

Ephemeris transit times plus phases of the Moon and the seasons.

All dates and times are UT1.

| Date | | Sun | Moon | Mercury | Venus | Mars | Jupiter | Saturn | Uranus | Neptune |
|---|-----|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| ME= March Equinox, JS= June Solstice, SE= September Equinox, DS= December Solstice | | | | | | | | | | |
| 1/1/2023 | Sun | 12:03:26 | 20:01:44 | 12:56:34 | 13:18:09 | 21:41:51 | 17:22:20 | 14:57:00 | 20:06:15 | 16:51:25 |
| 1/2/2023 | M | 12:03:54 | 20:48:28 | 12:49:27 | 13:19:31 | 21:37:18 | 17:18:51 | 14:53:28 | 20:02:15 | 16:47:32 |
| 1/3/2023 | Tu | 12:04:21 | 21:37:11 | 12:41:35 | 13:20:51 | 21:32:49 | 17:15:22 | 14:49:56 | 19:58:15 | 16:43:40 |
| 1/4/2023 | W | 12:04:49 | 22:27:40 | 12:33:05 | 13:22:10 | 21:28:24 | 17:11:54 | 14:46:24 | 19:54:15 | 16:39:48 |
| 1/5/2023 | Th | 12:05:16 | 23:19:11 | 12:24:03 | 13:23:27 | 21:24:02 | 17:08:27 | 14:42:52 | 19:50:16 | 16:35:56 |
| 1/6/2023 | F | 12:05:42 | 23:08FM | 12:14:38 | 13:24:44 | 21:19:44 | 17:05:00 | 14:39:20 | 19:46:16 | 16:32:04 |
| 1/7/2023 | Sat | 12:06:08 | 0:10:31 | 12:05:01 | 13:25:59 | 21:15:29 | 17:01:34 | 14:35:49 | 19:42:17 | 16:28:13 |
| 1/8/2023 | Sun | 12:06:34 | 1:00:28 | 11:55:23 | 13:27:13 | 21:11:18 | 16:58:08 | 14:32:18 | 19:38:18 | 16:24:21 |
| 1/9/2023 | M | 12:06:59 | 1:48:11 | 11:45:53 | 13:28:26 | 21:07:11 | 16:54:42 | 14:28:47 | 19:34:20 | 16:20:29 |
| 1/10/2023 | Tu | 12:07:23 | 2:33:25 | 11:36:42 | 13:29:37 | 21:03:06 | 16:51:18 | 14:25:16 | 19:30:21 | 16:16:38 |
| 1/11/2023 | W | 12:07:47 | 3:16:24 | 11:27:57 | 13:30:47 | 20:59:06 | 16:47:53 | 14:21:45 | 19:26:23 | 16:12:47 |
| 1/12/2023 | Th | 12:08:11 | 3:57:50 | 11:19:45 | 13:31:56 | 20:55:08 | 16:44:30 | 14:18:14 | 19:22:25 | 16:08:55 |
| 1/13/2023 | F | 12:08:33 | 4:38:39 | 11:12:11 | 13:33:03 | 20:51:14 | 16:41:06 | 14:14:44 | 19:18:27 | 16:05:04 |
| 1/14/2023 | Sat | 12:08:56 | 5:19:59 | 11:05:16 | 13:34:10 | 20:47:23 | 16:37:44 | 14:11:14 | 19:14:29 | 16:01:13 |
| 1/15/2023 | Sun | | 2:10LQ | | | | | | | |
| 1/15/2023 | Sun | 12:09:17 | 6:03:07 | 10:59:02 | 13:35:14 | 20:43:35 | 16:34:21 | 14:07:43 | 19:10:31 | 15:57:22 |
| 1/16/2023 | M | 12:09:38 | 6:49:28 | 10:53:28 | 13:36:18 | 20:39:51 | 16:31:00 | 14:04:13 | 19:06:34 | 15:53:32 |
| 1/17/2023 | Tu | 12:09:58 | 7:40:27 | 10:48:35 | 13:37:20 | 20:36:10 | 16:27:38 | 14:00:44 | 19:02:37 | 15:49:41 |
| 1/18/2023 | W | 12:10:18 | 8:37:06 | 10:44:19 | 13:38:21 | 20:32:32 | 16:24:17 | 13:57:14 | 18:58:40 | 15:45:50 |
| 1/19/2023 | Th | 12:10:36 | 9:39:26 | 10:40:39 | 13:39:20 | 20:28:57 | 16:20:57 | 13:53:44 | 18:54:43 | 15:42:00 |
| 1/20/2023 | F | 12:10:55 | 10:45:45 | 10:37:32 | 13:40:19 | 20:25:25 | 16:17:37 | 13:50:15 | 18:50:47 | 15:38:10 |
| 1/21/2023 | Sat | 12:11:12 | 11:52:39 | 10:34:56 | 13:41:15 | 20:21:56 | 16:14:18 | 13:46:45 | 18:46:50 | 15:34:19 |
| 1/21/2023 | Sat | | 20:53NM | | | | | | | |
| 1/22/2023 | Sun | 12:11:29 | 12:56:39 | 10:32:48 | 13:42:11 | 20:18:30 | 16:10:59 | 13:43:16 | 18:42:54 | 15:30:29 |
| 1/23/2023 | M | 12:11:44 | 13:55:46 | 10:31:06 | 13:43:06 | 20:15:07 | 16:07:40 | 13:39:47 | 18:38:59 | 15:26:39 |
| 1/24/2023 | Tu | 12:11:59 | 14:49:46 | 10:29:48 | 13:43:59 | 20:11:46 | 16:04:22 | 13:36:18 | 18:35:03 | 15:22:49 |
| 1/25/2023 | W | 12:12:14 | 15:39:40 | 10:28:51 | 13:44:51 | 20:08:29 | 16:01:05 | 13:32:49 | 18:31:07 | 15:18:59 |
| 1/26/2023 | Th | 12:12:27 | 16:26:53 | 10:28:13 | 13:45:41 | 20:05:14 | 15:57:47 | 13:29:20 | 18:27:12 | 15:15:09 |
| 1/27/2023 | F | 12:12:40 | 17:12:48 | 10:27:53 | 13:46:31 | 20:02:02 | 15:54:30 | 13:25:51 | 18:23:17 | 15:11:19 |
| 1/28/2023 | Sat | 12:12:51 | 15:19FQ | 10:27:49 | 13:47:19 | | 15:51:14 | 13:22:23 | | 15:07:30 |
| 1/28/2023 | Sat | | 17:58:42 | | | 19:58:53 | | | 18:19:22 | |
| 1/29/2023 | Sun | 12:13:02 | 18:45:33 | 10:27:59 | 13:48:07 | 19:55:46 | 15:47:58 | 13:18:54 | 18:15:28 | 15:03:40 |
| 1/30/2023 | M | 12:13:13 | 19:33:57 | 10:28:22 | 13:48:53 | 19:52:41 | 15:44:42 | 13:15:25 | 18:11:33 | 14:59:51 |
| 1/31/2023 | Tu | 12:13:22 | 20:23:58 | 10:28:57 | 13:49:38 | 19:49:39 | 15:41:27 | 13:11:57 | 18:07:39 | 14:56:01 |
| 2/1/2023 | W | 12:13:30 | 21:15:06 | 10:29:43 | 13:50:22 | 19:46:40 | 15:38:12 | 13:08:28 | 18:03:45 | 14:52:12 |
| 2/2/2023 | Th | 12:13:38 | 22:06:25 | 10:30:39 | 13:51:05 | 19:43:42 | 15:34:57 | 13:05:00 | 17:59:51 | 14:48:23 |
| 2/3/2023 | F | 12:13:45 | 22:56:46 | 10:31:44 | 13:51:47 | 19:40:47 | 15:31:43 | 13:01:32 | 17:55:58 | 14:44:34 |
| 2/4/2023 | Sat | 12:13:51 | 23:45:13 | 10:32:57 | 13:52:28 | 19:37:55 | 15:28:29 | 12:58:04 | 17:52:04 | 14:40:45 |
| 2/5/2023 | Sun | 12:13:56 | 18:29FM | 10:34:17 | 13:53:08 | 19:35:04 | 15:25:16 | 12:54:35 | 17:48:11 | 14:36:56 |
| 2/6/2023 | M | 12:14:00 | 0:31:18 | 10:35:44 | 13:53:47 | 19:32:16 | 15:22:03 | 12:51:07 | 17:44:18 | 14:33:07 |
| 2/7/2023 | Tu | 12:14:04 | 1:15:05 | 10:37:17 | 13:54:26 | 19:29:29 | 15:18:50 | 12:47:39 | 17:40:25 | 14:29:18 |
| 2/8/2023 | W | 12:14:07 | 1:57:02 | 10:38:55 | 13:55:03 | 19:26:45 | 15:15:38 | 12:44:11 | 17:36:33 | 14:25:29 |
| 2/9/2023 | Th | 12:14:08 | 2:37:56 | 10:40:39 | 13:55:40 | 19:24:03 | 15:12:26 | 12:40:43 | 17:32:40 | 14:21:40 |
| 2/10/2023 | F | 12:14:10 | 3:18:45 | 10:42:28 | 13:56:16 | 19:21:22 | 15:09:14 | 12:37:15 | 17:28:48 | 14:17:51 |
| 2/11/2023 | Sat | 12:14:10 | 4:00:37 | 10:44:20 | 13:56:51 | 19:18:44 | 15:06:02 | 12:33:47 | 17:24:56 | 14:14:03 |
| 2/12/2023 | Sun | 12:14:10 | 4:44:46 | 10:46:17 | 13:57:26 | 19:16:07 | 15:02:51 | 12:30:19 | 17:21:05 | 14:10:14 |
| 2/13/2023 | M | 12:14:09 | 5:32:28 | 10:48:17 | 13:58:00 | | 14:59:40 | 12:26:51 | | 14:06:26 |
| 2/13/2023 | M | | 16:01LQ | | | 19:13:32 | | | 17:17:13 | |
| 2/14/2023 | Tu | 12:14:07 | 6:24:54 | 10:50:21 | 13:58:34 | 19:10:59 | 14:56:30 | 12:23:23 | 17:13:22 | 14:02:37 |
| 2/15/2023 | W | 12:14:05 | 7:22:36 | 10:52:27 | 13:59:07 | 19:08:28 | 14:53:19 | 12:19:55 | 17:09:30 | 13:58:49 |
| 2/16/2023 | Th | 12:14:01 | 8:25:00 | 10:54:37 | 13:59:40 | 19:05:58 | 14:50:09 | 12:16:27 | 17:05:39 | 13:55:01 |
| 2/17/2023 | F | 12:13:58 | 9:29:56 | 10:56:49 | 14:00:12 | 19:03:30 | 14:47:00 | 12:12:59 | 17:01:49 | 13:51:12 |
| 2/18/2023 | Sat | 12:13:53 | 10:34:20 | 10:59:03 | 14:00:44 | 19:01:04 | 14:43:50 | 12:09:31 | 16:57:58 | 13:47:24 |

Ephemeris transit times plus phases of the Moon and the seasons.

