation of Mebsuta 2.98 by moon 79% illuminated at phase= 126 degrees
02/22/2021 16:35:49.7 Geocentric minimum 0.1 degrees
Global start/end: 02/22/2021 14:20:41.6   and   02/22/2021 18:50:55.5
Mid-occultation observing point (lat., long.) 21.9 -45.7
At HVO the miss angle is 1129.2 arc-sec at 02/22/2021 15:32:06.7

Occultation of 77 kappa Gem 3.57 by moon 87% illuminated at phase= 138 degrees
02/23/2021 18:19:30.3 Geocentric minimum 0.0 degrees
Global start/end: 02/23/2021 16:06:27.8   and   02/23/2021 20:32:31.1
Mid-occultation observing point (lat., long.) 23.1 -57.8
At HVO the miss angle is 605.6 arc-sec at 02/23/2021 17:13:24.6

Occultation of Asellus Borealis 4.66 by moon 94% illuminated at phase= 151 degrees
02/24/2021 19:24:59.9 Geocentric minimum 0.7 degrees
Global start/end: 02/24/2021 17:40:09.9   and   02/24/2021 21:09:44.3
Mid-occultation observing point (lat., long.) 68.8 -34.1
At HVO the miss angle is 390.5 arc-sec at 02/24/2021 18:05:51.2

Occultation of 30 eta Leo 3.52 by moon 99% illuminated at phase= 170 degrees
02/26/2021 07:03:08.9 Geocentric minimum 0.1 degrees
Global start/end: 02/26/2021 04:55:23.0   and   02/26/2021 09:10:53.2
Mid-occultation observing point (lat., long.) 11.0 142.7

Occultation of 78 iota Leo 3.94 by moon 99% illuminated at phase= 188 degrees
02/27/2021 16:11:00.4 Geocentric minimum 1.1 degrees
Global start/end: 02/27/2021 15:09:39.2   and   02/27/2021 17:12:20.4
Mid-occultation observing point (lat., long.) -65.1 -44.5

Occultation of 3 nu Vir 4.03 by moon 98% illuminated at phase= 194 degrees
02/28/2021 03:08:00.4 Geocentric minimum 0.4 degrees
Global start/end: 02/28/2021 01:07:13.4   and   02/28/2021 05:08:46.3
Mid-occultation observing point (lat., long.) 26.0 -124.1
At HVO the miss angle is 301.4 arc-sec at 02/28/2021 03:10:36.5

Occultation of 8 pi Vir 4.66 by moon 98% illuminated at phase= 198 degrees
02/28/2021 08:42:23.5 Geocentric minimum 1.3 degrees
Global start/end: 02/28/2021 08:25:21.8   and   02/28/2021 08:59:25.2
Mid-occultation observing point (lat., long.) -65.1 67.2

Occultation of 16 Vir 4.96 by moon 96% illuminated at phase= 203 degrees
02/28/2021 18:16:31.5 Geocentric minimum 0.3 degrees
Global start/end: 02/28/2021 16:14:08.6   and   02/28/2021 20:18:54.1
Mid-occultation observing point (lat., long.) -12.4 -0.1

Occultation of 98 kappa Vir 4.19 by moon 81% illuminated at phase= 232 degrees
03/02/2021 21:35:21.0 Geocentric minimum 0.4 degrees
Global start/end: 03/02/2021 19:34:33.6   and   03/02/2021 23:36:10.2
Mid-occultation observing point (lat., long.) 9.5 -8.1

Occultation of Graffias 2.62 by moon 60% illuminated at phase= 259 degrees
03/04/2021 21:37:17.6 Geocentric minimum 0.0 degrees
Global start/end: 03/04/2021 19:29:34.9   and   03/04/2021 23:45:01.1
Mid-occultation observing point (lat., long.) -18.1 9.8

Occultation of 8 beta^2 Sco 4.92 by moon 60% illuminated at phase= 259 degrees
03/04/2021 21:37:18.5 Geocentric minimum 0.0 degrees
Global start/end: 03/04/2021 19:29:35.2   and   03/04/2021 23:45:02.6
Mid-occultation observing point (lat., long.) -18.3 9.7

Occultation of 9 omega^1 Sco 3.96 by moon 60% illuminated at phase= 259 degrees
03/04/2021 22:32:40.0 Geocentric minimum 0.8 degrees
Global start/end: 03/04/2021 20:52:13.8   and   03/05/2021 00:13:08.7
Mid-occultation observing point (lat., long.) 29.6 9.8

Occultation of 10 omega^2 Sco 4.32 by moon 60% illuminated at phase= 259 degrees
03/04/2021 22:51:51.8 Geocentric minimum 0.9 degrees
Global start/end: 03/04/2021 21:26:01.5   and   03/05/2021 00:17:44.2
Mid-occultation observing point (lat., long.) 47.3 12.9

Occultation of 14 nu Sco 4.01 by moon 59% illuminated at phase= 260 degrees
03/04/2021 23:58:57.7 Geocentric minimum 0.7 degrees
Global start/end: 03/04/2021 22:13:45.1   and   03/05/2021 01:44:13.0
Mid-occultation observing point (lat., long.) -62.9 -49.4

Occultation of 4 psi Oph 4.5 by moon 57% illuminated at phase= 263 degrees
03/05/2021 04:54:34.1 Geocentric minimum 0.9 degrees
Global start/end: 03/05/2021 03:23:51.1   and   03/05/2021 06:25:19.3
Mid-occultation observing point (lat., long.) -75.8 -159.8
At HVO the miss angle is 5026.1 arc-sec at 03/05/2021 03:32:56.3

Occultation of 9 omega Oph 4.45 by moon 55% illuminated at phase= 265 degrees
03/05/2021 08:35:57.1 Geocentric minimum 0.0 degrees
Global start/end: 03/05/2021 06:27:49.9   and   03/05/2021 10:44:04.8
Mid-occultation observing point (lat., long.) -18.9 -148.6
At HVO the miss angle is 2080.1 arc-sec at 03/05/2021 09:23:34.3

Occultation of 44 Oph 4.17 by moon 45% illuminated at phase= 276 degrees
03/06/2021 06:31:57.2 Geocentric minimum 0.3 degrees
Global start/end: 03/06/2021 04:27:15.2   and   03/06/2021 08:36:41.1
Mid-occultation observing point (lat., long.) -5.1 -102.9
At HVO the miss angle is 1098.4 arc-sec at 03/06/2021 06:09:58.6

Occultation of Kaus Borealis 2.81 by moon 33% illuminated at phase= 289 degrees
03/07/2021 06:58:57.6 Geocentric minimum 0.3 degrees
Global start/end: 03/07/2021 04:52:58.1   and   03/07/2021 09:04:58.6
Mid-occultation observing point (lat., long.) -6.9 -97.4
At HVO the miss angle is 1177.2 arc-sec at 03/07/2021 06:40:01.6

Occultation of Nunki 2.02 by moon 29% illuminated at phase= 295 degrees
03/07/2021 17:49:21.3 Geocentric minimum 1.1 degrees
Global start/end: 03/07/2021 16:58:38.8   and   03/07/2021 18:40:04.4
Mid-occultation observing point (lat., long.) 65.1 103.1

Occultation of 52 Sgr 4.6 by moon 22% illuminated at phase= 304 degrees
03/08/2021 10:33:55.2 Geocentric minimum 0.2 degrees
Global start/end: 03/08/2021 08:25:19.5   and   03/08/2021 12:42:31.5
Mid-occultation observing point (lat., long.) -10.3 -137.0
At HVO the miss angle is 843.7 arc-sec at 03/08/2021 11:47:25.4

Occultation of 71 tau Aqr 4.01 by moon 1% illuminated at phase= 347 degrees
03/12/2021 00:23:49.3 Geocentric minimum 0.7 degrees
Global start/end: 03/11/2021 22:34:34.3   and   03/12/2021 02:13:06.8
Mid-occultation observing point (lat., long.) 31.1 42.6

Occultation of 106 nu Psc 4.44 by moon 7% illuminated at phase= 30 degrees
03/15/2021 19:23:47.8 Geocentric minimum 0.9 degrees
Global start/end: 03/15/2021 18:04:43.3   and   03/15/2021 20:42:54.0
Mid-occultation observing point (lat., long.) 64.8 71.1

Occultation of 65 xi^1 Cet 4.37 by moon 10% illuminated at phase= 38 degrees
03/16/2021 12:30:02.2 Geocentric minimum 1.1 degrees
Global start/end: 03/16/2021 11:35:30.1   and   03/16/2021 13:24:34.9
Mid-occultation observing point (lat., long.) 64.8 174.1
At HVO the miss angle is 630.9 arc-sec at 03/16/2021 12:03:52.0

Occultation of 65 kappa^1 Tau 4.22 by moon 32% illuminated at phase= 69 degrees
03/19/2021 10:15:34.6 Geocentric minimum 1.1 degrees
Global start/end: 03/19/2021 09:27:31.5   and   03/19/2021 11:03:37.4
Mid-occultation observing point (lat., long.) -64.9 25.2
At HVO the miss angle is 5809.4 arc-sec at 03/19/2021 09:39:13.2

Occultation of 94 tau Tau 4.28 by moon 35% illuminated at phase= 73 degrees
03/19/2021 18:13:23.3 Geocentric minimum 0.8 degrees
Global start/end: 03/19/2021 16:35:15.0   and   03/19/2021 19:51:30.5
Mid-occultation observing point (lat., long.) -40.7 -110.2
At HVO the miss angle is 3107.0 arc-sec at 03/19/2021 19:05:06.0

Occultation of Mebsuta 2.98 by moon 57% illuminated at phase= 98 degrees
03/22/2021 01:20:53.6 Geocentric minimum 0.2 degrees
Global start/end: 03/21/2021 23:05:59.3   and   03/22/2021 03:35:44.9
Mid-occultation observing point (lat., long.) 37.8 156.0

Occultation of 77 kappa Gem 3.57 by moon 68% illuminated at phase= 111 degrees
03/23/2021 03:37:30.7 Geocentric minimum 0.2 degrees
Global start/end: 03/23/2021 01:24:41.0   and   03/23/2021 05:50:16.4
Mid-occultation observing point (lat., long.) 37.0 137.6

Occultation of Asellus Borealis 4.66 by moon 78% illuminated at phase= 124 degrees
03/24/2021 05:13:26.9 Geocentric minimum 0.9 degrees
Global start/end: 03/24/2021 03:46:59.3   and   03/24/2021 06:39:49.8
Mid-occultation observing point (lat., long.) 76.6 -116.9

Occultation of 30 eta Leo 3.52 by moon 90% illuminated at phase= 143 degrees
03/25/2021 17:19:49.5 Geocentric minimum 0.0 degrees
Global start/end: 03/25/2021 15:10:54.3   and   03/25/2021 19:28:43.0
Mid-occultation observing point (lat., long.) 17.3 -36.3
At HVO the miss angle is 358.8 arc-sec at 03/25/2021 15:52:13.5

Occultation of 78 iota Leo 3.94 by moon 97% illuminated at phase= 161 degrees
03/27/2021 02:28:53.2 Geocentric minimum 1.1 degrees
Global start/end: 03/27/2021 01:21:41.9   and   03/27/2021 03:36:02.2
Mid-occultation observing point (lat., long.) -64.9 133.7
At HVO the miss angle is 5813.9 arc-sec at 03/27/2021 02:33:45.9

Occultation of 3 nu Vir 4.03 by moon 99% illuminated at phase= 167 degrees
03/27/2021 13:20:46.3 Geocentric minimum 0.4 degrees
Global start/end: 03/27/2021 11:20:35.2   and   03/27/2021 15:20:54.0
Mid-occultation observing point (lat., long.) 26.0 55.8

Occultation of 8 pi Vir 4.66 by moon 99% illuminated at phase= 170 degrees
03/27/2021 18:50:22.9 Geocentric minimum 1.3 degrees
Global start/end: 03/27/2021 18:36:04.4   and   03/27/2021 19:04:41.3
Mid-occultation observing point (lat., long.) -64.8 -111.9

Occultation of 16 Vir 4.96 by moon 100% illuminated at phase= 176 degrees
03/28/2021 04:15:59.2 Geocentric minimum 0.3 degrees
Global start/end: 03/28/2021 02:15:31.1   and   03/28/2021 06:16:24.9
Mid-occultation observing point (lat., long.) -14.3 -178.0
At HVO the miss angle is 3516.4 arc-sec at 03/28/2021 04:42:13.5

Occultation of 98 kappa Vir 4.19 by moon 95% illuminated at phase= 205 degrees
03/30/2021 06:14:43.3 Geocentric minimum 0.2 degrees
Global start/end: 03/30/2021 04:12:24.4   and   03/30/2021 08:17:03.2
Mid-occultation observing point (lat., long.) 0.4 -168.7

Occultation of Graffias 2.62 by moon 81% illuminated at phase= 232 degrees
04/01/2021 04:40:03.6 Geocentric minimum 0.2 degrees
Global start/end: 04/01/2021 02:36:02.1   and   04/01/2021 06:44:07.6
Mid-occultation observing point (lat., long.) -31.0 -127.1
At HVO the miss angle is 3051.6 arc-sec at 04/01/2021 04:28:42.6

Occultation of 8 beta^2 Sco 4.92 by moon 81% illuminated at phase= 232 degrees
04/01/2021 04:40:04.4 Geocentric minimum 0.2 degrees
Global start/end: 04/01/2021 02:36:06.5   and   04/01/2021 06:44:04.8
Mid-occultation observing point (lat., long.) -31.2 -127.1
At HVO the miss angle is 3065.3 arc-sec at 04/01/2021 04:28:41.5

Occultation of 9 omega^1 Sco 3.96 by moon 81% illuminated at phase= 232 degrees
04/01/2021 05:33:48.8 Geocentric minimum 0.5 degrees
Global start/end: 04/01/2021 03:40:06.2   and   04/01/2021 07:27:35.2
Mid-occultation observing point (lat., long.) 11.0 -127.9
At HVO the miss angle is 449.0 arc-sec at 04/01/2021 05:53:12.2

Occultation of 10 omega^2 Sco 4.32 by moon 81% illuminated at phase= 232 degrees
04/01/2021 05:52:25.5 Geocentric minimum 0.7 degrees
Global start/end: 04/01/2021 04:07:07.5   and   04/01/2021 07:37:47.2
Mid-occultation observing point (lat., long.) 21.7 -129.4

Occultation of 14 nu Sco 4.01 by moon 80% illuminated at phase= 233 degrees
04/01/2021 06:57:05.7 Geocentric minimum 1.0 degrees
Global start/end: 04/01/2021 05:33:14.1   and   04/01/2021 08:21:00.1
Mid-occultation observing point (lat., long.) -75.5 110.6

Occultation of 4 psi Oph 4.5 by moon 79% illuminated at phase= 235 degrees
04/01/2021 11:43:30.5 Geocentric minimum 1.1 degrees
Global start/end: 04/01/2021 10:44:46.7   and   04/01/2021 12:42:16.0
Mid-occultation observing point (lat., long.) -64.6 -9.9

Occultation of 9 omega Oph 4.45 by moon 77% illuminated at phase= 238 degrees
04/01/2021 15:18:22.7 Geocentric minimum 0.2 degrees
Global start/end: 04/01/2021 13:13:42.0   and   04/01/2021 17:23:06.1
Mid-occultation observing point (lat., long.) -32.7 80.1

Occultation of 42 theta Oph 3.27 by moon 68% illuminated at phase= 249 degrees
04/02/2021 11:12:15.3 Geocentric minimum 1.0 degrees
Global start/end: 04/02/2021 09:58:44.9   and   04/02/2021 12:25:48.4
Mid-occultation observing point (lat., long.) 65.0 177.1

Occultation of 44 Oph 4.17 by moon 68% illuminated at phase= 249 degrees
04/02/2021 12:39:08.4 Geocentric minimum 0.1 degrees
Global start/end: 04/02/2021 10:31:44.4   and   04/02/2021 14:46:33.9
Mid-occultation observing point (lat., long.) -20.5 136.4

Occultation of Kaus Borealis 2.81 by moon 57% illuminated at phase= 262 degrees
04/03/2021 12:37:50.1 Geocentric minimum 0.1 degrees
Global start/end: 04/03/2021 10:28:41.5   and   04/03/2021 14:46:59.6
Mid-occultation observing point (lat., long.) -22.4 150.6

Occultation of Nunki 2.02 by moon 52% illuminated at phase= 268 degrees
04/03/2021 23:19:50.0 Geocentric minimum 0.9 degrees
Global start/end: 04/03/2021 21:48:39.2   and   04/04/2021 00:51:04.4
Mid-occultation observing point (lat., long.) 39.1 -5.1

Occultation of 52 Sgr 4.6 by moon 44% illuminated at phase= 277 degrees
04/04/2021 15:56:59.4 Geocentric minimum 0.0 degrees
Global start/end: 04/04/2021 13:45:50.9   and   04/04/2021 18:08:07.5
Mid-occultation observing point (lat., long.) -24.8 116.8

Occultation of 71 tau Aqr 4.01 by moon 12% illuminated at phase= 320 degrees
04/08/2021 06:22:29.3 Geocentric minimum 0.6 degrees
Global start/end: 04/08/2021 04:24:10.8   and   04/08/2021 08:20:50.1
Mid-occultation observing point (lat., long.) 22.3 -69.7
At HVO the miss angle is 135.7 arc-sec at 04/08/2021 05:55:49.1

Occultation of 91 psi^1 Aqr 4.21 by moon 8% illuminated at phase= 327 degrees
04/08/2021 21:10:44.0 Geocentric minimum 1.1 degrees
Global start/end: 04/08/2021 20:17:28.2   and   04/08/2021 22:04:00.6
Mid-occultation observing point (lat., long.) -64.7 -158.7

Occultation of 93 psi^2 Aqr 4.39 by moon 8% illuminated at phase= 327 degrees
04/08/2021 21:59:02.0 Geocentric minimum 0.8 degrees
Global start/end: 04/08/2021 20:18:58.8   and   04/08/2021 23:39:07.2
Mid-occultation observing point (lat., long.) -59.8 120.4

Occultation of 95 psi^3 Aqr 4.98 by moon 8% illuminated at phase= 328 degrees
04/08/2021 22:07:00.4 Geocentric minimum 0.3 degrees
Global start/end: 04/08/2021 19:55:18.3   and   04/09/2021 00:18:43.5
Mid-occultation observing point (lat., long.) -26.9 83.9

Occultation of 30 YY Psc 4.41 by moon 4% illuminated at phase= 338 degrees
04/09/2021 19:53:35.6 Geocentric minimum 0.8 degrees
Global start/end: 04/09/2021 18:15:43.7   and   04/09/2021 21:31:29.0
Mid-occultation observing point (lat., long.) 49.4 83.5

Occultation of 33 BC Psc 4.61 by moon 4% illuminated at phase= 339 degrees
04/09/2021 21:38:15.9 Geocentric minimum 0.9 degrees
Global start/end: 04/09/2021 20:10:05.9   and   04/09/2021 23:06:27.3
Mid-occultation observing point (lat., long.) 59.4 39.5

Occultation of 65 kappa^1 Tau 4.22 by moon 13% illuminated at phase= 42 degrees
04/15/2021 17:03:06.3 Geocentric minimum 0.9 degrees
Global start/end: 04/15/2021 15:35:16.2   and   04/15/2021 18:30:56.1
Mid-occultation observing point (lat., long.) -57.2 -111.8
At HVO the miss angle is 3396.7 arc-sec at 04/15/2021 18:07:37.1

Occultation of 94 tau Tau 4.28 by moon 15% illuminated at phase= 46 degrees
04/16/2021 01:02:23.0 Geocentric minimum 0.6 degrees
Global start/end: 04/15/2021 23:05:10.4   and   04/16/2021 02:59:35.5
Mid-occultation observing point (lat., long.) -19.9 114.9

Occultation of Mars 1.5 by moon 24% illuminated at phase= 59 degrees
04/17/2021 05:09:46.6 Geocentric minimum 0.1 degrees
Global start/end: 04/17/2021 02:44:24.2   and   04/17/2021 07:35:09.0
Mid-occultation observing point (lat., long.) 16.6 58.8

Occultation of Mebsuta 2.98 by moon 34% illuminated at phase= 71 degrees
04/18/2021 08:43:55.8 Geocentric minimum 0.4 degrees
Global start/end: 04/18/2021 06:35:24.5   and   04/18/2021 10:52:24.4
Mid-occultation observing point (lat., long.) 53.0 18.3

Occultation of 77 kappa Gem 3.57 by moon 45% illuminated at phase= 84 degrees
04/19/2021 11:33:18.9 Geocentric minimum 0.4 degrees
Global start/end: 04/19/2021 09:26:01.0   and   04/19/2021 13:40:32.7
Mid-occultation observing point (lat., long.) 51.6 -5.2

Occultation of Asellus Borealis 4.66 by moon 56% illuminated at phase= 97 degrees
04/20/2021 13:49:29.1 Geocentric minimum 1.1 degrees
Global start/end: 04/20/2021 13:04:02.4   and   04/20/2021 14:34:54.6
Mid-occultation observing point (lat., long.) 64.5 119.9

Occultation of 30 eta Leo 3.52 by moon 72% illuminated at phase= 116 degrees
04/22/2021 02:57:07.3 Geocentric minimum 0.2 degrees
Global start/end: 04/22/2021 00:47:36.4   and   04/22/2021 05:06:34.1
Mid-occultation observing point (lat., long.) 27.0 156.2

Occultation of 78 iota Leo 3.94 by moon 85% illuminated at phase= 134 degrees
04/23/2021 12:53:36.0 Geocentric minimum 1.0 degrees
Global start/end: 04/23/2021 11:30:24.0   and   04/23/2021 14:16:43.7
Mid-occultation observing point (lat., long.) -55.8 -22.9

Occultation of 3 nu Vir 4.03 by moon 88% illuminated at phase= 140 degrees
04/23/2021 23:57:20.7 Geocentric minimum 0.5 degrees
Global start/end: 04/23/2021 21:59:32.0   and   04/24/2021 01:55:03.9
Mid-occultation observing point (lat., long.) 31.6 -126.9
At HVO the miss angle is 84.9 arc-sec at 04/24/2021 00:08:14.8

Occultation of 8 pi Vir 4.66 by moon 90% illuminated at phase= 143 degrees
04/24/2021 05:31:10.3 Geocentric minimum 1.2 degrees
Global start/end: 04/24/2021 04:44:31.4   and   04/24/2021 06:17:47.8
Mid-occultation observing point (lat., long.) -64.7 60.7

Occultation of 16 Vir 4.96 by moon 93% illuminated at phase= 149 degrees
04/24/2021 15:03:21.8 Geocentric minimum 0.3 degrees
Global start/end: 04/24/2021 13:00:35.5   and   04/24/2021 17:06:04.4
Mid-occultation observing point (lat., long.) -10.5 -5.2

Occultation of 98 kappa Vir 4.19 by moon 100% illuminated at phase= 178 degrees
04/26/2021 16:53:46.8 Geocentric minimum 0.2 degrees
Global start/end: 04/26/2021 14:51:52.4   and   04/26/2021 18:55:40.6
Mid-occultation observing point (lat., long.) -1.6 3.7

Occultation of 43 kappa Lib 4.74 by moon 97% illuminated at phase= 200 degrees
04/28/2021 05:47:00.7 Geocentric minimum 1.2 degrees
Global start/end: 04/28/2021 04:57:40.2   and   04/28/2021 06:36:21.9
Mid-occultation observing point (lat., long.) 64.7 -126.9

Occultation of Graffias 2.62 by moon 95% illuminated at phase= 205 degrees
04/28/2021 14:12:37.7 Geocentric minimum 0.3 degrees
Global start/end: 04/28/2021 12:12:58.5   and   04/28/2021 16:12:19.1
Mid-occultation observing point (lat., long.) -37.5 60.2

Occultation of 8 beta^2 Sco 4.92 by moon 95% illuminated at phase= 205 degrees
04/28/2021 14:12:38.4 Geocentric minimum 0.3 degrees
Global start/end: 04/28/2021 12:13:04.8   and   04/28/2021 16:12:14.3
Mid-occultation observing point (lat., long.) -37.7 60.1

Occultation of 9 omega^1 Sco 3.96 by moon 95% illuminated at phase= 205 degrees
04/28/2021 15:04:53.8 Geocentric minimum 0.4 degrees
Global start/end: 04/28/2021 13:08:08.4   and   04/28/2021 17:01:42.1
Mid-occultation observing point (lat., long.) 2.9 60.2

Occultation of 10 omega^2 Sco 4.32 by moon 95% illuminated at phase= 205 degrees
04/28/2021 15:22:57.8 Geocentric minimum 0.6 degrees
Global start/end: 04/28/2021 13:32:18.3   and   04/28/2021 17:13:40.4
Mid-occultation observing point (lat., long.) 12.4 58.4

Occultation of 14 nu Sco 4.01 by moon 95% illuminated at phase= 206 degrees
04/28/2021 16:25:12.5 Geocentric minimum 1.1 degrees
Global start/end: 04/28/2021 15:16:03.1   and   04/28/2021 17:34:23.6
Mid-occultation observing point (lat., long.) -64.4 -107.2

Occultation of 4 psi Oph 4.5 by moon 94% illuminated at phase= 209 degrees
04/28/2021 21:02:24.5 Geocentric minimum 1.3 degrees
Global start/end: 04/28/2021 20:33:01.3   and   04/28/2021 21:31:48.0
Mid-occultation observing point (lat., long.) -64.5 -176.4

Occultation of 9 omega Oph 4.45 by moon 93% illuminated at phase= 211 degrees
04/29/2021 00:30:24.8 Geocentric minimum 0.3 degrees
Global start/end: 04/28/2021 22:30:37.1   and   04/29/2021 02:30:15.5
Mid-occultation observing point (lat., long.) -40.1 -87.5
At HVO the miss angle is 2826.1 arc-sec at 04/28/2021 23:09:23.1

Occultation of 42 theta Oph 3.27 by moon 87% illuminated at phase= 222 degrees
04/29/2021 19:43:41.4 Geocentric minimum 0.9 degrees
Global start/end: 04/29/2021 18:12:04.0   and   04/29/2021 21:15:22.6
Mid-occultation observing point (lat., long.) 34.6 10.8

Occultation of 44 Oph 4.17 by moon 87% illuminated at phase= 223 degrees
04/29/2021 21:07:22.1 Geocentric minimum 0.1 degrees
Global start/end: 04/29/2021 19:02:30.6   and   04/29/2021 23:12:15.8
Mid-occultation observing point (lat., long.) -29.5 -19.1

Occultation of Kaus Borealis 2.81 by moon 78% illuminated at phase= 236 degrees
04/30/2021 20:16:34.5 Geocentric minimum 0.1 degrees
Global start/end: 04/30/2021 18:10:13.1   and   04/30/2021 22:22:58.6
Mid-occultation observing point (lat., long.) -32.7 8.6

Occultation of Nunki 2.02 by moon 74% illuminated at phase= 241 degrees
05/01/2021 06:37:47.9 Geocentric minimum 0.7 degrees
Global start/end: 05/01/2021 04:51:37.9   and   05/01/2021 08:24:03.5
Mid-occultation observing point (lat., long.) 19.0 -140.9

Occultation of 52 Sgr 4.6 by moon 67% illuminated at phase= 250 degrees
05/01/2021 22:45:14.6 Geocentric minimum 0.2 degrees
Global start/end: 05/01/2021 20:37:22.8   and   05/02/2021 00:53:09.9
Mid-occultation observing point (lat., long.) -35.8 -10.9

Occultation of 71 tau Aqr 4.01 by moon 30% illuminated at phase= 293 degrees
05/05/2021 11:57:17.1 Geocentric minimum 0.4 degrees
Global start/end: 05/05/2021 09:50:51.7   and   05/05/2021 14:03:45.7
Mid-occultation observing point (lat., long.) 12.4 -175.9

Occultation of 93 psi^2 Aqr 4.39 by moon 24% illuminated at phase= 301 degrees
05/06/2021 03:34:47.4 Geocentric minimum 0.9 degrees
Global start/end: 05/06/2021 02:10:19.0   and   05/06/2021 04:59:17.9
Mid-occultation observing point (lat., long.) -64.5 78.9

Occultation of 95 psi^3 Aqr 4.98 by moon 24% illuminated at phase= 301 degrees
05/06/2021 03:42:40.5 Geocentric minimum 0.4 degrees
Global start/end: 05/06/2021 01:35:19.1   and   05/06/2021 05:50:04.2
Mid-occultation observing point (lat., long.) -34.5 -22.2

Occultation of 30 YY Psc 4.41 by moon 17% illuminated at phase= 311 degrees
05/07/2021 01:34:14.4 Geocentric minimum 0.7 degrees
Global start/end: 05/06/2021 23:45:19.2   and   05/07/2021 03:23:11.7
Mid-occultation observing point (lat., long.) 39.7 -18.6

Occultation of 33 BC Psc 4.61 by moon 17% illuminated at phase= 312 degrees
05/07/2021 03:19:27.6 Geocentric minimum 0.8 degrees
Global start/end: 05/07/2021 01:38:22.4   and   05/07/2021 05:00:34.7
Mid-occultation observing point (lat., long.) 47.1 -51.4