All dates and times are UT1.

| Date | | Sun | Moon | Mercury | Venus | Mars | Jupiter | Saturn | Uranus | Neptune |
|--|-----|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| ME= March Equinox, JS= June Solstice, SE= September Equinox, DS= December Solstice | | | | | | | | | | |
| 2/19/2023 | Sun | 12:13:48 | 11:35:35 | 11:01:20 | 14:01:15 | 18:58:39 | 14:40:41 | 12:06:03 | 16:54:08 | 13:43:36 |
| 2/20/2023 | M | 12:13:42 | 7:06NM | 11:03:39 | | | | 12:02:35 | | |
| 2/20/2023 | M | | 12:32:31 | | 14:01:46 | 18:56:16 | 14:37:32 | | 16:50:18 | 13:39:48 |
| 2/21/2023 | Tu | 12:13:35 | 13:25:21 | 11:05:59 | 14:02:17 | 18:53:55 | 14:34:24 | 11:59:07 | 16:46:28 | 13:36:00 |
| 2/22/2023 | W | 12:13:28 | 14:15:08 | 11:08:22 | 14:02:47 | 18:51:35 | 14:31:15 | 11:55:39 | 16:42:38 | 13:32:12 |
| 2/23/2023 | Th | 12:13:20 | 15:03:09 | 11:10:46 | 14:03:18 | 18:49:16 | 14:28:07 | 11:52:11 | 16:38:48 | 13:28:24 |
| 2/24/2023 | F | 12:13:12 | 15:50:39 | 11:13:12 | 14:03:48 | 18:46:59 | 14:24:59 | 11:48:43 | 16:34:59 | 13:24:36 |
| 2/25/2023 | Sat | 12:13:03 | 16:38:38 | 11:15:40 | 14:04:18 | 18:44:44 | 14:21:52 | 11:45:15 | 16:31:09 | 13:20:48 |
| 2/26/2023 | Sun | 12:12:53 | 17:27:47 | 11:18:09 | 14:04:48 | 18:42:29 | 14:18:44 | 11:41:47 | 16:27:20 | 13:17:00 |
| 2/27/2023 | M | 12:12:43 | 8:06FQ | 11:20:40 | 14:05:18 | | 14:15:37 | 11:38:18 | 16:23:31 | 13:13:12 |
| 2/27/2023 | M | | 18:18:16 | | | 18:40:16 | | | | |
| 2/28/2023 | Tu | 12:12:32 | 19:09:46 | 11:23:13 | 14:05:48 | 18:38:05 | 14:12:30 | 11:34:50 | 16:19:43 | 13:09:24 |
| 3/1/2023 | W | 12:12:21 | 20:01:27 | 11:25:46 | 14:06:18 | 18:35:54 | 14:09:23 | 11:31:22 | 16:15:54 | 13:05:36 |
| 3/2/2023 | Th | 12:12:09 | 20:52:18 | 11:28:22 | 14:06:48 | 18:33:45 | 14:06:17 | 11:27:53 | 16:12:06 | 13:01:49 |
| 3/3/2023 | F | 12:11:57 | 21:41:25 | 11:30:59 | 14:07:18 | 18:31:37 | 14:03:10 | 11:24:25 | 16:08:18 | 12:58:01 |
| 3/4/2023 | Sat | 12:11:44 | 22:28:17 | 11:33:38 | 14:07:48 | 18:29:30 | 14:00:04 | 11:20:56 | 16:04:29 | 12:54:13 |
| 3/5/2023 | Sun | 12:11:31 | 23:12:52 | 11:36:18 | 14:08:18 | 18:27:24 | 13:56:58 | 11:17:28 | 16:00:42 | 12:50:25 |
| 3/6/2023 | M | 12:11:17 | 23:55:32 | 11:39:01 | 14:08:49 | 18:25:20 | 13:53:52 | 11:13:59 | 15:56:54 | 12:46:38 |
| 3/7/2023 | Tu | 12:11:03 | 12:40FM | 11:41:45 | 14:09:20 | 18:23:16 | 13:50:47 | 11:10:30 | 15:53:06 | 12:42:50 |
| 3/8/2023 | W | 12:10:48 | 0:37:00 | 11:44:30 | 14:09:51 | 18:21:14 | 13:47:41 | 11:07:01 | 15:49:19 | 12:39:03 |
| 3/9/2023 | Th | 12:10:33 | 1:18:06 | 11:47:18 | 14:10:22 | 18:19:12 | 13:44:36 | 11:03:32 | 15:45:32 | 12:35:15 |
| 3/10/2023 | F | 12:10:18 | 1:59:51 | 11:50:08 | 14:10:54 | 18:17:12 | 13:41:31 | 11:00:03 | 15:41:45 | 12:31:27 |
| 3/11/2023 | Sat | 12:10:02 | 2:43:23 | 11:52:59 | 14:11:27 | 18:15:12 | 13:38:26 | 10:56:34 | 15:37:58 | 12:27:40 |
| 3/12/2023 | Sun | 12:09:46 | 3:29:48 | 11:55:53 | 14:11:59 | 18:13:13 | 13:35:21 | 10:53:05 | 15:34:11 | 12:23:52 |
| 3/13/2023 | M | 12:09:30 | 4:20:10 | 11:58:49 | 14:12:33 | 18:11:16 | 13:32:17 | 10:49:35 | 15:30:24 | 12:20:05 |
| 3/14/2023 | Tu | 12:09:14 | 5:15:05 | 12:01:48 | 14:13:06 | 18:09:19 | 13:29:12 | 10:46:06 | 15:26:38 | 12:16:17 |
| 3/15/2023 | W | | 2:08LQ | | | | | | | |
| 3/15/2023 | W | 12:08:57 | 6:14:18 | 12:04:48 | 14:13:40 | 18:07:23 | 13:26:08 | 10:42:36 | 15:22:52 | 12:12:29 |
| 3/16/2023 | Th | 12:08:40 | 7:16:22 | 12:07:51 | 14:14:15 | 18:05:28 | 13:23:04 | 10:39:07 | 15:19:06 | 12:08:42 |
| 3/17/2023 | F | 12:08:23 | 8:18:54 | 12:10:56 | 14:14:51 | 18:03:34 | 13:20:00 | 10:35:37 | 15:15:20 | 12:04:54 |
| 3/18/2023 | Sat | 12:08:06 | 9:19:29 | 12:14:02 | 14:15:27 | 18:01:41 | 13:16:56 | 10:32:07 | 15:11:34 | 12:01:07 |
| 3/19/2023 | Sun | 12:07:49 | 10:16:41 | 12:17:11 | 14:16:03 | 17:59:48 | 13:13:52 | 10:28:37 | 15:07:48 | 11:57:19 |
| 3/20/2023 | M | 12:07:31 | 11:10:18 | 12:20:22 | 14:16:41 | 17:57:57 | 13:10:49 | 10:25:07 | 15:04:02 | 11:53:32 |
| 3/20/2023 | M | 21:24ME | | | | | | | | |
| 3/21/2023 | Tu | 12:07:14 | 12:01:02 | 12:23:34 | 14:17:19 | | 13:07:45 | 10:21:36 | 15:00:17 | 11:49:44 |
| 3/21/2023 | Tu | | 17:23NM | | | 17:56:06 | | | | |
| 3/22/2023 | W | 12:06:56 | 12:49:59 | 12:26:47 | 14:17:58 | 17:54:16 | 13:04:42 | 10:18:06 | 14:56:32 | 11:45:56 |
| 3/23/2023 | Th | 12:06:38 | 13:38:20 | 12:30:01 | 14:18:37 | 17:52:26 | 13:01:39 | 10:14:35 | 14:52:46 | 11:42:09 |
| 3/24/2023 | F | 12:06:20 | 14:27:08 | 12:33:15 | 14:19:18 | 17:50:38 | 12:58:36 | 10:11:04 | 14:49:01 | 11:38:21 |
| 3/25/2023 | Sat | 12:06:02 | 15:17:04 | 12:36:28 | 14:19:59 | 17:48:49 | 12:55:33 | 10:07:33 | 14:45:16 | 11:34:34 |
| 3/26/2023 | Sun | 12:05:44 | 16:08:25 | 12:39:40 | 14:20:41 | 17:47:02 | 12:52:30 | 10:04:02 | 14:41:32 | 11:30:46 |
| 3/27/2023 | M | 12:05:26 | 17:00:52 | 12:42:50 | 14:21:23 | 17:45:15 | 12:49:27 | 10:00:31 | 14:37:47 | 11:26:58 |
| 3/28/2023 | Tu | 12:05:08 | 17:53:36 | 12:45:56 | 14:22:07 | 17:43:29 | 12:46:24 | 9:57:00 | 14:34:02 | 11:23:10 |
| 3/29/2023 | W | 12:04:50 | 2:32FQ | 12:48:58 | 14:22:51 | 17:41:44 | 12:43:21 | 9:53:28 | 14:30:18 | 11:19:23 |
| 3/29/2023 | W | | 18:45:31 | | | | | | | |
| 3/30/2023 | Th | 12:04:32 | 19:35:38 | 12:51:55 | 14:23:36 | 17:39:59 | 12:40:19 | 9:49:56 | 14:26:34 | 11:15:35 |
| 3/31/2023 | F | 12:04:14 | 20:23:24 | 12:54:44 | 14:24:22 | 17:38:15 | 12:37:16 | 9:46:24 | 14:22:49 | 11:11:47 |
| 4/1/2023 | Sat | 12:03:56 | 21:08:44 | 12:57:25 | 14:25:09 | 17:36:31 | 12:34:14 | 9:42:52 | 14:19:05 | 11:08:00 |
| 4/2/2023 | Sun | 12:03:38 | 21:51:59 | 12:59:56 | 14:25:56 | 17:34:48 | 12:31:11 | 9:39:20 | 14:15:21 | 11:04:12 |
| 4/3/2023 | M | 12:03:20 | 22:33:52 | 13:02:16 | 14:26:45 | 17:33:05 | 12:28:09 | 9:35:47 | 14:11:37 | 11:00:24 |
| 4/4/2023 | Tu | 12:03:03 | 23:15:14 | 13:04:23 | 14:27:34 | 17:31:23 | 12:25:07 | 9:32:15 | 14:07:53 | 10:56:36 |
| 4/5/2023 | W | 12:02:45 | 23:57:05 | 13:06:16 | 14:28:24 | 17:29:41 | 12:22:04 | 9:28:42 | 14:04:10 | 10:52:48 |
| 4/6/2023 | Th | 12:02:28 | 4:35FM | 13:07:54 | 14:29:14 | 17:27:59 | 12:19:02 | 9:25:09 | 14:00:26 | 10:49:00 |

Ephemeris transit times plus phases of the Moon and the seasons.