Occultation of 106 nu Psc 4.44 by moon 4% illuminated at phase= 337 degrees
05/09/2021 08:09:30.3 Geocentric minimum 1.0 degrees
Global start/end: 05/09/2021 06:55:59.4   and   05/09/2021 09:23:01.6
Mid-occultation observing point (lat., long.) 64.5 -173.9
At HVO the miss angle is 143.2 arc-sec at 05/09/2021 07:47:34.5

Occultation of 65 xi^1 Cet 4.37 by moon 2% illuminated at phase= 344 degrees
05/10/2021 01:21:28.8 Geocentric minimum 1.1 degrees
Global start/end: 05/10/2021 01:04:22.2   and   05/10/2021 01:38:35.4
Mid-occultation observing point (lat., long.) 64.5 -72.2

Occultation of 65 kappa^1 Tau 4.22 by moon 2% illuminated at phase= 16 degrees
05/12/2021 23:09:03.8 Geocentric minimum 0.8 degrees
Global start/end: 05/12/2021 21:33:07.2   and   05/13/2021 00:45:00.1
Mid-occultation observing point (lat., long.) -43.1 121.4

Occultation of 94 tau Tau 4.28 by moon 3% illuminated at phase= 19 degrees
05/13/2021 07:07:25.6 Geocentric minimum 0.6 degrees
Global start/end: 05/13/2021 05:05:39.2   and   05/13/2021 09:09:11.7
Mid-occultation observing point (lat., long.) -14.2 -4.5
At HVO the miss angle is 3841.6 arc-sec at 05/13/2021 06:24:29.5

Occultation of Mebsuta 2.98 by moon 15% illuminated at phase= 45 degrees
05/15/2021 14:51:59.7 Geocentric minimum 0.5 degrees
Global start/end: 05/15/2021 12:49:11.9   and   05/15/2021 16:54:46.0
Mid-occultation observing point (lat., long.) 61.0 -100.6

Occultation of 77 kappa Gem 3.57 by moon 23% illuminated at phase= 58 degrees
05/16/2021 17:55:42.7 Geocentric minimum 0.5 degrees
Global start/end: 05/16/2021 15:54:03.7   and   05/16/2021 19:57:18.9
Mid-occultation observing point (lat., long.) 60.2 -124.9

Occultation of 30 eta Leo 3.52 by moon 49% illuminated at phase= 89 degrees
05/19/2021 10:42:07.2 Geocentric minimum 0.3 degrees
Global start/end: 05/19/2021 08:33:05.3   and   05/19/2021 12:51:05.2
Mid-occultation observing point (lat., long.) 33.6 16.1

Occultation of 78 iota Leo 3.94 by moon 65% illuminated at phase= 107 degrees
05/20/2021 21:43:44.6 Geocentric minimum 0.9 degrees
Global start/end: 05/20/2021 20:10:09.8   and   05/20/2021 23:17:14.4
Mid-occultation observing point (lat., long.) -45.5 -169.3
At HVO the miss angle is 4633.7 arc-sec at 05/20/2021 21:26:18.1

Occultation of 3 nu Vir 4.03 by moon 70% illuminated at phase= 114 degrees
05/21/2021 09:09:31.9 Geocentric minimum 0.6 degrees
Global start/end: 05/21/2021 07:13:54.7   and   05/21/2021 11:05:03.1
Mid-occultation observing point (lat., long.) 37.1 72.0

Occultation of 8 pi Vir 4.66 by moon 73% illuminated at phase= 117 degrees
05/21/2021 14:53:54.7 Geocentric minimum 1.1 degrees
Global start/end: 05/21/2021 13:52:07.2   and   05/21/2021 15:55:39.7
Mid-occultation observing point (lat., long.) -64.6 -106.9

Occultation of 16 Vir 4.96 by moon 77% illuminated at phase= 122 degrees
05/22/2021 00:44:05.3 Geocentric minimum 0.2 degrees
Global start/end: 05/21/2021 22:37:58.7   and   05/22/2021 02:50:08.4
Mid-occultation observing point (lat., long.) -6.7 -175.5
At HVO the miss angle is 2972.5 arc-sec at 05/22/2021 01:11:44.0

Occultation of 98 kappa Vir 4.19 by moon 94% illuminated at phase= 151 degrees
05/24/2021 03:42:55.2 Geocentric minimum 0.2 degrees
Global start/end: 05/24/2021 01:40:30.8   and   05/24/2021 05:45:17.3
Mid-occultation observing point (lat., long.) 0.0 175.0

Occultation of 43 kappa Lib 4.74 by moon 100% illuminated at phase= 173 degrees
05/25/2021 16:45:14.8 Geocentric minimum 1.2 degrees
Global start/end: 05/25/2021 15:53:46.9   and   05/25/2021 17:36:42.4
Mid-occultation observing point (lat., long.) 64.6 41.7

Occultation of Graffias 2.62 by moon 100% illuminated at phase= 178 degrees
05/26/2021 01:06:59.3 Geocentric minimum 0.3 degrees
Global start/end: 05/25/2021 23:08:17.3   and   05/26/2021 03:05:41.6
Mid-occultation observing point (lat., long.) -38.3 -130.8
At HVO the miss angle is 3591.5 arc-sec at 05/26/2021 00:56:06.2

Occultation of 8 beta^2 Sco 4.92 by moon 100% illuminated at phase= 178 degrees
05/26/2021 01:07:00.0 Geocentric minimum 0.3 degrees
Global start/end: 05/25/2021 23:08:23.8   and   05/26/2021 03:05:36.6
Mid-occultation observing point (lat., long.) -38.5 -130.9
At HVO the miss angle is 3605.2 arc-sec at 05/26/2021 00:56:05.1

Occultation of 9 omega^1 Sco 3.96 by moon 100% illuminated at phase= 179 degrees
05/26/2021 01:58:52.1 Geocentric minimum 0.4 degrees
Global start/end: 05/26/2021 00:02:08.6   and   05/26/2021 03:55:36.0
Mid-occultation observing point (lat., long.) 1.8 -130.6
At HVO the miss angle is 994.0 arc-sec at 05/26/2021 02:17:33.1

Occultation of 10 omega^2 Sco 4.32 by moon 100% illuminated at phase= 179 degrees
05/26/2021 02:16:47.1 Geocentric minimum 0.6 degrees
Global start/end: 05/26/2021 00:25:50.1   and   05/26/2021 04:07:44.7
Mid-occultation observing point (lat., long.) 11.1 -132.4
At HVO the miss angle is 437.3 arc-sec at 05/26/2021 02:41:56.1

Occultation of 14 nu Sco 4.01 by moon 100% illuminated at phase= 179 degrees
05/26/2021 03:18:12.9 Geocentric minimum 1.1 degrees
Global start/end: 05/26/2021 02:11:15.0   and   05/26/2021 04:25:11.1
Mid-occultation observing point (lat., long.) -64.3 62.6

Occultation of 4 psi Oph 4.5 by moon 100% illuminated at phase= 182 degrees
05/26/2021 07:52:16.0 Geocentric minimum 1.3 degrees
Global start/end: 05/26/2021 07:29:26.5   and   05/26/2021 08:15:05.5
Mid-occultation observing point (lat., long.) -64.5 -5.9

Occultation of 9 omega Oph 4.45 by moon 100% illuminated at phase= 184 degrees
05/26/2021 11:17:37.0 Geocentric minimum 0.4 degrees
Global start/end: 05/26/2021 09:19:19.2   and   05/26/2021 13:15:55.8
Mid-occultation observing point (lat., long.) -41.3 83.1

Occultation of 42 theta Oph 3.27 by moon 98% illuminated at phase= 195 degrees
05/27/2021 06:10:22.2 Geocentric minimum 0.8 degrees
Global start/end: 05/27/2021 04:35:51.4   and   05/27/2021 07:44:55.6
Mid-occultation observing point (lat., long.) 29.7 -173.8

Occultation of 44 Oph 4.17 by moon 98% illuminated at phase= 196 degrees
05/27/2021 07:32:05.0 Geocentric minimum 0.1 degrees
Global start/end: 05/27/2021 05:29:05.4   and   05/27/2021 09:35:06.1
Mid-occultation observing point (lat., long.) -31.7 157.3

Occultation of Kaus Borealis 2.81 by moon 94% illuminated at phase= 209 degrees
05/28/2021 06:05:35.7 Geocentric minimum 0.2 degrees
Global start/end: 05/28/2021 04:01:51.3   and   05/28/2021 08:09:22.8
Mid-occultation observing point (lat., long.) -35.7 -165.8

Occultation of Nunki 2.02 by moon 91% illuminated at phase= 215 degrees
05/28/2021 16:08:25.9 Geocentric minimum 0.6 degrees
Global start/end: 05/28/2021 14:19:53.7   and   05/28/2021 17:57:03.1
Mid-occultation observing point (lat., long.) 13.7 49.6

Occultation of 52 Sgr 4.6 by moon 86% illuminated at phase= 224 degrees
05/29/2021 07:45:17.3 Geocentric minimum 0.2 degrees
Global start/end: 05/29/2021 05:40:44.5   and   05/29/2021 09:49:54.5
Mid-occultation observing point (lat., long.) -39.3 -172.4

Occultation of 71 tau Aqr 4.01 by moon 53% illuminated at phase= 267 degrees
06/01/2021 18:35:20.6 Geocentric minimum 0.4 degrees
Global start/end: 06/01/2021 16:27:18.4   and   06/01/2021 20:43:27.6
Mid-occultation observing point (lat., long.) 8.2 59.4

Occultation of 93 psi^2 Aqr 4.39 by moon 46% illuminated at phase= 275 degrees
06/02/2021 09:57:37.3 Geocentric minimum 1.0 degrees
Global start/end: 06/02/2021 08:41:29.3   and   06/02/2021 11:13:48.0
Mid-occultation observing point (lat., long.) -64.5 -43.7

Occultation of 95 psi^3 Aqr 4.98 by moon 46% illuminated at phase= 275 degrees
06/02/2021 10:05:22.8 Geocentric minimum 0.5 degrees
Global start/end: 06/02/2021 08:01:21.8   and   06/02/2021 12:09:28.5
Mid-occultation observing point (lat., long.) -37.9 -142.4

Occultation of 30 YY Psc 4.41 by moon 37% illuminated at phase= 285 degrees
06/03/2021 07:42:27.5 Geocentric minimum 0.7 degrees
Global start/end: 06/03/2021 05:49:03.5   and   06/03/2021 09:35:55.1
Mid-occultation observing point (lat., long.) 35.3 -134.1

Occultation of 33 BC Psc 4.61 by moon 36% illuminated at phase= 286 degrees
06/03/2021 09:26:50.4 Geocentric minimum 0.7 degrees
Global start/end: 06/03/2021 07:40:19.6   and   06/03/2021 11:13:24.7
Mid-occultation observing point (lat., long.) 42.0 -164.9
At HVO the miss angle is 430.6 arc-sec at 06/03/2021 10:53:08.4

Occultation of 106 nu Psc 4.44 by moon 18% illuminated at phase= 310 degrees
06/05/2021 14:09:07.7 Geocentric minimum 0.9 degrees
Global start/end: 06/05/2021 12:49:14.7   and   06/05/2021 15:29:01.3
Mid-occultation observing point (lat., long.) 64.4 69.4

Occultation of 65 xi^1 Cet 4.37 by moon 13% illuminated at phase= 318 degrees
06/06/2021 07:22:49.3 Geocentric minimum 1.1 degrees
Global start/end: 06/06/2021 06:48:08.9   and   06/06/2021 07:57:29.6
Mid-occultation observing point (lat., long.) 64.5 170.6
At HVO the miss angle is 913.7 arc-sec at 06/06/2021 06:59:09.7

Eclipse of the Sun by moon 0% illuminated at phase= 360 degrees
06/10/2021 03:41:55.3 Geocentric minimum 0.8 degrees
Global start/end: 06/10/2021 01:12:14.5   and   06/10/2021 06:11:31.8
Mid-occultation observing point (lat., long.) 80.8 -66.7

Occultation of Mebsuta 2.98 by moon 3% illuminated at phase= 19 degrees
06/11/2021 20:37:41.5 Geocentric minimum 0.5 degrees
Global start/end: 06/11/2021 18:35:18.1   and   06/11/2021 22:40:03.2
Mid-occultation observing point (lat., long.) 60.8 146.1

Occultation of 77 kappa Gem 3.57 by moon 7% illuminated at phase= 31 degrees
06/12/2021 23:35:04.9 Geocentric minimum 0.5 degrees
Global start/end: 06/12/2021 21:33:41.4   and   06/13/2021 01:36:26.3
Mid-occultation observing point (lat., long.) 59.9 123.3

Occultation of 30 eta Leo 3.52 by moon 27% illuminated at phase= 63 degrees
06/15/2021 16:41:40.9 Geocentric minimum 0.3 degrees
Global start/end: 06/15/2021 14:31:38.9   and   06/15/2021 18:51:41.1
Mid-occultation observing point (lat., long.) 33.1 -100.9

Occultation of 78 iota Leo 3.94 by moon 42% illuminated at phase= 81 degrees
06/17/2021 04:26:01.1 Geocentric minimum 0.9 degrees
Global start/end: 06/17/2021 02:54:12.0   and   06/17/2021 05:57:46.7
Mid-occultation observing point (lat., long.) -48.6 60.0

Occultation of 3 nu Vir 4.03 by moon 48% illuminated at phase= 88 degrees
06/17/2021 16:10:37.4 Geocentric minimum 0.5 degrees
Global start/end: 06/17/2021 14:12:48.3   and   06/17/2021 18:08:21.9
Mid-occultation observing point (lat., long.) 36.5 -60.6

Occultation of 8 pi Vir 4.66 by moon 51% illuminated at phase= 91 degrees
06/17/2021 22:05:08.7 Geocentric minimum 1.1 degrees
Global start/end: 06/17/2021 21:09:28.7   and   06/17/2021 23:00:47.1
Mid-occultation observing point (lat., long.) -64.6 118.4
At HVO the miss angle is 6134.5 arc-sec at 06/17/2021 22:15:15.5

Occultation of 16 Vir 4.96 by moon 55% illuminated at phase= 96 degrees
06/18/2021 08:13:45.8 Geocentric minimum 0.2 degrees
Global start/end: 06/18/2021 06:05:55.8   and   06/18/2021 10:21:33.1
Mid-occultation observing point (lat., long.) -7.9 44.6

Occultation of 98 kappa Vir 4.19 by moon 79% illuminated at phase= 125 degrees
06/20/2021 12:55:16.5 Geocentric minimum 0.2 degrees
Global start/end: 06/20/2021 10:50:33.3   and   06/20/2021 14:59:57.1
Mid-occultation observing point (lat., long.) -0.8 9.6

Occultation of 43 kappa Lib 4.74 by moon 92% illuminated at phase= 147 degrees
06/22/2021 02:57:49.8 Geocentric minimum 1.2 degrees
Global start/end: 06/22/2021 02:06:10.5   and   06/22/2021 03:49:28.5
Mid-occultation observing point (lat., long.) 64.6 -138.5

Occultation of Graffias 2.62 by moon 94% illuminated at phase= 152 degrees
06/22/2021 11:29:13.4 Geocentric minimum 0.3 degrees
Global start/end: 06/22/2021 09:29:40.9   and   06/22/2021 13:28:44.4
Mid-occultation observing point (lat., long.) -38.8 46.3

Occultation of 8 beta^2 Sco 4.92 by moon 94% illuminated at phase= 152 degrees
06/22/2021 11:29:14.2 Geocentric minimum 0.3 degrees
Global start/end: 06/22/2021 09:29:47.6   and   06/22/2021 13:28:39.1
Mid-occultation observing point (lat., long.) -39.1 46.2

Occultation of 9 omega^1 Sco 3.96 by moon 94% illuminated at phase= 152 degrees
06/22/2021 12:21:57.6 Geocentric minimum 0.4 degrees
Global start/end: 06/22/2021 10:24:04.9   and   06/22/2021 14:19:48.7
Mid-occultation observing point (lat., long.) 1.6 46.6

Occultation of 10 omega^2 Sco 4.32 by moon 94% illuminated at phase= 153 degrees
06/22/2021 12:40:10.7 Geocentric minimum 0.6 degrees
Global start/end: 06/22/2021 10:48:08.6   and   06/22/2021 14:32:11.2
Mid-occultation observing point (lat., long.) 11.0 44.7

Occultation of 14 nu Sco 4.01 by moon 95% illuminated at phase= 153 degrees
06/22/2021 13:42:44.0 Geocentric minimum 1.1 degrees
Global start/end: 06/22/2021 12:37:23.7   and   06/22/2021 14:48:03.8
Mid-occultation observing point (lat., long.) -64.4 -120.7

Occultation of 4 psi Oph 4.5 by moon 96% illuminated at phase= 156 degrees
06/22/2021 18:21:02.1 Geocentric minimum 1.3 degrees
Global start/end: 06/22/2021 18:06:19.1   and   06/22/2021 18:35:45.0
Mid-occultation observing point (lat., long.) -64.5 169.8

Occultation of 9 omega Oph 4.45 by moon 96% illuminated at phase= 158 degrees
06/22/2021 21:49:05.9 Geocentric minimum 0.4 degrees
Global start/end: 06/22/2021 19:50:09.6   and   06/22/2021 23:48:01.3
Mid-occultation observing point (lat., long.) -41.7 -101.9
At HVO the miss angle is 3248.9 arc-sec at 06/22/2021 20:43:58.2

Occultation of 42 theta Oph 3.27 by moon 99% illuminated at phase= 169 degrees
06/23/2021 16:51:21.4 Geocentric minimum 0.8 degrees
Global start/end: 06/23/2021 15:17:12.2   and   06/23/2021 18:25:31.1
Mid-occultation observing point (lat., long.) 30.3 -1.0

Occultation of 44 Oph 4.17 by moon 99% illuminated at phase= 170 degrees
06/23/2021 18:13:24.3 Geocentric minimum 0.1 degrees
Global start/end: 06/23/2021 16:10:12.1   and   06/23/2021 20:16:36.5
Mid-occultation observing point (lat., long.) -31.4 -30.1

Occultation of Kaus Borealis 2.81 by moon 100% illuminated at phase= 183 degrees
06/24/2021 16:44:19.3 Geocentric minimum 0.2 degrees
Global start/end: 06/24/2021 14:40:56.0   and   06/24/2021 18:47:43.9
Mid-occultation observing point (lat., long.) -34.8 7.5

Occultation of Nunki 2.02 by moon 99% illuminated at phase= 189 degrees
06/25/2021 02:41:35.2 Geocentric minimum 0.7 degrees
Global start/end: 06/25/2021 00:54:48.7   and   06/25/2021 04:28:24.8
Mid-occultation observing point (lat., long.) 15.0 -135.8

---For observations at HVO:
06/25/2021 03:09:25.9 Start Total 11.3 11.04 (az215) -9.4 ***
06/25/2021 03:35:37.4 OCCULTATION MID-POINT 8.46 8.32 (az220) -5.9 ***
06/25/2021 04:00:58.3 End Total 5.43 5.44 (az225) -1.8

Occultation of 52 Sgr 4.6 by moon 98% illuminated at phase= 197 degrees
06/25/2021 18:05:11.4 Geocentric minimum 0.2 degrees
Global start/end: 06/25/2021 16:01:20.8   and   06/25/2021 20:09:04.9
Mid-occultation observing point (lat., long.) -37.6 5.3

Occultation of 71 tau Aqr 4.01 by moon 74% illuminated at phase= 241 degrees
06/29/2021 02:52:53.5 Geocentric minimum 0.4 degrees
Global start/end: 06/29/2021 00:48:53.6   and   06/29/2021 04:56:59.8
Mid-occultation observing point (lat., long.) 11.7 -93.4
At HVO the miss angle is 408.4 arc-sec at 06/29/2021 03:14:27.0

Occultation of 30 YY Psc 4.41 by moon 60% illuminated at phase= 259 degrees
06/30/2021 15:08:55.1 Geocentric minimum 0.7 degrees
Global start/end: 06/30/2021 13:21:50.7   and   06/30/2021 16:56:04.7
Mid-occultation observing point (lat., long.) 40.2 83.4

Occultation of 33 BC Psc 4.61 by moon 59% illuminated at phase= 260 degrees
06/30/2021 16:51:18.3 Geocentric minimum 0.8 degrees
Global start/end: 06/30/2021 15:12:00.2   and   06/30/2021 18:30:40.5
Mid-occultation observing point (lat., long.) 47.7 51.1

Occultation of 93 psi^2 Aqr 4.39 by moon 68% illuminated at phase= 249 degrees
06/29/2021 17:52:20.1 Geocentric minimum 0.9 degrees
Global start/end: 06/29/2021 16:25:50.3   and   06/29/2021 19:18:54.3
Mid-occultation observing point (lat., long.) -66.7 137.4

Occultation of 95 psi^3 Aqr 4.98 by moon 68% illuminated at phase= 249 degrees
06/29/2021 17:59:53.7 Geocentric minimum 0.4 degrees
Global start/end: 06/29/2021 15:54:10.8   and   06/29/2021 20:05:42.5
Mid-occultation observing point (lat., long.) -33.6 69.1

Occultation of 106 nu Psc 4.44 by moon 38% illuminated at phase= 284 degrees
07/02/2021 20:53:28.6 Geocentric minimum 1.0 degrees
Global start/end: 07/02/2021 19:45:39.7   and   07/02/2021 22:01:18.6
Mid-occultation observing point (lat., long.) 64.4 -58.6

Occultation of 65 kappa^1 Tau 4.22 by moon 10% illuminated at phase= 324 degrees
07/06/2021 11:47:55.8 Geocentric minimum 0.8 degrees
Global start/end: 07/06/2021 10:08:47.1   and   07/06/2021 13:27:02.9
Mid-occultation observing point (lat., long.) -39.4 -123.8
At HVO the miss angle is 3098.9 arc-sec at 07/06/2021 12:53:59.8

Occultation of 94 tau Tau 4.28 by moon 8% illuminated at phase= 327 degrees
07/06/2021 19:44:27.8 Geocentric minimum 0.5 degrees
Global start/end: 07/06/2021 17:41:27.0   and   07/06/2021 21:47:26.1
Mid-occultation observing point (lat., long.) -12.6 112.1

Occultation of Asellus Borealis 4.66 by moon 3% illuminated at phase= 18 degrees
07/11/2021 08:06:55.2 Geocentric minimum 1.2 degrees
Global start/end: 07/11/2021 07:47:26.7   and   07/11/2021 08:26:23.5
Mid-occultation observing point (lat., long.) 64.5 124.7

Occultation of 30 eta Leo 3.52 by moon 10% illuminated at phase= 37 degrees
07/12/2021 22:11:21.9 Geocentric minimum 0.2 degrees
Global start/end: 07/12/2021 19:59:49.3   and   07/13/2021 00:22:54.1
Mid-occultation observing point (lat., long.) 27.2 147.1

Occultation of 78 iota Leo 3.94 by moon 22% illuminated at phase= 55 degrees
07/14/2021 09:53:16.0 Geocentric minimum 1.0 degrees
Global start/end: 07/14/2021 08:37:51.4   and   07/14/2021 11:08:39.0
Mid-occultation observing point (lat., long.) -64.6 -85.3

Occultation of 3 nu Vir 4.03 by moon 26% illuminated at phase= 62 degrees
07/14/2021 21:42:17.3 Geocentric minimum 0.4 degrees
Global start/end: 07/14/2021 19:38:35.4   and   07/14/2021 23:45:57.2
Mid-occultation observing point (lat., long.) 29.0 -175.4

Occultation of 16 Vir 4.96 by moon 33% illuminated at phase= 70 degrees
07/15/2021 13:55:57.4 Geocentric minimum 0.3 degrees
Global start/end: 07/15/2021 11:50:36.3   and   07/15/2021 16:01:16.7
Mid-occultation observing point (lat., long.) -15.4 -71.6
At HVO the miss angle is 1433.3 arc-sec at 07/15/2021 12:22:25.7

Occultation of 98 kappa Vir 4.19 by moon 58% illuminated at phase= 99 degrees
07/17/2021 19:48:20.4 Geocentric minimum 0.1 degrees
Global start/end: 07/17/2021 17:40:31.4   and   07/17/2021 21:56:08.5
Mid-occultation observing point (lat., long.) -7.7 -123.5
At HVO the miss angle is 1778.7 arc-sec at 07/17/2021 19:20:43.4

Occultation of 43 kappa Lib 4.74 by moon 76% illuminated at phase= 121 degrees
07/19/2021 11:03:15.8 Geocentric minimum 1.1 degrees
Global start/end: 07/19/2021 09:55:08.2   and   07/19/2021 12:11:22.2
Mid-occultation observing point (lat., long.) 64.6 73.0

Occultation of Graffias 2.62 by moon 79% illuminated at phase= 126 degrees
07/19/2021 19:51:15.8 Geocentric minimum 0.4 degrees
Global start/end: 07/19/2021 17:52:49.8   and   07/19/2021 21:49:39.5
Mid-occultation observing point (lat., long.) -44.6 -108.9
At HVO the miss angle is 3451.6 arc-sec at 07/19/2021 18:43:02.3

Occultation of 8 beta^2 Sco 4.92 by moon 79% illuminated at phase= 126 degrees
07/19/2021 19:51:16.6 Geocentric minimum 0.4 degrees
Global start/end: 07/19/2021 17:52:58.9   and   07/19/2021 21:49:32.1
Mid-occultation observing point (lat., long.) -44.9 -109.1
At HVO the miss angle is 3465.2 arc-sec at 07/19/2021 18:42:58.3

Occultation of 9 omega^1 Sco 3.96 by moon 80% illuminated at phase= 126 degrees
07/19/2021 20:45:31.7 Geocentric minimum 0.3 degrees
Global start/end: 07/19/2021 18:43:12.5   and   07/19/2021 22:47:48.8
Mid-occultation observing point (lat., long.) -3.6 -107.7
At HVO the miss angle is 1088.7 arc-sec at 07/19/2021 20:16:57.5

Occultation of 10 omega^2 Sco 4.32 by moon 80% illuminated at phase= 127 degrees
07/19/2021 21:04:17.7 Geocentric minimum 0.5 degrees
Global start/end: 07/19/2021 19:06:47.1   and   07/19/2021 23:01:46.1
Mid-occultation observing point (lat., long.) 5.5 -109.8
At HVO the miss angle is 610.8 arc-sec at 07/19/2021 20:47:06.6

Occultation of 14 nu Sco 4.01 by moon 80% illuminated at phase= 127 degrees
07/19/2021 22:09:06.9 Geocentric minimum 1.2 degrees
Global start/end: 07/19/2021 21:24:03.2   and   07/19/2021 22:54:10.2
Mid-occultation observing point (lat., long.) -64.4 85.6
At HVO the miss angle is 6673.6 arc-sec at 07/19/2021 22:17:39.0

Occultation of 9 omega Oph 4.45 by moon 83% illuminated at phase= 132 degrees
07/20/2021 06:30:15.5 Geocentric minimum 0.4 degrees
Global start/end: 07/20/2021 04:32:14.1   and   07/20/2021 08:28:15.2
Mid-occultation observing point (lat., long.) -46.9 98.6

Occultation of 42 theta Oph 3.27 by moon 90% illuminated at phase= 143 degrees
07/21/2021 02:04:02.4 Geocentric minimum 0.8 degrees
Global start/end: 07/21/2021 00:24:51.5   and   07/21/2021 03:43:12.6
Mid-occultation observing point (lat., long.) 25.8 -167.0

Occultation of 44 Oph 4.17 by moon 90% illuminated at phase= 144 degrees
07/21/2021 03:28:20.6 Geocentric minimum 0.2 degrees
Global start/end: 07/21/2021 01:24:12.2   and   07/21/2021 05:32:28.0
Mid-occultation observing point (lat., long.) -34.7 163.6

Occultation of Kaus Borealis 2.81 by moon 96% illuminated at phase= 157 degrees
07/22/2021 02:27:45.0 Geocentric minimum 0.2 degrees
Global start/end: 07/22/2021 00:23:36.5   and   07/22/2021 04:31:53.3
Mid-occultation observing point (lat., long.) -36.1 -165.3

Occultation of Nunki 2.02 by moon 98% illuminated at phase= 163 degrees
07/22/2021 12:33:46.0 Geocentric minimum 0.7 degrees
Global start/end: 07/22/2021 10:46:12.9   and   07/22/2021 14:21:20.3
Mid-occultation observing point (lat., long.) 14.9 49.0

Occultation of 52 Sgr 4.6 by moon 99% illuminated at phase= 171 degrees
07/23/2021 04:06:37.1 Geocentric minimum 0.2 degrees
Global start/end: 07/23/2021 02:02:09.1   and   07/23/2021 06:11:06.2
Mid-occultation observing point (lat., long.) -36.5 -172.1