All dates and times are UT1.

| Date | | Sun | Moon | Mercury | Venus | Mars | Jupiter | Saturn | Uranus | Neptune |
|---|-----|----------|----------|----------|----------|----------|----------|---------|----------|----------|
| ME= March Equinox, JS= June Solstice, SE= September Equinox, DS= December Solstice | | | | | | | | | | |
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| 4/8/2023 | Sat | 12:01:55 | 1:26:38 | 13:10:20 | 14:30:58 | 17:24:38 | 12:12:58 | 9:18:02 | 13:52:59 | 10:41:24 |
| 4/9/2023 | Sun | 12:01:38 | 2:16:26 | 13:11:05 | 14:31:51 | 17:22:58 | 12:09:56 | 9:14:28 | 13:49:16 | 10:37:36 |
| 4/10/2023 | M | 12:01:22 | 3:10:33 | 13:11:31 | 14:32:45 | 17:21:18 | 12:06:54 | 9:10:54 | 13:45:32 | 10:33:48 |
| 4/11/2023 | Tu | 12:01:06 | 4:08:48 | 13:11:36 | 14:33:40 | 17:19:39 | 12:03:52 | 9:07:20 | 13:41:49 | 10:30:00 |
| 4/12/2023 | W | 12:00:50 | 5:09:51 | 13:11:20 | 14:34:35 | 17:18:00 | 12:00:50 | 9:03:46 | 13:38:06 | 10:26:12 |
| 4/13/2023 | Th | | 6:11:29 | | | | | 9:00:11 | | |
| 4/13/2023 | Th | 12:00:35 | 9:11LQ | 13:10:42 | 14:35:31 | 17:16:21 | 11:57:48 | | 13:34:23 | 10:22:23 |
| 4/14/2023 | F | 12:00:20 | 7:11:20 | 13:09:41 | 14:36:28 | 17:14:43 | 11:54:46 | 8:56:37 | 13:30:40 | 10:18:35 |
| 4/15/2023 | Sat | 12:00:05 | 8:07:57 | 13:08:18 | 14:37:25 | 17:13:05 | 11:51:44 | 8:53:01 | 13:26:57 | 10:14:47 |
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| 4/20/2023 | Th | | 12:15:19 | 12:55:31 | 14:42:19 | 17:05:01 | | | 13:08:24 | |
| 4/21/2023 | F | 11:58:45 | 13:04:51 | 12:51:49 | 14:43:19 | 17:03:24 | 11:33:32 | 8:31:26 | 13:04:41 | 9:51:55 |
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| 4/23/2023 | Sun | 11:58:22 | 14:49:05 | 12:43:21 | 14:45:20 | 17:00:13 | 11:27:28 | 8:24:13 | 12:57:16 | 9:44:18 |
| 4/24/2023 | M | 11:58:11 | 15:42:47 | 12:38:37 | 14:46:21 | 16:58:38 | 11:24:26 | 8:20:35 | 12:53:34 | 9:40:29 |
| 4/25/2023 | Tu | 11:58:01 | 16:36:02 | 12:33:36 | 14:47:22 | 16:57:02 | 11:21:24 | 8:16:58 | 12:49:52 | 9:36:40 |
| 4/26/2023 | W | 11:57:51 | 17:27:36 | 12:28:18 | 14:48:23 | 16:55:28 | 11:18:22 | 8:13:20 | 12:46:09 | 9:32:51 |
| 4/27/2023 | Th | 11:57:41 | 18:16:38 | 12:22:47 | 14:49:25 | 16:53:53 | 11:15:20 | 8:09:42 | 12:42:27 | 9:29:02 |
| 4/27/2023 | Th | | 21:20FQ | | | | | | | |
| 4/28/2023 | F | 11:57:32 | 19:02:55 | 12:17:03 | 14:50:26 | 16:52:18 | 11:12:18 | 8:06:04 | 12:38:45 | 9:25:13 |
| 4/29/2023 | Sat | 11:57:24 | 19:46:46 | 12:11:10 | 14:51:26 | 16:50:44 | 11:09:15 | 8:02:25 | 12:35:03 | 9:21:23 |
| 4/30/2023 | Sun | 11:57:16 | 20:28:51 | 12:05:11 | 14:52:27 | 16:49:09 | 11:06:13 | 7:58:46 | 12:31:20 | 9:17:34 |
| 5/1/2023 | M | 11:57:08 | 21:10:06 | 11:59:06 | 14:53:28 | 16:47:35 | 11:03:11 | 7:55:07 | 12:27:38 | 9:13:45 |
| 5/2/2023 | Tu | 11:57:01 | 21:51:33 | 11:53:00 | 14:54:28 | 16:46:01 | 11:00:08 | 7:51:27 | 12:23:56 | 9:09:55 |
| 5/3/2023 | W | 11:56:55 | 22:34:23 | 11:46:55 | 14:55:27 | 16:44:27 | 10:57:06 | 7:47:47 | 12:20:14 | 9:06:06 |
| 5/4/2023 | Th | 11:56:49 | 23:19:47 | 11:40:52 | 14:56:26 | 16:42:53 | 10:54:03 | 7:44:07 | 12:16:32 | 9:02:16 |
| 5/5/2023 | F | 11:56:43 | 17:34FM | 11:34:55 | 14:57:25 | 16:41:19 | 10:51:01 | 7:40:27 | 12:12:50 | 8:58:26 |
| 5/6/2023 | Sat | 11:56:39 | 0:08:54 | 11:29:06 | 14:58:23 | 16:39:46 | 10:47:58 | 7:36:46 | 12:09:08 | 8:54:37 |
| 5/7/2023 | Sun | 11:56:34 | 1:02:35 | 11:23:25 | 14:59:20 | 16:38:12 | 10:44:55 | 7:33:05 | 12:05:26 | 8:50:47 |
| 5/8/2023 | M | 11:56:31 | 2:00:53 | 11:17:56 | 15:00:16 | 16:36:39 | 10:41:52 | 7:29:24 | 12:01:44 | 8:46:57 |
| 5/9/2023 | Tu | 11:56:27 | 3:02:36 | 11:12:40 | 15:01:12 | 16:35:05 | 10:38:49 | 7:25:43 | 11:58:02 | 8:43:07 |
| 5/10/2023 | W | 11:56:25 | 4:05:21 | 11:07:37 | 15:02:07 | 16:33:32 | 10:35:46 | 7:22:01 | 11:54:20 | 8:39:17 |
| 5/11/2023 | Th | 11:56:23 | 5:06:24 | 11:02:48 | 15:03:00 | 16:31:58 | 10:32:43 | 7:18:19 | 11:50:38 | 8:35:26 |
| 5/12/2023 | F | 11:56:22 | 6:03:54 | 10:58:15 | | | 10:29:40 | 7:14:36 | 11:46:56 | 8:31:36 |
| 5/12/2023 | F | | 14:28LQ | | 15:03:53 | 16:30:25 | | | | |
| 5/13/2023 | Sat | 11:56:21 | 6:57:18 | 10:53:58 | 15:04:44 | 16:28:52 | 10:26:36 | 7:10:53 | 11:43:14 | 8:27:46 |
| 5/14/2023 | Sun | 11:56:21 | 7:47:13 | 10:49:57 | 15:05:34 | 16:27:18 | 10:23:33 | 7:07:10 | 11:39:32 | 8:23:55 |
| 5/15/2023 | M | 11:56:21 | 8:34:45 | 10:46:12 | 15:06:23 | 16:25:45 | 10:20:29 | 7:03:27 | 11:35:50 | 8:20:05 |
| 5/16/2023 | Tu | 11:56:22 | 9:21:14 | 10:42:43 | 15:07:10 | 16:24:12 | 10:17:25 | 6:59:43 | 11:32:08 | 8:16:14 |
| 5/17/2023 | W | 11:56:24 | 10:07:56 | 10:39:31 | 15:07:56 | 16:22:39 | 10:14:21 | 6:55:59 | 11:28:26 | 8:12:23 |
| 5/18/2023 | Th | 11:56:26 | 10:55:56 | 10:36:34 | 15:08:40 | 16:21:06 | 10:11:17 | 6:52:14 | 11:24:44 | 8:08:32 |
| 5/19/2023 | F | 11:56:29 | 11:45:55 | 10:33:53 | 15:09:23 | | 10:08:13 | 6:48:29 | 11:21:02 | 8:04:41 |
| 5/19/2023 | F | | 15:53NM | | | 16:19:32 | | | | |
| 5/20/2023 | Sat | 11:56:32 | 12:38:01 | 10:31:28 | 15:10:04 | 16:17:59 | 10:05:09 | 6:44:44 | 11:17:20 | 8:00:50 |
| 5/21/2023 | Sun | 11:56:36 | 13:31:41 | 10:29:18 | 15:10:43 | 16:16:26 | 10:02:05 | 6:40:59 | 11:13:38 | 7:56:59 |
| 5/22/2023 | M | 11:56:40 | 14:25:40 | 10:27:23 | 15:11:21 | 16:14:53 | 9:59:00 | 6:37:13 | 11:09:55 | 7:53:08 |
| 5/23/2023 | Tu | 11:56:45 | 15:18:29 | 10:25:42 | 15:11:56 | 16:13:20 | 9:55:55 | 6:33:27 | 11:06:13 | 7:49:16 |
| 5/24/2023 | W | 11:56:50 | 16:08:57 | 10:24:16 | 15:12:30 | 16:11:46 | 9:52:50 | 6:29:40 | 11:02:31 | 7:45:25 |

Ephemeris transit times plus phases of the Moon and the seasons.

All dates and times are UT1.

| Date | | Sun | Moon | Mercury | Venus | Mars | Jupiter | Saturn | Uranus | Neptune |
|---|-----|----------|----------|----------|----------|----------|---------|---------|----------|---------|
| ME= March Equinox, JS= June Solstice, SE= September Equinox, DS= December Solstice | | | | | | | | | | |
| 5/25/2023 | Th | 11:56:56 | 16:56:29 | 10:23:03 | 15:13:01 | 16:10:13 | 9:49:45 | 6:25:53 | 10:58:49 | 7:41:33 |
| 5/26/2023 | F | 11:57:02 | 17:41:08 | 10:22:04 | 15:13:30 | 16:08:40 | 9:46:40 | 6:22:06 | 10:55:06 | 7:37:42 |
| 5/27/2023 | Sat | 11:57:09 | 15:22FQ | 10:21:18 | 15:13:57 | 16:07:06 | 9:43:34 | 6:18:19 | 10:51:24 | 7:33:50 |
| 5/27/2023 | Sat | | 18:23:32 | | | | | | | |
| 5/28/2023 | Sun | 11:57:16 | 19:04:32 | 10:20:46 | 15:14:22 | 16:05:33 | 9:40:29 | 6:14:31 | 10:47:42 | 7:29:58 |
| 5/29/2023 | M | 11:57:24 | 19:45:13 | 10:20:26 | 15:14:44 | 16:03:59 | 9:37:23 | 6:10:43 | 10:43:59 | 7:26:06 |
| 5/30/2023 | Tu | 11:57:32 | 20:26:47 | 10:20:19 | 15:15:04 | 16:02:26 | 9:34:17 | 6:06:54 | 10:40:17 | 7:22:14 |
| 5/31/2023 | W | 11:57:41 | 21:10:32 | 10:20:24 | 15:15:21 | 16:00:52 | 9:31:11 | 6:03:05 | 10:36:34 | 7:18:22 |
| 6/1/2023 | Th | 11:57:50 | 21:57:48 | 10:20:42 | 15:15:36 | 15:59:18 | 9:28:04 | 5:59:16 | 10:32:52 | 7:14:29 |
| 6/2/2023 | F | 11:57:59 | 22:49:45 | 10:21:13 | 15:15:47 | 15:57:45 | 9:24:57 | 5:55:26 | 10:29:09 | 7:10:37 |
| 6/3/2023 | Sat | 11:58:09 | 23:47:01 | 10:21:55 | 15:15:57 | 15:56:11 | 9:21:51 | 5:51:36 | 10:25:26 | 7:06:44 |
| 6/4/2023 | Sun | 11:58:19 | 3:42FM | 10:22:51 | 15:16:03 | 15:54:37 | 9:18:43 | 5:47:45 | 10:21:44 | 7:02:52 |
| 6/5/2023 | M | 11:58:29 | 0:49:00 | 10:23:58 | 15:16:07 | 15:53:03 | 9:15:36 | 5:43:55 | 10:18:01 | 6:58:59 |
| 6/6/2023 | Tu | 11:58:40 | 1:53:30 | 10:25:18 | 15:16:07 | 15:51:29 | 9:12:29 | 5:40:04 | 10:14:18 | 6:55:06 |
| 6/7/2023 | W | 11:58:51 | 2:57:20 | 10:26:51 | 15:16:05 | 15:49:54 | 9:09:21 | 5:36:12 | 10:10:35 | 6:51:13 |
| 6/8/2023 | Th | 11:59:02 | 3:57:46 | 10:28:36 | 15:16:00 | 15:48:20 | 9:06:13 | 5:32:20 | 10:06:52 | 6:47:20 |
| 6/9/2023 | F | 11:59:13 | 4:53:34 | 10:30:34 | 15:15:51 | 15:46:45 | 9:03:05 | 5:28:28 | 10:03:09 | 6:43:27 |
| 6/10/2023 | Sat | 11:59:25 | 5:45:00 | 10:32:45 | 15:15:40 | 15:45:11 | 8:59:56 | 5:24:35 | 9:59:26 | 6:39:33 |
| 6/10/2023 | Sat | | 19:31LQ | | | | | | | |
| 6/11/2023 | Sun | 11:59:37 | 6:33:10 | 10:35:10 | 15:15:25 | 15:43:36 | 8:56:47 | 5:20:42 | 9:55:42 | 6:35:40 |
| 6/12/2023 | M | 11:59:50 | 7:19:28 | 10:37:48 | 15:15:07 | 15:42:02 | 8:53:38 | 5:16:49 | 9:51:59 | 6:31:46 |
| 6/13/2023 | Tu | 12:00:02 | 8:05:19 | 10:40:39 | 15:14:45 | 15:40:27 | 8:50:29 | 5:12:55 | 9:48:15 | 6:27:53 |
| 6/14/2023 | W | 12:00:15 | 8:51:57 | 10:43:44 | 15:14:20 | 15:38:52 | 8:47:19 | 5:09:01 | 9:44:32 | 6:23:59 |
| 6/15/2023 | Th | 12:00:28 | 9:40:20 | 10:47:03 | 15:13:52 | 15:37:17 | 8:44:10 | 5:05:07 | 9:40:48 | 6:20:05 |
| 6/16/2023 | F | 12:00:41 | 10:30:54 | 10:50:35 | 15:13:20 | 15:35:42 | 8:40:59 | 5:01:12 | 9:37:05 | 6:16:11 |
| 6/17/2023 | Sat | 12:00:54 | 11:23:29 | 10:54:22 | 15:12:44 | 15:34:07 | 8:37:49 | 4:57:17 | 9:33:21 | 6:12:17 |
| 6/18/2023 | Sun | 12:01:07 | 4:37NM | 10:58:22 | | | 8:34:38 | 4:53:21 | 9:29:37 | 6:08:23 |
| 6/18/2023 | Sun | | 12:17:09 | | 15:12:05 | 15:32:32 | | | | |
| 6/19/2023 | M | 12:01:20 | 13:10:27 | 11:02:36 | 15:11:22 | 15:30:56 | 8:31:27 | 4:49:25 | 9:25:53 | 6:04:28 |
| 6/20/2023 | Tu | 12:01:33 | 14:01:56 | 11:07:02 | 15:10:34 | 15:29:21 | 8:28:16 | 4:45:29 | 9:22:09 | 6:00:34 |
| 6/21/2023 | W | 12:01:47 | 14:50:39 | 11:11:42 | | | 8:25:04 | 4:41:32 | 9:18:25 | 5:56:39 |
| 6/21/2023 | W | 14:58JS | | | 15:09:43 | 15:27:45 | | | | |
| 6/22/2023 | Th | 12:02:00 | 15:36:20 | 11:16:33 | 15:08:48 | 15:26:10 | 8:21:52 | 4:37:35 | 9:14:40 | 5:52:44 |
| 6/23/2023 | F | 12:02:13 | 16:19:19 | 11:21:35 | 15:07:48 | 15:24:34 | 8:18:40 | 4:33:38 | 9:10:56 | 5:48:49 |
| 6/24/2023 | Sat | 12:02:26 | 17:00:21 | 11:26:47 | 15:06:44 | 15:22:58 | 8:15:27 | 4:29:40 | 9:07:11 | 5:44:54 |
| 6/25/2023 | Sun | 12:02:39 | 17:40:26 | 11:32:08 | 15:05:36 | 15:21:22 | 8:12:14 | 4:25:42 | 9:03:27 | 5:40:59 |
| 6/26/2023 | M | 12:02:51 | 7:50FQ | 11:37:36 | 15:04:23 | 15:19:46 | 8:09:01 | 4:21:43 | 8:59:42 | 5:37:04 |
| 6/26/2023 | M | | 18:20:43 | | | | | | | |
| 6/27/2023 | Tu | 12:03:04 | 19:02:29 | 11:43:10 | 15:03:05 | 15:18:10 | 8:05:47 | 4:17:44 | 8:55:57 | 5:33:09 |
| 6/28/2023 | W | 12:03:16 | 19:47:05 | 11:48:48 | 15:01:43 | 15:16:34 | 8:02:33 | 4:13:45 | 8:52:12 | 5:29:13 |
| 6/29/2023 | Th | 12:03:28 | 20:35:54 | 11:54:29 | 15:00:15 | 15:14:57 | 7:59:18 | 4:09:46 | 8:48:27 | 5:25:18 |
| 6/30/2023 | F | 12:03:40 | 21:30:06 | 12:00:10 | 14:58:43 | 15:13:21 | 7:56:03 | 4:05:46 | 8:44:42 | 5:21:22 |
| 7/1/2023 | Sat | 12:03:52 | 22:29:59 | 12:05:50 | 14:57:05 | 15:11:44 | 7:52:48 | 4:01:45 | 8:40:56 | 5:17:26 |
| 7/2/2023 | Sun | 12:04:03 | 23:34:19 | 12:11:28 | 14:55:22 | 15:10:07 | 7:49:32 | 3:57:45 | 8:37:11 | 5:13:30 |
| 7/3/2023 | M | 12:04:14 | 11:39FM | 12:17:01 | 14:53:33 | 15:08:31 | 7:46:16 | 3:53:44 | 8:33:25 | 5:09:34 |
| 7/4/2023 | Tu | 12:04:25 | 0:40:13 | 12:22:29 | 14:51:39 | 15:06:54 | 7:43:00 | 3:49:42 | 8:29:39 | 5:05:38 |
| 7/5/2023 | W | 12:04:36 | 1:44:12 | 12:27:50 | 14:49:38 | 15:05:17 | 7:39:43 | 3:45:40 | 8:25:53 | 5:01:42 |
| 7/6/2023 | Th | 12:04:46 | 2:43:54 | 12:33:03 | 14:47:32 | 15:03:40 | 7:36:26 | 3:41:38 | 8:22:07 | 4:57:45 |
| 7/7/2023 | F | 12:04:55 | 3:38:42 | 12:38:07 | 14:45:20 | 15:02:02 | 7:33:08 | 3:37:36 | 8:18:21 | 4:53:49 |
| 7/8/2023 | Sat | 12:05:05 | 4:29:21 | 12:43:02 | 14:43:01 | 15:00:25 | 7:29:50 | 3:33:33 | 8:14:35 | 4:49:52 |
| 7/9/2023 | Sun | 12:05:14 | 5:17:11 | 12:47:46 | 14:40:36 | 14:58:48 | 7:26:32 | 3:29:30 | 8:10:48 | 4:45:55 |
| 7/10/2023 | M | | 1:48LQ | | | | | 3:25:27 | | 4:41:58 |
| 7/10/2023 | M | 12:05:23 | 6:03:41 | 12:52:20 | 14:38:05 | 14:57:10 | 7:23:13 | | 8:07:02 | |

Ephemeris transit times plus phases of the Moon and the seasons.