Occultation of 71 tau Aqr 4.01 by moon 91% illuminated at phase= 215 degrees
07/26/2021 12:15:50.0 Geocentric minimum 0.6 degrees
Global start/end: 07/26/2021 10:19:27.5   and   07/26/2021 14:12:18.4
Mid-occultation observing point (lat., long.) 20.1 95.2

Occultation of 91 psi^1 Aqr 4.21 by moon 87% illuminated at phase= 222 degrees
07/27/2021 02:12:44.5 Geocentric minimum 1.1 degrees
Global start/end: 07/27/2021 01:08:20.4   and   07/27/2021 03:17:11.2
Mid-occultation observing point (lat., long.) -64.5 18.0

Occultation of 93 psi^2 Aqr 4.39 by moon 87% illuminated at phase= 222 degrees
07/27/2021 02:58:16.3 Geocentric minimum 0.8 degrees
Global start/end: 07/27/2021 01:16:08.5   and   07/27/2021 04:40:29.6
Mid-occultation observing point (lat., long.) -56.0 -69.5
At HVO the miss angle is 4015.2 arc-sec at 07/27/2021 04:28:36.7

Occultation of 95 psi^3 Aqr 4.98 by moon 87% illuminated at phase= 223 degrees
07/27/2021 03:05:35.1 Geocentric minimum 0.3 degrees
Global start/end: 07/27/2021 00:56:25.3   and   07/27/2021 05:14:49.6
Mid-occultation observing point (lat., long.) -24.8 -99.3
At HVO the miss angle is 2214.2 arc-sec at 07/27/2021 04:24:16.4

Occultation of 30 YY Psc 4.41 by moon 80% illuminated at phase= 233 degrees
07/27/2021 23:48:50.9 Geocentric minimum 0.9 degrees
Global start/end: 07/27/2021 22:19:35.7   and   07/28/2021 01:18:10.5
Mid-occultation observing point (lat., long.) 55.9 -94.0

---For observations at HVO:
07/27/2021 22:47:18.8 Start Total 9.29 9.38 (az108) -24.9 ***
07/27/2021 23:20:15.3 OCCULTATION MID-POINT 14.8 14.82 (az114) -26.4 ***
07/27/2021 23:54:40.4 End Total 20.29 20.27 (az120) -27.0 ***

Occultation of 33 BC Psc 4.61 by moon 80% illuminated at phase= 234 degrees
07/28/2021 01:29:10.9 Geocentric minimum 1.0 degrees
Global start/end: 07/28/2021 00:11:20.6   and   07/28/2021 02:47:04.5
Mid-occultation observing point (lat., long.) 64.4 -153.0

---For observations at HVO:
07/28/2021 00:56:36.1 Start Total 28.93 29.11 (az134) -25.7 ***
07/28/2021 01:22:49.1 OCCULTATION MID-POINT 32.15 32.33 (az140) -24.2 ***
07/28/2021 01:49:35.7 End Total 34.99 35.21 (az147) -22.2 ***

Occultation of 65 kappa^1 Tau 4.22 by moon 27% illuminated at phase= 298 degrees
08/02/2021 19:09:53.1 Geocentric minimum 0.7 degrees
Global start/end: 08/02/2021 17:15:45.5   and   08/02/2021 21:03:59.1
Mid-occultation observing point (lat., long.) -23.7 93.6

Occultation of 69 upsilon Tau 4.28 by moon 27% illuminated at phase= 298 degrees
08/02/2021 19:50:53.8 Geocentric minimum 1.1 degrees
Global start/end: 08/02/2021 19:15:24.2   and   08/02/2021 20:26:23.2
Mid-occultation observing point (lat., long.) -64.5 106.5

Occultation of 94 tau Tau 4.28 by moon 24% illuminated at phase= 301 degrees
08/03/2021 03:07:13.1 Geocentric minimum 0.4 degrees
Global start/end: 08/03/2021 00:56:27.1   and   08/03/2021 05:17:56.6
Mid-occultation observing point (lat., long.) -2.6 -27.6
At HVO the miss angle is 2997.2 arc-sec at 08/03/2021 02:23:23.6

Occultation of Mebsuta 2.98 by moon 8% illuminated at phase= 327 degrees
08/05/2021 10:22:47.8 Geocentric minimum 0.6 degrees
Global start/end: 08/05/2021 08:23:39.8   and   08/05/2021 12:21:51.5
Mid-occultation observing point (lat., long.) 64.2 -113.6
At HVO the miss angle is 67.7 arc-sec at 08/05/2021 10:46:39.5

Occultation of 77 kappa Gem 3.57 by moon 3% illuminated at phase= 339 degrees
08/06/2021 12:57:55.0 Geocentric minimum 0.5 degrees
Global start/end: 08/06/2021 10:56:15.3   and   08/06/2021 14:59:30.3
Mid-occultation observing point (lat., long.) 58.2 -131.5

Occultation of 78 iota Leo 3.94 by moon 6% illuminated at phase= 29 degrees
08/10/2021 15:46:27.1 Geocentric minimum 1.1 degrees
Global start/end: 08/10/2021 14:59:39.3   and   08/10/2021 16:33:14.2
Mid-occultation observing point (lat., long.) -64.5 159.4
At HVO the miss angle is 5415.2 arc-sec at 08/10/2021 15:07:28.7

Occultation of 3 nu Vir 4.03 by moon 9% illuminated at phase= 35 degrees
08/11/2021 03:25:26.0 Geocentric minimum 0.2 degrees
Global start/end: 08/11/2021 01:18:03.8   and   08/11/2021 05:32:47.7
Mid-occultation observing point (lat., long.) 19.8 66.8

Occultation of 16 Vir 4.96 by moon 14% illuminated at phase= 44 degrees
08/11/2021 19:27:03.8 Geocentric minimum 0.5 degrees
Global start/end: 08/11/2021 17:29:38.9   and   08/11/2021 21:24:27.2
Mid-occultation observing point (lat., long.) -26.0 172.9
At HVO the miss angle is 4146.4 arc-sec at 08/11/2021 19:54:02.2

Occultation of 98 kappa Vir 4.19 by moon 35% illuminated at phase= 73 degrees
08/14/2021 01:12:27.6 Geocentric minimum 0.2 degrees
Global start/end: 08/13/2021 23:05:17.7   and   08/14/2021 03:19:37.5
Mid-occultation observing point (lat., long.) -19.5 123.3

Occultation of 43 kappa Lib 4.74 by moon 54% illuminated at phase= 95 degrees
08/15/2021 17:01:07.2 Geocentric minimum 0.9 degrees
Global start/end: 08/15/2021 15:27:49.7   and   08/15/2021 18:34:24.0
Mid-occultation observing point (lat., long.) 38.0 -69.3

Occultation of Graffias 2.62 by moon 59% illuminated at phase= 100 degrees
08/16/2021 02:00:59.9 Geocentric minimum 0.6 degrees
Global start/end: 08/16/2021 00:11:05.4   and   08/16/2021 03:50:53.6
Mid-occultation observing point (lat., long.) -57.8 122.0

Occultation of 8 beta^2 Sco 4.92 by moon 59% illuminated at phase= 100 degrees
08/16/2021 02:01:00.8 Geocentric minimum 0.6 degrees
Global start/end: 08/16/2021 00:11:19.9   and   08/16/2021 03:50:40.8
Mid-occultation observing point (lat., long.) -58.1 121.8

Occultation of 9 omega^1 Sco 3.96 by moon 59% illuminated at phase= 100 degrees
08/16/2021 02:56:25.7 Geocentric minimum 0.1 degrees
Global start/end: 08/16/2021 00:49:15.7   and   08/16/2021 05:03:35.1
Mid-occultation observing point (lat., long.) -15.1 129.6

Occultation of 10 omega^2 Sco 4.32 by moon 59% illuminated at phase= 100 degrees
08/16/2021 03:15:36.7 Geocentric minimum 0.3 degrees
Global start/end: 08/16/2021 01:10:41.8   and   08/16/2021 05:20:30.9
Mid-occultation observing point (lat., long.) -6.5 127.3

Occultation of 9 omega Oph 4.45 by moon 64% illuminated at phase= 106 degrees
08/16/2021 12:55:40.4 Geocentric minimum 0.6 degrees
Global start/end: 08/16/2021 11:05:31.6   and   08/16/2021 14:45:48.5
Mid-occultation observing point (lat., long.) -59.7 -33.2

Occultation of 42 theta Oph 3.27 by moon 73% illuminated at phase= 117 degrees
08/17/2021 09:01:01.4 Geocentric minimum 0.6 degrees
Global start/end: 08/17/2021 07:09:39.3   and   08/17/2021 10:52:23.0
Mid-occultation observing point (lat., long.) 12.8 59.7

Occultation of 44 Oph 4.17 by moon 73% illuminated at phase= 118 degrees
08/17/2021 10:27:56.2 Geocentric minimum 0.3 degrees
Global start/end: 08/17/2021 08:25:36.3   and   08/17/2021 12:30:15.5
Mid-occultation observing point (lat., long.) -44.8 29.6

Occultation of Kaus Borealis 2.81 by moon 83% illuminated at phase= 131 degrees
08/18/2021 10:06:29.9 Geocentric minimum 0.3 degrees
Global start/end: 08/18/2021 08:03:11.2   and   08/18/2021 12:09:48.3
Mid-occultation observing point (lat., long.) -44.1 52.8

Occultation of 27 phi Sgr 3.17 by moon 85% illuminated at phase= 134 degrees
08/18/2021 16:50:09.5 Geocentric minimum 1.2 degrees
Global start/end: 08/18/2021 16:15:10.8   and   08/18/2021 17:25:08.6
Mid-occultation observing point (lat., long.) 64.4 -44.4

Occultation of Nunki 2.02 by moon 86% illuminated at phase= 136 degrees
08/18/2021 20:28:49.8 Geocentric minimum 0.5 degrees
Global start/end: 08/18/2021 18:34:03.8   and   08/18/2021 22:23:36.0
Mid-occultation observing point (lat., long.) 7.3 -96.6
At HVO the miss angle is 401.5 arc-sec at 08/18/2021 20:17:15.3

Occultation of 52 Sgr 4.6 by moon 91% illuminated at phase= 145 degrees
08/19/2021 12:25:31.0 Geocentric minimum 0.3 degrees
Global start/end: 08/19/2021 10:21:06.8   and   08/19/2021 14:29:55.5
Mid-occultation observing point (lat., long.) -41.4 37.0

Occultation of 71 tau Aqr 4.01 by moon 99% illuminated at phase= 189 degrees
08/22/2021 21:29:23.6 Geocentric minimum 0.7 degrees
Global start/end: 08/22/2021 19:39:14.4   and   08/22/2021 23:19:36.9
Mid-occultation observing point (lat., long.) 26.9 -73.6

---For observations at HVO:
08/22/2021 20:51:31.2 Start Total 13.0 12.8 (az124) -20.6 ***
08/22/2021 21:06:25.2 OCCULTATION MID-POINT 15.18 14.95 (az127) -22.6 ***
08/22/2021 21:21:35.4 End Total 17.32 17.07 (az130) -24.4 ***

Occultation of 91 psi^1 Aqr 4.21 by moon 98% illuminated at phase= 196 degrees
08/23/2021 11:24:00.4 Geocentric minimum 0.9 degrees
Global start/end: 08/23/2021 10:00:17.5   and   08/23/2021 12:47:46.6
Mid-occultation observing point (lat., long.) -66.6 -172.3

Occultation of 93 psi^2 Aqr 4.39 by moon 98% illuminated at phase= 196 degrees
08/23/2021 12:09:10.5 Geocentric minimum 0.6 degrees
Global start/end: 08/23/2021 10:17:43.2   and   08/23/2021 14:00:42.5
Mid-occultation observing point (lat., long.) -47.2 114.1

Occultation of 95 psi^3 Aqr 4.98 by moon 98% illuminated at phase= 196 degrees
08/23/2021 12:16:14.9 Geocentric minimum 0.1 degrees
Global start/end: 08/23/2021 10:05:16.9   and   08/23/2021 14:27:15.5
Mid-occultation observing point (lat., long.) -17.9 92.5

Occultation of 30 YY Psc 4.41 by moon 95% illuminated at phase= 207 degrees
08/24/2021 08:49:20.8 Geocentric minimum 1.1 degrees
Global start/end: 08/24/2021 07:45:37.5   and   08/24/2021 09:53:06.2
Mid-occultation observing point (lat., long.) 64.3 69.8

Occultation of 33 BC Psc 4.61 by moon 94% illuminated at phase= 207 degrees
08/24/2021 10:28:39.6 Geocentric minimum 1.1 degrees
Global start/end: 08/24/2021 09:46:26.1   and   08/24/2021 11:10:54.0
Mid-occultation observing point (lat., long.) 64.3 45.1

Occultation of 65 kappa^1 Tau 4.22 by moon 49% illuminated at phase= 271 degrees
08/30/2021 03:03:47.0 Geocentric minimum 0.4 degrees
Global start/end: 08/30/2021 00:53:33.3   and   08/30/2021 05:14:00.3
Mid-occultation observing point (lat., long.) -4.6 -56.6
At HVO the miss angle is 2540.8 arc-sec at 08/30/2021 02:42:02.9

Occultation of 69 upsilon Tau 4.28 by moon 49% illuminated at phase= 272 degrees
08/30/2021 03:44:49.7 Geocentric minimum 0.9 degrees
Global start/end: 08/30/2021 02:13:24.1   and   08/30/2021 05:16:14.9
Mid-occultation observing point (lat., long.) -49.7 -52.0
At HVO the miss angle is 3911.2 arc-sec at 08/30/2021 03:46:30.4

Occultation of 94 tau Tau 4.28 by moon 46% illuminated at phase= 275 degrees
08/30/2021 11:02:30.8 Geocentric minimum 0.2 degrees
Global start/end: 08/30/2021 08:44:04.0   and   08/30/2021 13:20:56.9
Mid-occultation observing point (lat., long.) 13.1 -176.6
At HVO the miss angle is 1336.3 arc-sec at 08/30/2021 12:25:00.7

Occultation of Mebsuta 2.98 by moon 25% illuminated at phase= 300 degrees
09/01/2021 18:38:32.3 Geocentric minimum 0.8 degrees
Global start/end: 09/01/2021 16:53:57.3   and   09/01/2021 20:23:03.2
Mid-occultation observing point (lat., long.) 81.3 97.2

Occultation of 77 kappa Gem 3.57 by moon 16% illuminated at phase= 313 degrees
09/02/2021 21:22:29.7 Geocentric minimum 0.7 degrees
Global start/end: 09/02/2021 19:29:43.9   and   09/02/2021 23:15:10.3
Mid-occultation observing point (lat., long.) 69.2 82.1