All dates and times are UT1.

| Date | | Sun | Moon | Mercury | Venus | Mars | Jupiter | Saturn | Uranus | Neptune |
|--|-----|----------|----------|----------|----------|----------|---------|---------|---------|---------|
| ME= March Equinox, JS= June Solstice, SE= September Equinox, DS= December Solstice | | | | | | | | | | |
| 7/11/2023 | Tu | 12:05:31 | 6:50:13 | 12:56:42 | 14:35:26 | 14:55:33 | 7:19:53 | 3:21:23 | 8:03:15 | 4:38:01 |
| 7/12/2023 | W | 12:05:39 | 7:37:53 | 13:00:54 | 14:32:41 | 14:53:55 | 7:16:33 | 3:17:19 | 7:59:28 | 4:34:04 |
| 7/13/2023 | Th | 12:05:46 | 8:27:24 | 13:04:54 | 14:29:48 | 14:52:18 | 7:13:13 | 3:13:14 | 7:55:41 | 4:30:07 |
| 7/14/2023 | F | 12:05:53 | 9:18:53 | 13:08:43 | 14:26:48 | 14:50:40 | 7:09:52 | 3:09:10 | 7:51:54 | 4:26:10 |
| 7/15/2023 | Sat | 12:06:00 | 10:11:46 | 13:12:21 | 14:23:40 | 14:49:03 | 7:06:31 | 3:05:05 | 7:48:06 | 4:22:12 |
| 7/16/2023 | Sun | 12:06:05 | 11:04:53 | 13:15:47 | 14:20:25 | 14:47:25 | 7:03:09 | 3:00:59 | 7:44:19 | 4:18:15 |
| 7/17/2023 | M | 12:06:11 | 11:56:47 | 13:19:02 | 14:17:01 | 14:45:47 | 6:59:47 | 2:56:54 | 7:40:31 | 4:14:17 |
| 7/17/2023 | M | | 18:32NM | | | | | | | |
| 7/18/2023 | Tu | 12:06:16 | 12:46:20 | 13:22:06 | 14:13:30 | 14:44:09 | 6:56:24 | 2:52:48 | 7:36:43 | 4:10:19 |
| 7/19/2023 | W | 12:06:20 | 13:32:57 | 13:25:00 | 14:09:50 | 14:42:31 | 6:53:01 | 2:48:41 | 7:32:55 | 4:06:21 |
| 7/20/2023 | Th | 12:06:24 | 14:16:43 | 13:27:42 | 14:06:02 | 14:40:53 | 6:49:37 | 2:44:35 | 7:29:07 | 4:02:23 |
| 7/21/2023 | F | 12:06:27 | 14:58:10 | 13:30:14 | 14:02:05 | 14:39:15 | 6:46:12 | 2:40:28 | 7:25:19 | 3:58:25 |
| 7/22/2023 | Sat | 12:06:30 | 15:38:09 | 13:32:36 | 13:58:00 | 14:37:37 | 6:42:47 | 2:36:21 | 7:21:30 | 3:54:27 |
| 7/23/2023 | Sun | 12:06:32 | 16:17:43 | 13:34:48 | 13:53:45 | 14:35:59 | 6:39:22 | 2:32:13 | 7:17:42 | 3:50:29 |
| 7/24/2023 | M | 12:06:33 | 16:58:00 | 13:36:50 | 13:49:22 | 14:34:21 | 6:35:56 | 2:28:06 | 7:13:53 | 3:46:30 |
| 7/25/2023 | Tu | 12:06:34 | 17:40:17 | 13:38:42 | 13:44:49 | 14:32:43 | 6:32:29 | 2:23:58 | 7:10:04 | 3:42:32 |
| 7/25/2023 | Tu | | 22:07FQ | | | | | | | |
| 7/26/2023 | W | 12:06:34 | 18:25:54 | 13:40:24 | 13:40:08 | 14:31:05 | 6:29:02 | 2:19:49 | 7:06:14 | 3:38:33 |
| 7/27/2023 | Th | 12:06:34 | 19:16:10 | 13:41:57 | 13:35:17 | 14:29:26 | 6:25:35 | 2:15:41 | 7:02:25 | 3:34:34 |
| 7/28/2023 | F | 12:06:33 | 20:12:00 | 13:43:20 | 13:30:18 | 14:27:48 | 6:22:06 | 2:11:32 | 6:58:36 | 3:30:35 |
| 7/29/2023 | Sat | 12:06:31 | 21:13:15 | 13:44:34 | 13:25:10 | 14:26:10 | 6:18:37 | 2:07:23 | 6:54:46 | 3:26:37 |
| 7/30/2023 | Sun | 12:06:29 | 22:18:11 | 13:45:38 | 13:19:53 | 14:24:32 | 6:15:08 | 2:03:14 | 6:50:56 | 3:22:37 |
| 7/31/2023 | M | 12:06:26 | 23:23:38 | 13:46:34 | 13:14:28 | 14:22:54 | 6:11:38 | 1:59:04 | 6:47:06 | 3:18:38 |
| 8/1/2023 | Tu | 12:06:23 | 18:32FM | 13:47:20 | 13:08:54 | 14:21:15 | 6:08:07 | 1:54:55 | 6:43:15 | 3:14:39 |
| 8/2/2023 | W | 12:06:19 | 0:26:30 | 13:47:56 | 13:03:13 | 14:19:37 | 6:04:36 | 1:50:45 | 6:39:25 | 3:10:40 |
| 8/3/2023 | Th | 12:06:14 | 1:25:02 | 13:48:24 | 12:57:25 | 14:17:59 | 6:01:04 | 1:46:35 | 6:35:34 | 3:06:40 |
| 8/4/2023 | F | 12:06:09 | 2:19:08 | 13:48:42 | 12:51:29 | 14:16:20 | 5:57:32 | 1:42:24 | 6:31:43 | 3:02:41 |
| 8/5/2023 | Sat | 12:06:03 | 3:09:45 | 13:48:50 | 12:45:28 | 14:14:42 | 5:53:59 | 1:38:14 | 6:27:52 | 2:58:41 |
| 8/6/2023 | Sun | 12:05:57 | 3:58:17 | 13:48:48 | 12:39:21 | 14:13:04 | 5:50:25 | 1:34:03 | 6:24:01 | 2:54:41 |
| 8/7/2023 | M | 12:05:50 | 4:46:07 | 13:48:37 | 12:33:09 | 14:11:26 | 5:46:50 | 1:29:52 | 6:20:10 | 2:50:42 |
| 8/8/2023 | Tu | | 5:34:26 | | | | 5:43:15 | 1:25:41 | 6:16:18 | 2:46:42 |
| 8/8/2023 | Tu | 12:05:42 | 10:28LQ | 13:48:15 | 12:26:53 | 14:09:48 | | | | |
| 8/9/2023 | W | 12:05:34 | 6:24:05 | 13:47:43 | 12:20:33 | 14:08:10 | 5:39:40 | 1:21:30 | 6:12:26 | 2:42:42 |
| 8/10/2023 | Th | 12:05:25 | 7:15:23 | 13:47:00 | 12:14:11 | 14:06:32 | 5:36:03 | 1:17:18 | 6:08:34 | 2:38:42 |
| 8/11/2023 | F | 12:05:16 | 8:08:01 | 13:46:06 | 12:07:47 | 14:04:54 | 5:32:26 | 1:13:07 | 6:04:42 | 2:34:42 |
| 8/12/2023 | Sat | 12:05:06 | 9:01:01 | 13:45:00 | 12:01:22 | 14:03:16 | 5:28:48 | 1:08:55 | 6:00:50 | 2:30:41 |
| 8/13/2023 | Sun | 12:04:56 | 9:53:10 | 13:43:42 | 11:54:57 | 14:01:38 | 5:25:10 | 1:04:43 | 5:56:57 | 2:26:41 |
| 8/14/2023 | M | 12:04:45 | 10:43:16 | 13:42:12 | 11:48:33 | 14:00:00 | 5:21:31 | 1:00:31 | 5:53:04 | 2:22:41 |
| 8/15/2023 | Tu | 12:04:33 | 11:30:39 | 13:40:28 | 11:42:11 | 13:58:23 | 5:17:51 | 0:56:19 | 5:49:11 | 2:18:40 |
| 8/16/2023 | W | 12:04:21 | 9:38NM | | 11:35:51 | | 5:14:10 | 0:52:06 | 5:45:18 | 2:14:40 |
| 8/16/2023 | W | | 12:15:12 | 13:38:31 | | 13:56:45 | | | | |
| 8/17/2023 | Th | 12:04:09 | 12:57:18 | 13:36:19 | 11:29:35 | 13:55:08 | 5:10:29 | 0:47:54 | 5:41:25 | 2:10:39 |
| 8/18/2023 | F | 12:03:56 | 13:37:38 | 13:33:52 | 11:23:24 | 13:53:30 | 5:06:47 | 0:43:42 | 5:37:31 | 2:06:38 |
| 8/19/2023 | Sat | 12:03:42 | 14:17:08 | 13:31:09 | 11:17:17 | 13:51:53 | 5:03:04 | 0:39:29 | 5:33:37 | 2:02:37 |
| 8/20/2023 | Sun | 12:03:28 | 14:56:49 | 13:28:10 | 11:11:16 | 13:50:16 | 4:59:21 | 0:35:16 | 5:29:43 | 1:58:37 |
| 8/21/2023 | M | 12:03:14 | 15:37:48 | 13:24:53 | 11:05:22 | 13:48:39 | 4:55:37 | 0:31:04 | 5:25:49 | 1:54:36 |
| 8/22/2023 | Tu | 12:02:59 | 16:21:19 | 13:21:19 | 10:59:34 | 13:47:02 | 4:51:52 | 0:26:51 | 5:21:55 | 1:50:35 |
| 8/23/2023 | W | 12:02:43 | 17:08:33 | 13:17:26 | 10:53:55 | 13:45:25 | 4:48:06 | 0:22:38 | 5:18:00 | 1:46:34 |
| 8/24/2023 | Th | 12:02:27 | 9:57FQ | 13:13:13 | 10:48:23 | 13:43:48 | 4:44:20 | 0:18:25 | 5:14:05 | 1:42:33 |
| 8/24/2023 | Th | | 18:00:32 | | | | | | | |
| 8/25/2023 | F | 12:02:11 | 18:57:40 | 13:08:41 | 10:43:00 | 13:42:11 | 4:40:32 | 0:14:12 | 5:10:10 | 1:38:31 |
| 8/26/2023 | Sat | 12:01:54 | 19:59:11 | 13:03:49 | 10:37:45 | 13:40:35 | 4:36:44 | 0:09:59 | 5:06:15 | 1:34:30 |
| 8/27/2023 | Sun | 12:01:37 | 21:02:58 | 12:58:38 | 10:32:40 | 13:38:59 | 4:32:56 | 0:05:46 | 5:02:20 | 1:30:29 |

Ephemeris transit times plus phases of the Moon and the seasons.

All dates and times are UT1.

| Date | | Sun | Moon | Mercury | Venus | Mars | Jupiter | Saturn | Uranus | Neptune |
|------------|-----|----------|----------|----------|----------|----------|---------|----------|---------|----------|
| 8/28/2023 | M | 12:01:19 | 22:06:10 | 12:53:06 | 10:27:44 | 13:37:22 | 4:29:06 | 0:01:33 | 4:58:24 | 1:26:28 |
| 8/28/2023 | M | | | | | | | 23:57:20 | | |
| 8/29/2023 | Tu | 12:01:01 | 23:06:29 | 12:47:15 | 10:22:58 | 13:35:46 | 4:25:16 | 23:53:07 | 4:54:28 | 1:22:26 |
| 8/30/2023 | W | 12:00:43 | | 12:41:06 | 10:18:21 | 13:34:10 | 4:21:25 | 23:48:54 | 4:50:32 | 1:18:25 |
| 8/31/2023 | Th | | 0:03:00 | | | | | | | 1:14:23 |
| 8/31/2023 | Th | 12:00:24 | 1:36FM | 12:34:40 | 10:13:54 | 13:32:35 | 4:17:33 | 23:44:41 | 4:46:36 | |
| 9/1/2023 | F | 12:00:05 | 0:56:04 | 12:27:58 | 10:09:36 | 13:30:59 | 4:13:40 | 23:40:28 | 4:42:40 | 1:10:22 |
| 9/2/2023 | Sat | 11:59:46 | 1:46:47 | 12:21:05 | 10:05:28 | 13:29:24 | 4:09:47 | 23:36:16 | 4:38:43 | 1:06:20 |
| 9/3/2023 | Sun | 11:59:27 | 2:36:24 | 12:14:01 | 10:01:30 | 13:27:49 | 4:05:53 | 23:32:03 | 4:34:46 | 1:02:19 |
| 9/4/2023 | M | 11:59:07 | 3:26:08 | 12:06:51 | 9:57:42 | 13:26:14 | 4:01:58 | 23:27:50 | 4:30:49 | 0:58:17 |
| 9/5/2023 | Tu | 11:58:47 | 4:16:52 | 11:59:38 | 9:54:03 | 13:24:39 | 3:58:02 | 23:23:37 | 4:26:52 | 0:54:15 |
| 9/6/2023 | W | 11:58:27 | 5:09:02 | 11:52:27 | 9:50:32 | 13:23:04 | 3:54:06 | | 4:22:54 | 0:50:14 |
| 9/6/2023 | W | | 22:21LQ | | | | | 23:19:25 | | |
| 9/7/2023 | Th | 11:58:06 | 6:02:24 | 11:45:22 | 9:47:11 | 13:21:30 | 3:50:08 | 23:15:12 | 4:18:57 | 0:46:12 |
| 9/8/2023 | F | 11:57:46 | 6:56:09 | 11:38:27 | 9:43:59 | 13:19:56 | 3:46:10 | 23:11:00 | 4:14:59 | 0:42:10 |
| 9/9/2023 | Sat | 11:57:25 | 7:49:04 | 11:31:48 | 9:40:55 | 13:18:22 | 3:42:11 | 23:06:47 | 4:11:01 | 0:38:08 |
| 9/10/2023 | Sun | 11:57:04 | 8:40:00 | 11:25:27 | 9:38:00 | 13:16:48 | 3:38:11 | 23:02:35 | 4:07:03 | 0:34:07 |
| 9/11/2023 | M | 11:56:43 | 9:28:13 | 11:19:29 | 9:35:13 | 13:15:15 | 3:34:11 | 22:58:23 | 4:03:04 | 0:30:05 |
| 9/12/2023 | Tu | 11:56:22 | 10:13:34 | 11:13:58 | 9:32:33 | 13:13:42 | 3:30:10 | 22:54:11 | 3:59:06 | 0:26:03 |
| 9/13/2023 | W | 11:56:01 | 10:56:21 | 11:08:56 | 9:30:01 | 13:12:09 | 3:26:08 | 22:49:59 | 3:55:07 | 0:22:01 |
| 9/14/2023 | Th | 11:55:39 | 11:37:14 | 11:04:25 | 9:27:36 | 13:10:36 | 3:22:05 | 22:45:47 | 3:51:08 | 0:17:59 |
| 9/15/2023 | F | 11:55:18 | 1:40NM | 11:00:27 | 9:25:19 | | 3:18:01 | | 3:47:09 | 0:13:57 |
| 9/15/2023 | F | | 12:17:02 | | | 13:09:04 | | 22:41:36 | | |
| 9/16/2023 | Sat | 11:54:57 | 12:56:44 | 10:57:03 | 9:23:08 | 13:07:32 | 3:13:56 | 22:37:24 | 3:43:09 | 0:09:55 |
| 9/17/2023 | Sun | 11:54:35 | 13:37:22 | 10:54:14 | 9:21:04 | 13:06:00 | 3:09:51 | 22:33:13 | 3:39:10 | 0:05:53 |
| 9/18/2023 | M | 11:54:14 | 14:20:00 | 10:51:59 | 9:19:06 | 13:04:29 | 3:05:45 | 22:29:02 | 3:35:10 | 0:01:51 |
| 9/18/2023 | M | | | | | | | | | 23:57:49 |
| 9/19/2023 | Tu | 11:53:53 | 15:05:44 | 10:50:16 | 9:17:14 | 13:02:57 | 3:01:38 | 22:24:51 | 3:31:10 | 23:53:47 |
| 9/20/2023 | W | 11:53:31 | 15:55:29 | 10:49:06 | 9:15:28 | 13:01:26 | 2:57:31 | 22:20:41 | 3:27:10 | 23:49:45 |
| 9/21/2023 | Th | 11:53:10 | 16:49:45 | 10:48:25 | 9:13:47 | 12:59:56 | 2:53:23 | 22:16:30 | 3:23:09 | 23:45:44 |
| 9/22/2023 | F | 11:52:49 | 17:48:09 | 10:48:13 | 9:12:12 | 12:58:26 | 2:49:14 | | 3:19:09 | |
| 9/22/2023 | F | | 19:32FQ | | | | | 22:12:20 | | 23:41:42 |
| 9/23/2023 | Sat | 6:50SE | | 10:48:27 | 9:10:42 | | 2:45:04 | | 3:15:08 | |
| 9/23/2023 | Sat | 11:52:28 | 18:49:12 | | | 12:56:56 | | 22:08:10 | | 23:37:40 |
| 9/24/2023 | Sun | 11:52:07 | 19:50:37 | 10:49:04 | 9:09:17 | 12:55:26 | 2:40:53 | 22:04:00 | 3:11:07 | 23:33:38 |
| 9/25/2023 | M | 11:51:46 | 20:50:15 | 10:50:02 | 9:07:57 | 12:53:57 | 2:36:42 | 21:59:51 | 3:07:06 | 23:29:36 |
| 9/26/2023 | Tu | 11:51:25 | 21:46:54 | 10:51:18 | 9:06:41 | 12:52:28 | 2:32:30 | 21:55:41 | 3:03:05 | 23:25:34 |
| 9/27/2023 | W | 11:51:04 | 22:40:33 | 10:52:50 | 9:05:30 | 12:50:59 | 2:28:17 | 21:51:32 | 2:59:04 | 23:21:32 |
| 9/28/2023 | Th | 11:50:44 | 23:31:57 | 10:54:35 | 9:04:23 | 12:49:31 | 2:24:04 | 21:47:24 | 2:55:02 | 23:17:30 |
| 9/29/2023 | F | 11:50:24 | 9:58FM | 10:56:32 | 9:03:20 | 12:48:03 | 2:19:50 | 21:43:15 | 2:51:00 | 23:13:28 |
| 9/30/2023 | Sat | 11:50:04 | 0:22:16 | 10:58:38 | 9:02:20 | 12:46:35 | 2:15:35 | 21:39:07 | 2:46:58 | 23:09:26 |
| 10/1/2023 | Sun | 11:49:44 | 1:12:41 | 11:00:52 | 9:01:25 | 12:45:08 | 2:11:20 | 21:34:59 | 2:42:56 | 23:05:25 |
| 10/2/2023 | M | 11:49:25 | 2:04:12 | 11:03:11 | 9:00:33 | 12:43:41 | 2:07:04 | 21:30:51 | 2:38:54 | 23:01:23 |
| 10/3/2023 | Tu | 11:49:06 | 2:57:20 | 11:05:34 | 8:59:44 | 12:42:15 | 2:02:47 | 21:26:43 | 2:34:52 | 22:57:21 |
| 10/4/2023 | W | 11:48:47 | 3:51:57 | 11:08:00 | 8:58:59 | 12:40:49 | 1:58:30 | 21:22:36 | 2:30:49 | 22:53:19 |
| 10/5/2023 | Th | 11:48:29 | 4:47:11 | 11:10:29 | 8:58:16 | 12:39:23 | 1:54:12 | 21:18:29 | 2:26:46 | 22:49:18 |
| 10/6/2023 | F | 11:48:11 | 5:41:45 | 11:12:58 | 8:57:37 | 12:37:58 | 1:49:53 | | 2:22:44 | |
| 10/6/2023 | F | | 13:48LQ | | | | | 21:14:23 | | 22:45:16 |
| 10/7/2023 | Sat | 11:47:53 | 6:34:17 | 11:15:29 | 8:57:00 | 12:36:33 | 1:45:34 | 21:10:17 | 2:18:41 | 22:41:14 |
| 10/8/2023 | Sun | 11:47:36 | 7:23:54 | 11:17:59 | 8:56:26 | 12:35:09 | 1:41:14 | 21:06:11 | 2:14:38 | 22:37:13 |
| 10/9/2023 | M | 11:47:20 | 8:10:21 | 11:20:28 | 8:55:54 | 12:33:45 | 1:36:54 | 21:02:05 | 2:10:34 | 22:33:11 |
| 10/10/2023 | Tu | 11:47:03 | 8:53:58 | 11:22:57 | 8:55:25 | 12:32:21 | 1:32:33 | 20:58:00 | 2:06:31 | 22:29:10 |
| 10/11/2023 | W | 11:46:48 | 9:35:24 | 11:25:25 | 8:54:58 | 12:30:58 | 1:28:12 | 20:53:55 | 2:02:27 | 22:25:08 |