Occultation of 30 eta Leo 3.52 by moon 2% illuminated at phase= 345 degrees
09/05/2021 12:52:20.4 Geocentric minimum 0.1 degrees
Global start/end: 09/05/2021 10:41:41.9   and   09/05/2021 15:02:56.9
Mid-occultation observing point (lat., long.) 22.7 -128.8
At HVO the miss angle is 712.9 arc-sec at 09/05/2021 13:01:04.6

Occultation of 16 Vir 4.96 by moon 2% illuminated at phase= 18 degrees
09/08/2021 02:30:29.3 Geocentric minimum 0.6 degrees
Global start/end: 09/08/2021 00:41:14.5   and   09/08/2021 04:19:42.1
Mid-occultation observing point (lat., long.) -33.7 34.9

Occultation of 98 kappa Vir 4.19 by moon 16% illuminated at phase= 47 degrees
09/10/2021 07:04:38.8 Geocentric minimum 0.4 degrees
Global start/end: 09/10/2021 05:03:44.2   and   09/10/2021 09:05:33.9
Mid-occultation observing point (lat., long.) -31.2 2.0

Occultation of 43 kappa Lib 4.74 by moon 32% illuminated at phase= 68 degrees
09/11/2021 22:22:36.2 Geocentric minimum 0.6 degrees
Global start/end: 09/11/2021 20:31:14.7   and   09/12/2021 00:13:58.6
Mid-occultation observing point (lat., long.) 16.7 175.1

Occultation of Graffias 2.62 by moon 36% illuminated at phase= 73 degrees
09/12/2021 07:19:56.8 Geocentric minimum 0.9 degrees
Global start/end: 09/12/2021 05:49:48.5   and   09/12/2021 08:50:06.1
Mid-occultation observing point (lat., long.) -74.3 -30.9

Occultation of 8 beta^2 Sco 4.92 by moon 36% illuminated at phase= 73 degrees
09/12/2021 07:19:57.7 Geocentric minimum 0.9 degrees
Global start/end: 09/12/2021 05:50:12.4   and   09/12/2021 08:49:43.8
Mid-occultation observing point (lat., long.) -74.5 -32.8

Occultation of 9 omega^1 Sco 3.96 by moon 36% illuminated at phase= 74 degrees
09/12/2021 08:15:16.2 Geocentric minimum 0.1 degrees
Global start/end: 09/12/2021 06:08:45.3   and   09/12/2021 10:21:48.0
Mid-occultation observing point (lat., long.) -29.2 18.7

Occultation of 10 omega^2 Sco 4.32 by moon 36% illuminated at phase= 74 degrees
09/12/2021 08:34:24.6 Geocentric minimum 0.0 degrees
Global start/end: 09/12/2021 06:27:00.0   and   09/12/2021 10:41:50.0
Mid-occultation observing point (lat., long.) -20.8 16.8

Occultation of 9 omega Oph 4.45 by moon 41% illuminated at phase= 79 degrees
09/12/2021 18:14:09.5 Geocentric minimum 0.9 degrees
Global start/end: 09/12/2021 16:43:28.4   and   09/12/2021 19:44:51.5
Mid-occultation observing point (lat., long.) -76.9 170.6
At HVO the miss angle is 5539.7 arc-sec at 09/12/2021 18:03:47.2

Occultation of 42 theta Oph 3.27 by moon 51% illuminated at phase= 90 degrees
09/13/2021 14:25:40.1 Geocentric minimum 0.4 degrees
Global start/end: 09/13/2021 12:23:15.1   and   09/13/2021 16:28:06.3
Mid-occultation observing point (lat., long.) -3.5 -50.5

Occultation of 44 Oph 4.17 by moon 51% illuminated at phase= 91 degrees
09/13/2021 15:53:27.7 Geocentric minimum 0.6 degrees
Global start/end: 09/13/2021 14:00:38.6   and   09/13/2021 17:46:18.3
Mid-occultation observing point (lat., long.) -60.8 -84.5
At HVO the miss angle is 3834.1 arc-sec at 09/13/2021 14:24:42.1

Occultation of Kaus Borealis 2.81 by moon 63% illuminated at phase= 104 degrees
09/14/2021 15:50:51.0 Geocentric minimum 0.5 degrees
Global start/end: 09/14/2021 13:54:45.2   and   09/14/2021 17:46:58.1
Mid-occultation observing point (lat., long.) -58.8 -61.0

Occultation of 27 phi Sgr 3.17 by moon 66% illuminated at phase= 108 degrees
09/14/2021 22:41:17.4 Geocentric minimum 1.0 degrees
Global start/end: 09/14/2021 21:23:28.2   and   09/14/2021 23:59:07.4
Mid-occultation observing point (lat., long.) 64.4 -159.3

Occultation of Nunki 2.02 by moon 67% illuminated at phase= 110 degrees
09/15/2021 02:24:13.8 Geocentric minimum 0.3 degrees
Global start/end: 09/15/2021 00:20:10.0   and   09/15/2021 04:28:18.4
Mid-occultation observing point (lat., long.) -6.3 148.0

Occultation of 52 Sgr 4.6 by moon 74% illuminated at phase= 119 degrees
09/15/2021 18:40:52.2 Geocentric minimum 0.5 degrees
Global start/end: 09/15/2021 16:41:06.3   and   09/15/2021 20:40:39.2
Mid-occultation observing point (lat., long.) -53.4 -81.1
At HVO the miss angle is 4013.0 arc-sec at 09/15/2021 18:17:06.6

Occultation of 71 tau Aqr 4.01 by moon 98% illuminated at phase= 162 degrees
09/19/2021 05:24:04.0 Geocentric minimum 0.6 degrees
Global start/end: 09/19/2021 03:32:12.5   and   09/19/2021 07:15:58.2
Mid-occultation observing point (lat., long.) 25.8 141.1

Occultation of 91 psi^1 Aqr 4.21 by moon 99% illuminated at phase= 169 degrees
09/19/2021 19:29:36.5 Geocentric minimum 0.9 degrees
Global start/end: 09/19/2021 18:04:23.1   and   09/19/2021 20:54:52.1
Mid-occultation observing point (lat., long.) -66.2 32.7
At HVO the miss angle is 5580.7 arc-sec at 09/19/2021 19:03:32.4

Occultation of 93 psi^2 Aqr 4.39 by moon 99% illuminated at phase= 170 degrees
09/19/2021 20:15:06.3 Geocentric minimum 0.6 degrees
Global start/end: 09/19/2021 18:22:19.2   and   09/19/2021 22:07:56.3
Mid-occultation observing point (lat., long.) -46.3 -34.9
At HVO the miss angle is 4478.6 arc-sec at 09/19/2021 20:09:40.5

Occultation of 95 psi^3 Aqr 4.98 by moon 99% illuminated at phase= 170 degrees
09/19/2021 20:22:00.9 Geocentric minimum 0.1 degrees
Global start/end: 09/19/2021 18:10:14.9   and   09/19/2021 22:33:47.7
Mid-occultation observing point (lat., long.) -17.0 -56.2
At HVO the miss angle is 2676.3 arc-sec at 09/19/2021 20:14:05.2

Occultation of 30 YY Psc 4.41 by moon 100% illuminated at phase= 180 degrees
09/20/2021 17:03:49.8 Geocentric minimum 1.1 degrees
Global start/end: 09/20/2021 16:15:41.6   and   09/20/2021 17:51:58.6
Mid-occultation observing point (lat., long.) 64.1 -80.9

Occultation of 65 kappa^1 Tau 4.22 by moon 71% illuminated at phase= 245 degrees
09/26/2021 10:55:47.0 Geocentric minimum 0.2 degrees
Global start/end: 09/26/2021 08:37:33.4   and   09/26/2021 13:14:02.1
Mid-occultation observing point (lat., long.) 11.6 154.7

Occultation of 69 upsilon Tau 4.28 by moon 71% illuminated at phase= 245 degrees
09/26/2021 11:36:54.6 Geocentric minimum 0.6 degrees
Global start/end: 09/26/2021 09:39:29.1   and   09/26/2021 13:34:21.2
Mid-occultation observing point (lat., long.) -19.8 152.2

Occultation of 94 tau Tau 4.28 by moon 69% illuminated at phase= 248 degrees
09/26/2021 18:55:24.4 Geocentric minimum 0.1 degrees
Global start/end: 09/26/2021 16:35:54.9   and   09/26/2021 21:14:54.9
Mid-occultation observing point (lat., long.) 28.7 34.6

Occultation of Mebsuta 2.98 by moon 47% illuminated at phase= 274 degrees
09/29/2021 02:59:18.8 Geocentric minimum 1.0 degrees
Global start/end: 09/29/2021 01:48:36.8   and   09/29/2021 04:09:59.3
Mid-occultation observing point (lat., long.) 63.9 122.2

Occultation of 77 kappa Gem 3.57 by moon 36% illuminated at phase= 286 degrees
09/30/2021 06:06:33.9 Geocentric minimum 0.9 degrees
Global start/end: 09/30/2021 04:35:19.8   and   09/30/2021 07:37:44.3
Mid-occultation observing point (lat., long.) 80.6 45.3
At HVO the miss angle is 1203.1 arc-sec at 09/30/2021 05:30:41.0

Occultation of 30 eta Leo 3.52 by moon 13% illuminated at phase= 318 degrees
10/02/2021 22:23:28.7 Geocentric minimum 0.2 degrees
Global start/end: 10/02/2021 20:13:58.3   and   10/03/2021 00:32:54.6
Mid-occultation observing point (lat., long.) 29.7 64.6

Occultation of 78 iota Leo 3.94 by moon 4% illuminated at phase= 336 degrees
10/04/2021 08:57:17.5 Geocentric minimum 1.2 degrees
Global start/end: 10/04/2021 08:11:49.7   and   10/04/2021 09:42:44.0
Mid-occultation observing point (lat., long.) -64.1 -152.6

Occultation of 3 nu Vir 4.03 by moon 2% illuminated at phase= 342 degrees
10/04/2021 20:17:49.6 Geocentric minimum 0.2 degrees
Global start/end: 10/04/2021 18:11:10.2   and   10/04/2021 22:24:26.4
Mid-occultation observing point (lat., long.) 15.8 117.8

Occultation of 98 kappa Vir 4.19 by moon 3% illuminated at phase= 20 degrees
10/07/2021 15:07:33.2 Geocentric minimum 0.5 degrees
Global start/end: 10/07/2021 13:12:49.0   and   10/07/2021 17:02:17.2
Mid-occultation observing point (lat., long.) -37.8 -150.1
At HVO the miss angle is 4025.1 arc-sec at 10/07/2021 14:50:07.6

Occultation of Zubenelgenubi 2.75 by moon 7% illuminated at phase= 30 degrees
10/08/2021 08:38:35.2 Geocentric minimum 1.2 degrees
Global start/end: 10/08/2021 07:52:45.0   and   10/08/2021 09:24:25.4
Mid-occultation observing point (lat., long.) 64.0 28.4

Occultation of 43 kappa Lib 4.74 by moon 13% illuminated at phase= 42 degrees
10/09/2021 05:16:06.8 Geocentric minimum 0.4 degrees
Global start/end: 10/09/2021 03:18:01.2   and   10/09/2021 07:14:14.3
Mid-occultation observing point (lat., long.) 4.2 41.0

Occultation of Graffias 2.62 by moon 16% illuminated at phase= 47 degrees
10/09/2021 13:58:00.5 Geocentric minimum 1.1 degrees
Global start/end: 10/09/2021 12:51:58.6   and   10/09/2021 15:04:03.4
Mid-occultation observing point (lat., long.) -63.8 127.0

Occultation of 8 beta^2 Sco 4.92 by moon 16% illuminated at phase= 47 degrees
10/09/2021 13:58:01.3 Geocentric minimum 1.1 degrees
Global start/end: 10/09/2021 12:52:35.8   and   10/09/2021 15:03:27.8
Mid-occultation observing point (lat., long.) -63.8 127.0

Occultation of 9 omega^1 Sco 3.96 by moon 16% illuminated at phase= 47 degrees
10/09/2021 14:51:57.3 Geocentric minimum 0.3 degrees
Global start/end: 10/09/2021 12:51:07.0   and   10/09/2021 16:52:50.0
Mid-occultation observing point (lat., long.) -40.1 -111.8
At HVO the miss angle is 3281.7 arc-sec at 10/09/2021 13:55:28.3

Occultation of 10 omega^2 Sco 4.32 by moon 16% illuminated at phase= 47 degrees
10/09/2021 15:10:36.2 Geocentric minimum 0.2 degrees
Global start/end: 10/09/2021 13:06:30.4   and   10/09/2021 17:14:43.9
Mid-occultation observing point (lat., long.) -31.6 -112.7
At HVO the miss angle is 2831.0 arc-sec at 10/09/2021 14:26:23.3

Occultation of 9 omega Oph 4.45 by moon 20% illuminated at phase= 53 degrees
10/10/2021 00:34:55.6 Geocentric minimum 1.1 degrees
Global start/end: 10/09/2021 23:29:57.0   and   10/10/2021 01:39:55.5
Mid-occultation observing point (lat., long.) -63.8 -32.6

Occultation of 42 theta Oph 3.27 by moon 28% illuminated at phase= 64 degrees
10/10/2021 20:19:11.7 Geocentric minimum 0.1 degrees
Global start/end: 10/10/2021 18:13:23.6   and   10/10/2021 22:25:01.7
Mid-occultation observing point (lat., long.) -16.7 -167.6

Occultation of 44 Oph 4.17 by moon 28% illuminated at phase= 64 degrees
10/10/2021 21:45:10.6 Geocentric minimum 0.8 degrees
Global start/end: 10/10/2021 20:07:56.3   and   10/10/2021 23:22:27.7
Mid-occultation observing point (lat., long.) -77.2 139.6

Occultation of Kaus Borealis 2.81 by moon 39% illuminated at phase= 77 degrees
10/11/2021 21:21:00.5 Geocentric minimum 0.8 degrees
Global start/end: 10/11/2021 19:39:07.1   and   10/11/2021 23:02:57.2
Mid-occultation observing point (lat., long.) -76.0 -173.4

Occultation of 27 phi Sgr 3.17 by moon 43% illuminated at phase= 81 degrees
10/12/2021 04:07:35.7 Geocentric minimum 0.8 degrees
Global start/end: 10/12/2021 02:26:32.0   and   10/12/2021 05:48:42.7
Mid-occultation observing point (lat., long.) 24.8 93.1

Occultation of Nunki 2.02 by moon 44% illuminated at phase= 83 degrees
10/12/2021 07:48:57.1 Geocentric minimum 0.1 degrees
Global start/end: 10/12/2021 05:41:00.7   and   10/12/2021 09:56:54.9
Mid-occultation observing point (lat., long.) -19.7 40.3