Ephemeris transit times plus phases of the Moon and the seasons.

All dates and times are UT1.

| Date | | Sun | Moon | Mercury | Venus | Mars | Jupiter | Saturn | Uranus | Neptune |
|--|-----|----------|----------|----------|---------|----------|----------|----------|----------|----------|
| ME= March Equinox, JS= June Solstice, SE= September Equinox, DS= December Solstice | | | | | | | | | | |
| 10/12/2023 | Th | 11:46:32 | 10:15:32 | 11:27:51 | 8:54:34 | 12:29:36 | 1:23:50 | 20:49:50 | 1:58:24 | 22:21:07 |
| 10/13/2023 | F | 11:46:18 | 10:55:21 | 11:30:17 | 8:54:11 | 12:28:14 | 1:19:27 | 20:45:46 | 1:54:20 | 22:17:06 |
| 10/14/2023 | Sat | 11:46:03 | 11:35:54 | 11:32:41 | 8:53:50 | 12:26:52 | 1:15:04 | | 1:50:16 | |
| 10/14/2023 | Sat | | 17:55NM | | | | | 20:41:42 | | 22:13:05 |
| 10/15/2023 | Sun | 11:45:50 | 12:18:14 | 11:35:03 | 8:53:31 | 12:25:31 | 1:10:41 | 20:37:38 | 1:46:12 | 22:09:03 |
| 10/16/2023 | M | 11:45:37 | 13:03:26 | 11:37:24 | 8:53:14 | 12:24:10 | 1:06:17 | 20:33:35 | 1:42:08 | 22:05:02 |
| 10/17/2023 | Tu | 11:45:24 | 13:52:24 | 11:39:44 | 8:52:59 | 12:22:50 | 1:01:53 | 20:29:32 | 1:38:03 | 22:01:01 |
| 10/18/2023 | W | 11:45:12 | 14:45:36 | 11:42:03 | 8:52:45 | 12:21:30 | 0:57:29 | 20:25:29 | 1:33:59 | 21:57:00 |
| 10/19/2023 | Th | 11:45:01 | 15:42:43 | 11:44:21 | 8:52:33 | 12:20:11 | 0:53:04 | 20:21:27 | 1:29:54 | 21:52:59 |
| 10/20/2023 | F | 11:44:50 | 16:42:26 | 11:46:37 | 8:52:22 | 12:18:52 | 0:48:38 | 20:17:25 | 1:25:50 | 21:48:58 |
| 10/21/2023 | Sat | 11:44:40 | 17:42:37 | 11:48:53 | 8:52:13 | 12:17:34 | 0:44:13 | 20:13:24 | 1:21:45 | 21:44:57 |
| 10/22/2023 | Sun | 11:44:31 | 3:29FQ | 11:51:08 | 8:52:05 | 12:16:16 | 0:39:47 | | 1:17:40 | |
| 10/22/2023 | Sun | | 18:41:12 | | | | | 20:09:23 | | 21:40:57 |
| 10/23/2023 | M | 11:44:22 | 19:36:56 | 11:53:22 | 8:51:58 | 12:14:59 | 0:35:21 | 20:05:22 | 1:13:35 | 21:36:56 |
| 10/24/2023 | Tu | 11:44:14 | 20:29:42 | 11:55:36 | 8:51:52 | 12:13:42 | 0:30:54 | 20:01:22 | 1:09:30 | 21:32:55 |
| 10/25/2023 | W | 11:44:06 | 21:20:11 | 11:57:49 | 8:51:48 | 12:12:26 | 0:26:28 | 19:57:22 | 1:05:25 | 21:28:55 |
| 10/26/2023 | Th | 11:43:59 | 22:09:30 | 12:00:02 | 8:51:45 | 12:11:10 | 0:22:01 | 19:53:22 | 1:01:20 | 21:24:54 |
| 10/27/2023 | F | 11:43:53 | 22:58:55 | 12:02:15 | 8:51:43 | 12:09:55 | 0:17:34 | 19:49:23 | 0:57:15 | 21:20:54 |
| 10/28/2023 | Sat | 11:43:48 | 20:24FM | 12:04:28 | 8:51:42 | 12:08:40 | 0:13:06 | 19:45:24 | 0:53:09 | 21:16:54 |
| 10/28/2023 | Sat | | 23:49:34 | | | | | | | |
| 10/29/2023 | Sun | 11:43:44 | | 12:06:41 | 8:51:42 | 12:07:26 | 0:08:39 | 19:41:26 | 0:49:04 | 21:12:54 |
| 10/30/2023 | M | 11:43:40 | 0:42:15 | 12:08:54 | 8:51:43 | 12:06:12 | 0:04:12 | 19:37:28 | 0:44:59 | 21:08:53 |
| 10/30/2023 | M | | | | | | 23:59:44 | | | |
| 10/31/2023 | Tu | 11:43:37 | 1:37:06 | 12:11:07 | 8:51:45 | 12:04:59 | 23:55:16 | 19:33:30 | 0:40:53 | 21:04:53 |
| 11/1/2023 | W | 11:43:35 | 2:33:26 | 12:13:21 | 8:51:48 | 12:03:46 | 23:50:49 | 19:29:33 | 0:36:47 | 21:00:53 |
| 11/2/2023 | Th | 11:43:33 | 3:29:49 | 12:15:36 | 8:51:52 | 12:02:34 | 23:46:21 | 19:25:36 | 0:32:42 | 20:56:54 |
| 11/3/2023 | F | 11:43:33 | 4:24:33 | 12:17:50 | 8:51:57 | 12:01:23 | 23:41:53 | 19:21:40 | 0:28:36 | 20:52:54 |
| 11/4/2023 | Sat | 11:43:33 | 5:16:19 | 12:20:06 | 8:52:03 | 12:00:12 | 23:37:25 | 19:17:44 | 0:24:30 | 20:48:54 |
| 11/5/2023 | Sun | | 6:04:33 | | | | | | 0:20:25 | |
| 11/5/2023 | Sun | 11:43:34 | 8:37LQ | 12:22:22 | 8:52:09 | 11:59:02 | 23:32:58 | 19:13:48 | | 20:44:55 |
| 11/6/2023 | M | 11:43:36 | 6:49:25 | 12:24:39 | 8:52:17 | 11:57:52 | 23:28:30 | 19:09:53 | 0:16:19 | 20:40:55 |
| 11/7/2023 | Tu | 11:43:39 | 7:31:35 | 12:26:56 | 8:52:25 | 11:56:43 | 23:24:03 | 19:05:58 | 0:12:13 | 20:36:56 |
| 11/8/2023 | W | 11:43:43 | 8:12:00 | 12:29:14 | 8:52:34 | 11:55:34 | 23:19:35 | 19:02:03 | 0:08:07 | 20:32:57 |
| 11/9/2023 | Th | 11:43:47 | 8:51:43 | 12:31:33 | 8:52:44 | 11:54:26 | 23:15:08 | 18:58:09 | 0:04:01 | 20:28:57 |
| 11/9/2023 | Th | | | | | | | | 23:59:55 | |
| 11/10/2023 | F | 11:43:52 | 9:31:51 | 12:33:53 | 8:52:55 | 11:53:19 | 23:10:41 | 18:54:16 | 23:55:49 | 20:24:58 |
| 11/11/2023 | Sat | 11:43:59 | 10:13:35 | 12:36:13 | 8:53:07 | 11:52:12 | 23:06:14 | 18:50:22 | 23:51:43 | 20:20:59 |
| 11/12/2023 | Sun | 11:44:06 | 10:58:03 | 12:38:34 | 8:53:19 | 11:51:06 | 23:01:48 | 18:46:29 | 23:47:37 | 20:17:01 |
| 11/13/2023 | M | 11:44:14 | 9:27NM | | 8:53:32 | | | | | |
| 11/13/2023 | M | | 11:46:19 | 12:40:55 | | 11:50:00 | 22:57:21 | 18:42:37 | 23:43:31 | 20:13:02 |
| 11/14/2023 | Tu | 11:44:23 | 12:39:03 | 12:43:17 | 8:53:46 | 11:48:55 | 22:52:55 | 18:38:45 | 23:39:25 | 20:09:03 |
| 11/15/2023 | W | 11:44:32 | 13:36:09 | 12:45:39 | 8:54:00 | 11:47:50 | 22:48:29 | 18:34:53 | 23:35:19 | 20:05:05 |
| 11/16/2023 | Th | 11:44:43 | 14:36:19 | 12:48:01 | 8:54:16 | 11:46:46 | 22:44:04 | 18:31:02 | 23:31:13 | 20:01:06 |
| 11/17/2023 | F | 11:44:54 | 15:37:15 | 12:50:23 | 8:54:32 | 11:45:43 | 22:39:39 | 18:27:11 | 23:27:07 | 19:57:08 |
| 11/18/2023 | Sat | 11:45:06 | 16:36:34 | 12:52:45 | 8:54:49 | 11:44:40 | 22:35:14 | 18:23:20 | 23:23:01 | 19:53:10 |
| 11/19/2023 | Sun | 11:45:19 | 17:32:40 | 12:55:05 | 8:55:06 | 11:43:38 | 22:30:49 | 18:19:30 | 23:18:56 | 19:49:12 |
| 11/20/2023 | M | 11:45:33 | 10:50FQ | 12:57:25 | 8:55:25 | 11:42:36 | | 18:15:40 | | |
| 11/20/2023 | M | | 18:25:15 | | | | 22:26:25 | | 23:14:50 | 19:45:14 |
| 11/21/2023 | Tu | 11:45:47 | 19:14:57 | 12:59:44 | 8:55:44 | 11:41:35 | 22:22:02 | 18:11:51 | 23:10:44 | 19:41:16 |
| 11/22/2023 | W | 11:46:03 | 20:02:55 | 13:02:00 | 8:56:04 | 11:40:35 | 22:17:39 | 18:08:02 | 23:06:38 | 19:37:18 |
| 11/23/2023 | Th | 11:46:19 | 20:50:32 | 13:04:14 | 8:56:25 | 11:39:35 | 22:13:16 | 18:04:14 | 23:02:32 | 19:33:21 |
| 11/24/2023 | F | 11:46:36 | 21:39:07 | 13:06:25 | 8:56:47 | 11:38:35 | 22:08:54 | 18:00:25 | 22:58:27 | 19:29:23 |
| 11/25/2023 | Sat | 11:46:53 | 22:29:44 | 13:08:33 | 8:57:10 | 11:37:37 | 22:04:32 | 17:56:37 | 22:54:21 | 19:25:26 |