Occultation of 52 Sgr 4.6 by moon 52% illuminated at phase= 92 degrees
10/13/2021 00:02:13.8 Geocentric minimum 0.7 degrees
Global start/end: 10/12/2021 22:13:56.3   and   10/13/2021 01:50:34.6
Mid-occultation observing point (lat., long.) -68.6 178.6

Occultation of 71 tau Aqr 4.01 by moon 86% illuminated at phase= 135 degrees
10/16/2021 11:38:54.0 Geocentric minimum 0.5 degrees
Global start/end: 10/16/2021 09:39:08.9   and   10/16/2021 13:38:41.3
Mid-occultation observing point (lat., long.) 17.9 24.2

Occultation of 91 psi^1 Aqr 4.21 by moon 90% illuminated at phase= 142 degrees
10/17/2021 01:59:00.8 Geocentric minimum 1.0 degrees
Global start/end: 10/17/2021 00:47:43.5   and   10/17/2021 03:10:19.4
Mid-occultation observing point (lat., long.) -63.9 -60.0

Occultation of 93 psi^2 Aqr 4.39 by moon 90% illuminated at phase= 143 degrees
10/17/2021 02:45:08.9 Geocentric minimum 0.7 degrees
Global start/end: 10/17/2021 00:58:24.4   and   10/17/2021 04:31:55.5
Mid-occultation observing point (lat., long.) -52.6 -151.2

Occultation of 95 psi^3 Aqr 4.98 by moon 90% illuminated at phase= 143 degrees
10/17/2021 02:51:59.5 Geocentric minimum 0.2 degrees
Global start/end: 10/17/2021 00:40:28.5   and   10/17/2021 05:03:31.2
Mid-occultation observing point (lat., long.) -22.1 -178.0

Occultation of 30 YY Psc 4.41 by moon 95% illuminated at phase= 153 degrees
10/17/2021 23:52:19.9 Geocentric minimum 1.1 degrees
Global start/end: 10/17/2021 22:52:08.1   and   10/18/2021 00:52:32.7
Mid-occultation observing point (lat., long.) 63.9 150.0

Occultation of 33 BC Psc 4.61 by moon 95% illuminated at phase= 154 degrees
10/18/2021 01:33:25.5 Geocentric minimum 1.1 degrees
Global start/end: 10/18/2021 01:00:59.2   and   10/18/2021 02:05:52.3
Mid-occultation observing point (lat., long.) 63.9 124.9

Occultation of 37 Tau 4.36 by moon 92% illuminated at phase= 213 degrees
10/23/2021 08:46:40.7 Geocentric minimum 1.1 degrees
Global start/end: 10/23/2021 08:02:03.1   and   10/23/2021 09:31:18.6
Mid-occultation observing point (lat., long.) -63.9 -168.4

Occultation of 65 kappa^1 Tau 4.22 by moon 90% illuminated at phase= 218 degrees
10/23/2021 18:14:01.2 Geocentric minimum 0.0 degrees
Global start/end: 10/23/2021 15:54:37.1   and   10/23/2021 20:33:26.9
Mid-occultation observing point (lat., long.) 20.9 15.9

Occultation of 69 upsilon Tau 4.28 by moon 89% illuminated at phase= 218 degrees
10/23/2021 18:55:12.4 Geocentric minimum 0.5 degrees
Global start/end: 10/23/2021 16:48:18.2   and   10/23/2021 21:02:08.7
Mid-occultation observing point (lat., long.) -8.2 12.9

Occultation of 94 tau Tau 4.28 by moon 88% illuminated at phase= 221 degrees
10/24/2021 02:13:25.2 Geocentric minimum 0.2 degrees
Global start/end: 10/23/2021 23:57:01.3   and   10/24/2021 04:29:50.8
Mid-occultation observing point (lat., long.) 38.4 -104.8

---For observations at HVO:
10/24/2021 01:39:55.1 Start Total 66.97 66.9 (az153) -48.4 ***
10/24/2021 02:22:06.0 OCCULTATION MID-POINT 68.89 68.82 (az178) -42.3 ***
10/24/2021 03:04:48.4 End Total 67.34 67.42 (az204) -35.3 ***

Occultation of 77 kappa Gem 3.57 by moon 59% illuminated at phase= 259 degrees
10/27/2021 14:06:07.8 Geocentric minimum 1.1 degrees
Global start/end: 10/27/2021 13:08:36.4   and   10/27/2021 15:03:38.1
Mid-occultation observing point (lat., long.) 63.8 -72.5

Occultation of 30 eta Leo 3.52 by moon 32% illuminated at phase= 291 degrees
10/30/2021 07:50:57.1 Geocentric minimum 0.4 degrees
Global start/end: 10/30/2021 05:43:47.8   and   10/30/2021 09:58:00.7
Mid-occultation observing point (lat., long.) 38.3 -99.7

Occultation of 78 iota Leo 3.94 by moon 19% illuminated at phase= 309 degrees
10/31/2021 19:09:27.9 Geocentric minimum 1.1 degrees
Global start/end: 10/31/2021 18:02:01.9   and   10/31/2021 20:16:50.8
Mid-occultation observing point (lat., long.) -64.0 27.2

Occultation of 3 nu Vir 4.03 by moon 15% illuminated at phase= 315 degrees
11/01/2021 06:41:19.5 Geocentric minimum 0.3 degrees
Global start/end: 11/01/2021 04:35:12.8   and   11/01/2021 08:47:21.2
Mid-occultation observing point (lat., long.) 20.8 -62.4

---For observations at HVO:
11/01/2021 04:47:14.7 Start Total 24.25 24.48 (az106) -19.0 ***
11/01/2021 05:19:33.2 OCCULTATION MID-POINT 29.75 29.73 (az112) -13.2 ***
11/01/2021 05:53:04.9 End Total 35.18 34.91 (az119) -7.3 ***

Occultation of 16 Vir 4.96 by moon 10% illuminated at phase= 324 degrees
11/01/2021 22:19:32.3 Geocentric minimum 0.6 degrees
Global start/end: 11/01/2021 20:26:52.8   and   11/02/2021 00:12:05.8
Mid-occultation observing point (lat., long.) -29.7 46.1

Occultation of Mercury -0.9 by moon 2% illuminated at phase= 345 degrees
11/03/2021 12:36:26.9 Geocentric minimum 1.1 degrees
Global start/end: 11/03/2021 11:25:25.7   and   11/03/2021 13:47:25.8
Mid-occultation observing point (lat., long.) 63.6 -56.3

Occultation of 43 kappa Lib 4.74 by moon 2% illuminated at phase= 14 degrees
11/05/2021 14:49:20.0 Geocentric minimum 0.4 degrees
Global start/end: 11/05/2021 12:50:52.3   and   11/05/2021 16:47:48.3
Mid-occultation observing point (lat., long.) 0.0 -130.5
At HVO the miss angle is 1153.1 arc-sec at 11/05/2021 15:02:08.9

Occultation of Graffias 2.62 by moon 3% illuminated at phase= 19 degrees
11/05/2021 23:15:15.7 Geocentric minimum 1.2 degrees
Global start/end: 11/05/2021 22:20:40.8   and   11/06/2021 00:09:50.8
Mid-occultation observing point (lat., long.) -63.7 -39.1

Occultation of 8 beta^2 Sco 4.92 by moon 3% illuminated at phase= 19 degrees
11/05/2021 23:15:16.4 Geocentric minimum 1.2 degrees
Global start/end: 11/05/2021 22:21:25.9   and   11/06/2021 00:09:07.2
Mid-occultation observing point (lat., long.) -63.7 -39.1

Occultation of 9 omega^1 Sco 3.96 by moon 3% illuminated at phase= 20 degrees
11/06/2021 00:07:38.8 Geocentric minimum 0.4 degrees
Global start/end: 11/05/2021 22:10:59.1   and   11/06/2021 02:04:19.7
Mid-occultation observing point (lat., long.) -44.2 80.2

Occultation of 10 omega^2 Sco 4.32 by moon 3% illuminated at phase= 20 degrees
11/06/2021 00:25:44.1 Geocentric minimum 0.3 degrees
Global start/end: 11/05/2021 22:25:01.5   and   11/06/2021 02:26:27.8
Mid-occultation observing point (lat., long.) -35.8 79.9

Occultation of 9 omega Oph 4.45 by moon 5% illuminated at phase= 25 degrees
11/06/2021 09:31:41.5 Geocentric minimum 1.2 degrees
Global start/end: 11/06/2021 08:40:47.9   and   11/06/2021 10:22:35.6
Mid-occultation observing point (lat., long.) -63.7 166.4

Occultation of 42 theta Oph 3.27 by moon 10% illuminated at phase= 36 degrees
11/07/2021 04:35:38.3 Geocentric minimum 0.0 degrees
Global start/end: 11/07/2021 02:31:24.6   and   11/07/2021 06:39:53.4
Mid-occultation observing point (lat., long.) -22.9 40.4

Occultation of 44 Oph 4.17 by moon 10% illuminated at phase= 37 degrees
11/07/2021 05:58:29.3 Geocentric minimum 0.9 degrees
Global start/end: 11/07/2021 04:31:30.5   and   11/07/2021 07:25:30.6
Mid-occultation observing point (lat., long.) -82.6 -68.2

Occultation of Venus -4.6 by moon 16% illuminated at phase= 47 degrees
11/07/2021 22:28:05.2 Geocentric minimum 1.1 degrees
Global start/end: 11/07/2021 21:19:55.8   and   11/07/2021 23:36:17.0
Mid-occultation observing point (lat., long.) 64.0 151.5

Occultation of Kaus Borealis 2.81 by moon 18% illuminated at phase= 50 degrees
11/08/2021 04:45:43.4 Geocentric minimum 0.9 degrees
Global start/end: 11/08/2021 03:14:57.2   and   11/08/2021 06:16:33.3
Mid-occultation observing point (lat., long.) -87.1 26.5

Occultation of 27 phi Sgr 3.17 by moon 21% illuminated at phase= 54 degrees
11/08/2021 11:19:09.7 Geocentric minimum 0.6 degrees
Global start/end: 11/08/2021 09:30:30.2   and   11/08/2021 13:07:53.9
Mid-occultation observing point (lat., long.) 13.3 -41.6

Occultation of Nunki 2.02 by moon 22% illuminated at phase= 56 degrees
11/08/2021 14:53:27.7 Geocentric minimum 0.0 degrees
Global start/end: 11/08/2021 12:47:06.6   and   11/08/2021 16:59:49.9
Mid-occultation observing point (lat., long.) -27.2 -92.5
At HVO the miss angle is 2435.4 arc-sec at 11/08/2021 14:32:05.3

Occultation of 52 Sgr 4.6 by moon 29% illuminated at phase= 65 degrees
11/09/2021 06:37:59.8 Geocentric minimum 0.8 degrees
Global start/end: 11/09/2021 05:00:24.6   and   11/09/2021 08:15:39.7
Mid-occultation observing point (lat., long.) -78.8 67.6

Occultation of 71 tau Aqr 4.01 by moon 66% illuminated at phase= 108 degrees
11/12/2021 17:09:20.9 Geocentric minimum 0.4 degrees
Global start/end: 11/12/2021 15:04:08.6   and   11/12/2021 19:14:36.4
Mid-occultation observing point (lat., long.) 11.0 -82.3
At HVO the miss angle is 618.6 arc-sec at 11/12/2021 17:12:52.3

Occultation of 91 psi^1 Aqr 4.21 by moon 71% illuminated at phase= 115 degrees
11/13/2021 07:32:25.4 Geocentric minimum 1.1 degrees
Global start/end: 11/13/2021 06:41:59.0   and   11/13/2021 08:22:52.9
Mid-occultation observing point (lat., long.) -63.8 -170.3

Occultation of 93 psi^2 Aqr 4.39 by moon 72% illuminated at phase= 116 degrees
11/13/2021 08:18:45.5 Geocentric minimum 0.8 degrees
Global start/end: 11/13/2021 06:40:35.3   and   11/13/2021 09:56:58.7
Mid-occultation observing point (lat., long.) -59.6 112.3

Occultation of 95 psi^3 Aqr 4.98 by moon 72% illuminated at phase= 116 degrees
11/13/2021 08:25:34.5 Geocentric minimum 0.3 degrees
Global start/end: 11/13/2021 06:15:55.0   and   11/13/2021 10:35:16.2
Mid-occultation observing point (lat., long.) -27.6 74.8

Occultation of 30 YY Psc 4.41 by moon 79% illuminated at phase= 126 degrees
11/14/2021 05:34:48.6 Geocentric minimum 1.0 degrees
Global start/end: 11/14/2021 04:19:01.0   and   11/14/2021 06:50:37.9
Mid-occultation observing point (lat., long.) 63.8 37.5

Occultation of 33 BC Psc 4.61 by moon 80% illuminated at phase= 127 degrees
11/14/2021 07:16:47.8 Geocentric minimum 1.1 degrees
Global start/end: 11/14/2021 06:19:32.5   and   11/14/2021 08:14:04.0
Mid-occultation observing point (lat., long.) 63.8 12.2

Occultation of 37 Tau 4.36 by moon 100% illuminated at phase= 186 degrees
11/19/2021 15:22:38.1 Geocentric minimum 1.1 degrees
Global start/end: 11/19/2021 14:31:40.2   and   11/19/2021 16:13:36.3
Mid-occultation observing point (lat., long.) -63.9 65.8

Occultation of 65 kappa^1 Tau 4.22 by moon 99% illuminated at phase= 190 degrees
11/20/2021 00:49:33.0 Geocentric minimum 0.0 degrees
Global start/end: 11/19/2021 22:30:26.5   and   11/20/2021 03:08:40.1
Mid-occultation observing point (lat., long.) 22.5 -110.3
At HVO the miss angle is 149.8 arc-sec at 11/20/2021 01:22:12.9

Occultation of 69 upsilon Tau 4.28 by moon 99% illuminated at phase= 191 degrees
11/20/2021 01:30:45.8 Geocentric minimum 0.4 degrees
Global start/end: 11/19/2021 23:22:45.7   and   11/20/2021 03:38:46.9
Mid-occultation observing point (lat., long.) -6.3 -113.3
At HVO the miss angle is 1712.4 arc-sec at 11/20/2021 02:20:20.3

Occultation of 94 tau Tau 4.28 by moon 99% illuminated at phase= 194 degrees
11/20/2021 08:48:25.0 Geocentric minimum 0.3 degrees
Global start/end: 11/20/2021 06:33:16.4   and   11/20/2021 11:03:34.7
Mid-occultation observing point (lat., long.) 40.4 128.9