Ephemeris transit times plus phases of the Moon and the seasons.

All dates and times are UT1.

| Date | | Sun | Moon | Mercury | Venus | Mars | Jupiter | Saturn | Uranus | Neptune |
|--|-----|----------|----------|----------|---------|----------|----------|----------|----------|----------|
| ME= March Equinox, JS= June Solstice, SE= September Equinox, DS= December Solstice | | | | | | | | | | |
| 11/26/2023 | Sun | 11:47:12 | 23:22:58 | 13:10:36 | 8:57:34 | 11:36:38 | 22:00:11 | 17:52:50 | 22:50:15 | 19:21:29 |
| 11/27/2023 | M | 11:47:31 | 9:16FM | 13:12:34 | 8:57:58 | 11:35:41 | 21:55:50 | 17:49:03 | 22:46:10 | 19:17:32 |
| 11/28/2023 | Tu | 11:47:51 | 0:18:37 | 13:14:25 | 8:58:23 | 11:34:44 | 21:51:30 | 17:45:16 | 22:42:04 | 19:13:35 |
| 11/29/2023 | W | 11:48:11 | 1:15:31 | 13:16:09 | 8:58:50 | 11:33:47 | 21:47:11 | 17:41:30 | 22:37:59 | 19:09:38 |
| 11/30/2023 | Th | 11:48:32 | 2:11:52 | 13:17:45 | 8:59:17 | 11:32:51 | 21:42:52 | 17:37:44 | 22:33:54 | 19:05:41 |
| 12/1/2023 | F | 11:48:54 | 3:05:49 | 13:19:10 | 8:59:45 | 11:31:56 | 21:38:33 | 17:33:58 | 22:29:48 | 19:01:44 |
| 12/2/2023 | Sat | 11:49:17 | 3:56:15 | 13:20:23 | 9:00:15 | 11:31:01 | 21:34:15 | 17:30:13 | 22:25:43 | 18:57:48 |
| 12/3/2023 | Sun | 11:49:40 | 4:42:55 | 13:21:23 | 9:00:45 | 11:30:07 | 21:29:58 | 17:26:28 | 22:21:38 | 18:53:52 |
| 12/4/2023 | M | 11:50:04 | 5:26:17 | 13:22:07 | 9:01:16 | 11:29:13 | 21:25:42 | 17:22:44 | 22:17:33 | 18:49:55 |
| 12/5/2023 | Tu | | 5:49LQ | | | | | | | |
| 12/5/2023 | Tu | 11:50:28 | 6:07:14 | 13:22:34 | 9:01:49 | 11:28:20 | 21:21:26 | 17:18:59 | 22:13:28 | 18:45:59 |
| 12/6/2023 | W | 11:50:53 | 6:46:51 | 13:22:39 | 9:02:22 | 11:27:27 | 21:17:11 | 17:15:16 | 22:09:23 | 18:42:03 |
| 12/7/2023 | Th | 11:51:19 | 7:26:18 | 13:22:21 | 9:02:57 | 11:26:35 | 21:12:56 | 17:11:32 | 22:05:19 | 18:38:07 |
| 12/8/2023 | F | 11:51:45 | 8:06:49 | 13:21:37 | 9:03:32 | 11:25:43 | 21:08:42 | 17:07:49 | 22:01:14 | 18:34:12 |
| 12/9/2023 | Sat | 11:52:11 | 8:49:40 | 13:20:23 | 9:04:09 | 11:24:52 | 21:04:29 | 17:04:06 | 21:57:09 | 18:30:16 |
| 12/10/2023 | Sun | 11:52:38 | 9:36:09 | 13:18:35 | 9:04:47 | 11:24:01 | 21:00:17 | 17:00:24 | 21:53:05 | 18:26:20 |
| 12/11/2023 | M | 11:53:06 | 10:27:16 | 13:16:11 | 9:05:26 | 11:23:11 | 20:56:05 | 16:56:42 | 21:49:01 | 18:22:25 |
| 12/12/2023 | Tu | 11:53:34 | 11:23:28 | 13:13:06 | 9:06:06 | 11:22:22 | 20:51:54 | 16:53:00 | 21:44:56 | 18:18:30 |
| 12/12/2023 | Tu | | 23:32NM | | | | | | | |
| 12/13/2023 | W | 11:54:02 | 12:24:00 | 13:09:17 | 9:06:47 | 11:21:33 | 20:47:44 | 16:49:19 | 21:40:52 | 18:14:35 |
| 12/14/2023 | Th | 11:54:30 | 13:26:40 | 13:04:41 | 9:07:29 | 11:20:44 | 20:43:34 | 16:45:37 | 21:36:48 | 18:10:40 |
| 12/15/2023 | F | 11:54:59 | 14:28:33 | 12:59:17 | 9:08:13 | 11:19:56 | 20:39:25 | 16:41:57 | 21:32:45 | 18:06:45 |
| 12/16/2023 | Sat | 11:55:28 | 15:27:17 | 12:53:03 | 9:08:57 | 11:19:08 | 20:35:17 | 16:38:16 | 21:28:41 | 18:02:50 |
| 12/17/2023 | Sun | 11:55:58 | 16:21:54 | 12:46:00 | 9:09:43 | 11:18:21 | 20:31:10 | 16:34:36 | 21:24:37 | 17:58:56 |
| 12/18/2023 | M | 11:56:27 | 17:12:45 | 12:38:11 | 9:10:30 | 11:17:34 | 20:27:04 | 16:30:56 | 21:20:34 | 17:55:01 |
| 12/19/2023 | Tu | 11:56:57 | 18:00:57 | 12:29:40 | 9:11:18 | 11:16:48 | | 16:27:17 | | 17:51:07 |
| 12/19/2023 | Tu | | 18:39FQ | | | | 20:22:58 | | 21:16:31 | |
| 12/20/2023 | W | 11:57:26 | 18:47:54 | 12:20:36 | 9:12:08 | 11:16:02 | 20:18:53 | 16:23:38 | 21:12:28 | 17:47:13 |
| 12/21/2023 | Th | 11:57:56 | 19:35:03 | 12:11:06 | 9:12:59 | 11:15:16 | 20:14:49 | 16:19:59 | 21:08:25 | 17:43:18 |
| 12/22/2023 | F | 3:27DS | | | 9:13:50 | 11:14:31 | | | | |
| 12/22/2023 | F | 11:58:26 | 20:23:39 | 12:01:21 | | | 20:10:46 | 16:16:20 | 21:04:22 | 17:39:24 |
| 12/23/2023 | Sat | 11:58:56 | 21:14:38 | 11:51:34 | 9:14:44 | 11:13:46 | 20:06:43 | 16:12:42 | 21:00:19 | 17:35:31 |
| 12/24/2023 | Sun | 11:59:25 | 22:08:16 | 11:41:55 | 9:15:38 | 11:13:01 | 20:02:42 | 16:09:04 | 20:56:17 | 17:31:37 |
| 12/25/2023 | M | 11:59:55 | 23:03:57 | 11:32:34 | 9:16:34 | 11:12:17 | 19:58:41 | 16:05:26 | 20:52:14 | 17:27:43 |
| 12/26/2023 | Tu | 12:00:25 | | 11:23:42 | 9:17:30 | 11:11:33 | 19:54:41 | 16:01:48 | 20:48:12 | 17:23:50 |
| 12/27/2023 | W | | 0:00:15 | | | | | | | |
| 12/27/2023 | W | 12:00:54 | 0:33FM | 11:15:24 | 9:18:28 | 11:10:50 | 19:50:41 | 15:58:11 | 20:44:10 | 17:19:57 |
| 12/28/2023 | Th | 12:01:24 | 0:55:15 | 11:07:47 | 9:19:28 | 11:10:07 | 19:46:43 | 15:54:34 | 20:40:08 | 17:16:03 |
| 12/29/2023 | F | 12:01:53 | 1:47:22 | 11:00:52 | 9:20:28 | 11:09:24 | 19:42:45 | 15:50:58 | 20:36:07 | 17:12:10 |
| 12/30/2023 | Sat | 12:02:22 | 2:35:49 | 10:54:41 | 9:21:30 | 11:08:41 | 19:38:48 | 15:47:21 | 20:32:05 | 17:08:17 |
| 12/31/2023 | Sun | 12:02:51 | 3:20:40 | 10:49:14 | 9:22:33 | 11:07:59 | 19:34:52 | 15:43:45 | 20:28:04 | 17:04:24 |

Twilight criterion is Sun 15.0 degrees below horizon.

ssorts.py ver 200806b + gglib version 231209a Delta-T data current 01/11/2024