Occultation of 77 kappa Gem 3.57 by moon 81% illuminated at phase= 232 degrees
11/23/2021 20:49:41.3 Geocentric minimum 1.1 degrees
Global start/end: 11/23/2021 20:12:18.3   and   11/23/2021 21:27:04.2
Mid-occultation observing point (lat., long.) 63.8 159.8

Occultation of 30 eta Leo 3.52 by moon 56% illuminated at phase= 263 degrees
11/26/2021 15:48:05.9 Geocentric minimum 0.4 degrees
Global start/end: 11/26/2021 13:41:19.7   and   11/26/2021 17:54:47.6
Mid-occultation observing point (lat., long.) 41.7 116.2

Occultation of 78 iota Leo 3.94 by moon 40% illuminated at phase= 281 degrees
11/28/2021 04:12:13.6 Geocentric minimum 1.0 degrees
Global start/end: 11/28/2021 02:59:15.8   and   11/28/2021 05:25:08.0
Mid-occultation observing point (lat., long.) -64.0 -135.4

Occultation of 3 nu Vir 4.03 by moon 35% illuminated at phase= 288 degrees
11/28/2021 16:07:04.4 Geocentric minimum 0.3 degrees
Global start/end: 11/28/2021 13:59:41.1   and   11/28/2021 18:14:22.4
Mid-occultation observing point (lat., long.) 23.0 130.4

Occultation of 16 Vir 4.96 by moon 28% illuminated at phase= 296 degrees
11/29/2021 08:15:36.6 Geocentric minimum 0.6 degrees
Global start/end: 11/29/2021 06:19:42.2   and   11/29/2021 10:11:24.3
Mid-occultation observing point (lat., long.) -28.2 -129.0
At HVO the miss angle is 3110.2 arc-sec at 11/29/2021 07:16:45.2

Occultation of 98 kappa Vir 4.19 by moon 9% illuminated at phase= 325 degrees
12/01/2021 12:42:34.7 Geocentric minimum 0.5 degrees
Global start/end: 12/01/2021 10:47:34.5   and   12/01/2021 14:37:29.9
Mid-occultation observing point (lat., long.) -37.6 -168.0
At HVO the miss angle is 4221.5 arc-sec at 12/01/2021 12:59:16.3

Occultation of Zubenelgenubi 2.75 by moon 5% illuminated at phase= 335 degrees
12/02/2021 06:05:01.5 Geocentric minimum 1.2 degrees
Global start/end: 12/02/2021 05:10:40.6   and   12/02/2021 06:59:21.0
Mid-occultation observing point (lat., long.) 63.9 13.0

Occultation of Mars 1.6 by moon 3% illuminated at phase= 342 degrees
12/02/2021 17:51:32.3 Geocentric minimum 0.7 degrees
Global start/end: 12/02/2021 15:59:59.8   and   12/02/2021 19:43:01.2
Mid-occultation observing point (lat., long.) 19.6 159.1

Occultation of 43 kappa Lib 4.74 by moon 1% illuminated at phase= 347 degrees
12/03/2021 02:10:49.3 Geocentric minimum 0.4 degrees
Global start/end: 12/03/2021 00:12:39.3   and   12/03/2021 04:08:57.4
Mid-occultation observing point (lat., long.) 0.1 32.0

Eclipse of the Sun by moon 0% illuminated at phase= 360 degrees
12/04/2021 00:33:26.0 Geocentric minimum 1.0 degrees
Global start/end: 12/03/2021 22:29:11.5   and   12/04/2021 02:37:40.1
Mid-occultation observing point (lat., long.) -76.8 -46.3

Occultation of Kaus Borealis 2.81 by moon 4% illuminated at phase= 23 degrees
12/05/2021 14:53:37.3 Geocentric minimum 0.9 degrees
Global start/end: 12/05/2021 13:23:35.3   and   12/05/2021 16:23:42.0
Mid-occultation observing point (lat., long.) -86.1 -145.1
At HVO the miss angle is 5478.9 arc-sec at 12/05/2021 15:51:20.5

Occultation of 27 phi Sgr 3.17 by moon 5% illuminated at phase= 26 degrees
12/05/2021 21:14:16.1 Geocentric minimum 0.6 degrees
Global start/end: 12/05/2021 19:26:48.5   and   12/05/2021 23:01:47.4
Mid-occultation observing point (lat., long.) 12.3 142.6

Occultation of Nunki 2.02 by moon 6% illuminated at phase= 28 degrees
12/06/2021 00:41:21.3 Geocentric minimum 0.0 degrees
Global start/end: 12/05/2021 22:37:21.1   and   12/06/2021 02:45:22.5
Mid-occultation observing point (lat., long.) -27.4 93.5

Occultation of 52 Sgr 4.6 by moon 10% illuminated at phase= 37 degrees
12/06/2021 15:52:39.0 Geocentric minimum 0.8 degrees
Global start/end: 12/06/2021 14:16:03.6   and   12/06/2021 17:29:19.1
Mid-occultation observing point (lat., long.) -77.9 -100.7
At HVO the miss angle is 4922.4 arc-sec at 12/06/2021 17:11:13.3

Occultation of 71 tau Aqr 4.01 by moon 42% illuminated at phase= 80 degrees
12/09/2021 23:44:22.8 Geocentric minimum 0.4 degrees
Global start/end: 12/09/2021 21:40:42.6   and   12/10/2021 01:48:08.7
Mid-occultation observing point (lat., long.) 11.3 152.0

Occultation of 91 psi^1 Aqr 4.21 by moon 48% illuminated at phase= 88 degrees
12/10/2021 13:50:11.4 Geocentric minimum 1.1 degrees
Global start/end: 12/10/2021 12:54:16.2   and   12/10/2021 14:46:08.5
Mid-occultation observing point (lat., long.) -63.8 68.5
At HVO the miss angle is 6228.0 arc-sec at 12/10/2021 13:17:29.1

Occultation of 93 psi^2 Aqr 4.39 by moon 48% illuminated at phase= 88 degrees
12/10/2021 14:35:43.0 Geocentric minimum 0.8 degrees
Global start/end: 12/10/2021 12:56:15.7   and   12/10/2021 16:15:15.3
Mid-occultation observing point (lat., long.) -58.1 -12.4
At HVO the miss angle is 5145.7 arc-sec at 12/10/2021 14:23:42.6

Occultation of 95 psi^3 Aqr 4.98 by moon 48% illuminated at phase= 88 degrees
12/10/2021 14:42:25.2 Geocentric minimum 0.3 degrees
Global start/end: 12/10/2021 12:33:17.4   and   12/10/2021 16:51:37.4
Mid-occultation observing point (lat., long.) -26.7 -46.8
At HVO the miss angle is 3344.7 arc-sec at 12/10/2021 14:29:14.7

Occultation of 30 YY Psc 4.41 by moon 57% illuminated at phase= 98 degrees
12/11/2021 11:34:18.0 Geocentric minimum 1.0 degrees
Global start/end: 12/11/2021 10:19:57.9   and   12/11/2021 12:48:40.8
Mid-occultation observing point (lat., long.) 63.8 -79.2

Occultation of 33 BC Psc 4.61 by moon 58% illuminated at phase= 99 degrees
12/11/2021 13:15:17.1 Geocentric minimum 1.1 degrees
Global start/end: 12/11/2021 12:19:54.4   and   12/11/2021 14:10:41.3
Mid-occultation observing point (lat., long.) 63.8 -104.3

Occultation of 37 Tau 4.36 by moon 97% illuminated at phase= 158 degrees
12/16/2021 21:33:53.3 Geocentric minimum 1.1 degrees
Global start/end: 12/16/2021 20:43:57.0   and   12/16/2021 22:23:49.6
Mid-occultation observing point (lat., long.) -63.9 -53.9
At HVO the miss angle is 4254.9 arc-sec at 12/16/2021 22:08:15.4

Occultation of 65 kappa^1 Tau 4.22 by moon 98% illuminated at phase= 163 degrees
12/17/2021 07:02:00.5 Geocentric minimum 0.0 degrees
Global start/end: 12/17/2021 04:42:45.1   and   12/17/2021 09:21:14.9
Mid-occultation observing point (lat., long.) 22.1 129.8

Occultation of 69 upsilon Tau 4.28 by moon 98% illuminated at phase= 163 degrees
12/17/2021 07:43:14.2 Geocentric minimum 0.5 degrees
Global start/end: 12/17/2021 05:35:28.6   and   12/17/2021 09:50:59.2
Mid-occultation observing point (lat., long.) -6.8 126.8

Occultation of 94 tau Tau 4.28 by moon 99% illuminated at phase= 166 degrees
12/17/2021 15:01:20.5 Geocentric minimum 0.3 degrees
Global start/end: 12/17/2021 12:45:52.5   and   12/17/2021 17:16:48.0
Mid-occultation observing point (lat., long.) 39.8 9.0

Occultation of 77 kappa Gem 3.57 by moon 96% illuminated at phase= 204 degrees
12/21/2021 02:47:31.4 Geocentric minimum 1.1 degrees
Global start/end: 12/21/2021 01:52:38.2   and   12/21/2021 03:42:24.3
Mid-occultation observing point (lat., long.) 63.8 43.3
At HVO the miss angle is 1636.6 arc-sec at 12/21/2021 03:31:31.9

Occultation of 30 eta Leo 3.52 by moon 78% illuminated at phase= 236 degrees
12/23/2021 21:58:33.5 Geocentric minimum 0.3 degrees
Global start/end: 12/23/2021 19:47:58.8   and   12/24/2021 00:09:06.6
Mid-occultation observing point (lat., long.) 36.5 -6.4

---For observations at HVO:
12/23/2021 20:00:25.5 Start Total -6.83 -6.7 (az59) -38.7
12/23/2021 20:25:00.3 OCCULTATION MID-POINT -2.33 -2.4 (az63) -43.1
12/23/2021 20:50:20.1 End Total 1.6 1.38 (az68) -47.6 ***

Occultation of 78 iota Leo 3.94 by moon 64% illuminated at phase= 254 degrees
12/25/2021 11:03:43.4 Geocentric minimum 1.1 degrees
Global start/end: 12/25/2021 10:13:54.7   and   12/25/2021 11:53:30.9
Mid-occultation observing point (lat., long.) -63.9 94.8

Occultation of 3 nu Vir 4.03 by moon 59% illuminated at phase= 260 degrees
12/25/2021 23:18:06.2 Geocentric minimum 0.2 degrees
Global start/end: 12/25/2021 21:06:38.2   and   12/26/2021 01:29:31.9
Mid-occultation observing point (lat., long.) 17.6 -7.2

Occultation of 16 Vir 4.96 by moon 52% illuminated at phase= 268 degrees
12/26/2021 15:57:11.6 Geocentric minimum 0.7 degrees
Global start/end: 12/26/2021 14:06:09.4   and   12/26/2021 17:48:08.7
Mid-occultation observing point (lat., long.) -35.6 83.5

Occultation of 98 kappa Vir 4.19 by moon 27% illuminated at phase= 297 degrees
12/28/2021 22:20:41.2 Geocentric minimum 0.6 degrees
Global start/end: 12/28/2021 20:27:53.4   and   12/29/2021 00:13:23.5
Mid-occultation observing point (lat., long.) -43.1 16.1

Occultation of Zubenelgenubi 2.75 by moon 20% illuminated at phase= 307 degrees
12/29/2021 16:19:41.5 Geocentric minimum 1.1 degrees
Global start/end: 12/29/2021 15:14:20.3   and   12/29/2021 17:25:00.7
Mid-occultation observing point (lat., long.) 63.9 -167.8

Occultation of 43 kappa Lib 4.74 by moon 12% illuminated at phase= 319 degrees
12/30/2021 13:01:33.7 Geocentric minimum 0.3 degrees
Global start/end: 12/30/2021 11:00:25.3   and   12/30/2021 15:02:38.6
Mid-occultation observing point (lat., long.) -2.8 -158.6

Occultation of Mars 1.5 by moon 6% illuminated at phase= 333 degrees
12/31/2021 12:52:15.8 Geocentric minimum 0.9 degrees
Global start/end: 12/31/2021 11:21:40.9   and   12/31/2021 14:22:48.4
Mid-occultation observing point (lat., long.) -78.5 132.6
At HVO the miss angle is 5649.8 arc-sec at 12/31/2021 13:52:35.5

Occultation of Graffias 2.62 by moon 10% illuminated at phase= 324 degrees
12/30/2021 21:36:13.3 Geocentric minimum 1.2 degrees
Global start/end: 12/30/2021 20:52:16.1   and   12/30/2021 22:20:09.7
Mid-occultation observing point (lat., long.) -63.8 -68.8

Occultation of 8 beta^2 Sco 4.92 by moon 10% illuminated at phase= 324 degrees
12/30/2021 21:36:14.1 Geocentric minimum 1.2 degrees
Global start/end: 12/30/2021 20:53:15.7   and   12/30/2021 22:19:11.6
Mid-occultation observing point (lat., long.) -63.8 -68.8

Occultation of 9 omega^1 Sco 3.96 by moon 9% illuminated at phase= 324 degrees
12/30/2021 22:29:04.6 Geocentric minimum 0.5 degrees
Global start/end: 12/30/2021 20:33:09.9   and   12/31/2021 00:24:55.7
Mid-occultation observing point (lat., long.) -46.9 49.3

Occultation of 10 omega^2 Sco 4.32 by moon 9% illuminated at phase= 324 degrees
12/30/2021 22:47:20.2 Geocentric minimum 0.3 degrees
Global start/end: 12/30/2021 20:46:46.2   and   12/31/2021 00:47:51.3
Mid-occultation observing point (lat., long.) -38.2 49.3

Occultation of 9 omega Oph 4.45 by moon 7% illuminated at phase= 330 degrees
12/31/2021 07:57:15.5 Geocentric minimum 1.2 degrees
Global start/end: 12/31/2021 07:14:20.2   and   12/31/2021 08:40:10.1
Mid-occultation observing point (lat., long.) -63.8 135.6

Occultation of 42 theta Oph 3.27 by moon 3% illuminated at phase= 341 degrees
01/01/2022 02:52:46.9 Geocentric minimum 0.0 degrees
Global start/end: 01/01/2022 00:49:37.0   and   01/01/2022 04:55:56.0
Mid-occultation observing point (lat., long.) -23.6 11.9

Occultation of 44 Oph 4.17 by moon 3% illuminated at phase= 342 degrees
01/01/2022 04:14:28.5 Geocentric minimum 0.9 degrees
Global start/end: 01/01/2022 02:48:36.3   and   01/01/2022 05:40:19.7
Mid-occultation observing point (lat., long.) -82.7 -99.7

*** = The Moon is above the horizon, and the Sun is not a factor.
Program LOSP3 version 171111b + gglib version 171111a

Maximum lunar excursion from nominal ecliptic = 7.01