

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=		2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m
Decl.=		42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 13m	-29d 31m
Offset=		10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkailinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
01/01/2018	M	23:57:07	19:11:31	20:15:41	21:43:03	22:21:24	22:24:01	23:02:01	23:06:43	23:51:42	0:08:59	0:49:46	0:55:55	3:18:26							
01/02/2018	Tu	23:57:35	19:07:35	20:11:45	21:39:07	22:17:28	22:20:05	22:58:06	23:02:47	23:47:46	0:05:03	0:45:50	0:51:59	3:14:30							
01/03/2018	W		19:03:39	20:07:49	21:35:11	22:13:32	22:16:09	22:54:10	22:58:51	23:43:50	0:01:07	0:41:54	0:48:04	3:10:34							
01/03/2018	W	23:58:02								23:57:11											
01/04/2018	Th	23:58:29	18:59:43	20:03:53	21:31:15	22:09:36	22:12:13	22:50:14	22:54:55	23:39:54	23:53:15	0:37:59	0:44:08	3:06:39							
01/05/2018	F	23:58:56	18:55:47	19:59:57	21:27:19	22:05:40	22:08:17	22:46:18	22:51:00	23:35:58	23:49:19	0:34:03	0:40:12	3:02:43	6:18:58						
01/06/2018	Sa	23:59:22	18:51:51	19:56:01	21:23:23	22:01:44	22:04:21	22:42:22	22:47:04	23:32:02	23:45:23	0:30:07	0:36:16	2:58:47	6:15:03						
01/07/2018	Su	23:59:47	18:47:55	19:52:05	21:19:27	21:57:48	22:00:25	22:38:26	22:43:08	23:28:06	23:41:27	0:26:11	0:32:20	2:54:51	6:11:07						
01/08/2018	M		18:43:59	19:48:09	21:15:31	21:53:52	21:56:29	22:34:30	22:39:12	23:24:10	23:37:32	0:22:15	0:28:24	2:50:55	6:07:11						
01/09/2018	Tu	0:00:12	18:40:03	19:44:13	21:11:36	21:49:56	21:52:33	22:30:34	22:35:16	23:20:14	23:33:36	0:18:19	0:24:28	2:46:59	6:03:15						
01/10/2018	W	0:00:37	18:36:07	19:40:17	21:07:40	21:46:00	21:48:37	22:26:38	22:31:20	23:16:18	23:29:40	0:14:23	0:20:32	2:43:03	5:59:19						
01/11/2018	Th	0:01:01	18:32:11	19:36:21	21:03:44	21:42:04	21:44:41	22:22:42	22:27:24	23:12:22	23:25:44	0:10:27	0:16:36	2:39:07	5:55:23						
01/12/2018	F	0:01:24	18:28:16	19:32:25	20:59:48	21:38:09	21:40:46	22:18:46	22:23:28	23:08:27	23:21:48	0:06:31	0:12:40	2:35:11	5:51:27						
01/13/2018	Sa	0:01:47	18:24:20	19:28:30	20:55:52	21:34:13	21:36:50	22:14:51	22:19:32	23:04:31	23:17:52	0:02:35	0:08:45	2:31:16	5:47:31						
01/13/2018	Sa										23:58:40										
01/14/2018	Su	0:02:09	18:20:24	19:24:34	20:51:56	21:30:17	21:32:54	22:10:55	22:15:36	23:00:35	23:13:56	23:54:44	0:04:49	2:27:20	5:43:36						
01/15/2018	M	0:02:31	18:16:28	19:20:38	20:48:00	21:26:21	21:28:58	22:06:59	22:11:41	22:56:39	23:10:00	23:50:48	0:00:53	2:23:24	5:39:40						
01/15/2018	M												23:56:57								
01/16/2018	Tu	0:02:52	18:12:32	19:16:42	20:44:04	21:22:25	21:25:02	22:03:03	22:07:45	22:52:43	23:06:04	23:46:52	23:53:01	2:19:28	5:35:44						
01/17/2018	W	0:03:12	18:08:36	19:12:46	20:40:08	21:18:29	21:21:06	21:59:07	22:03:49	22:48:47	23:02:08	23:42:56	23:49:05	2:15:32	5:31:48						
01/18/2018	Th	0:03:32	18:04:40	19:08:50	20:36:12	21:14:33	21:17:10	21:55:11	21:59:53	22:44:51	22:58:12	23:39:00	23:45:09	2:11:36	5:27:52						
01/19/2018	F	0:03:51	18:00:44	19:04:54	20:32:16	21:10:37	21:13:14	21:51:15	21:55:57	22:40:55	22:54:17	23:35:04	23:41:13	2:07:40	5:23:56	6:14:08					
01/20/2018	Sa	0:04:09	17:56:48	19:00:58	20:28:21	21:06:41	21:09:18	21:47:19	21:52:01	22:36:59	22:50:21	23:31:08	23:37:17	2:03:44	5:20:00	6:10:12					
01/21/2018	Su	0:04:26		18:57:02	20:24:25	21:02:45	21:05:22	21:43:23	21:48:05	22:33:03	22:46:25	23:27:12	23:33:21	1:59:48	5:16:04	6:06:16					
01/22/2018	M	0:04:43		18:53:06	20:20:29	20:58:49	21:01:26	21:39:27	21:44:09	22:29:07	22:42:29	23:23:16	23:29:26	1:55:53	5:12:09	6:02:20					
01/23/2018	Tu	0:04:58		18:49:10	20:16:33	20:54:53	20:57:30	21:35:31	21:40:13	22:25:12	22:38:33	23:19:21	23:25:30	1:51:57	5:08:13	5:58:24					
01/24/2018	W	0:05:13		18:45:14	20:12:37	20:50:58	20:53:35	21:31:36	21:36:17	22:21:16	22:34:37	23:15:25	23:21:34	1:48:01	5:04:17	5:54:28					
01/25/2018	Th	0:05:27		18:41:18	20:08:41	20:47:02	20:49:39	21:27:40	21:32:21	22:17:20	22:30:41	23:11:29	23:17:38	1:44:05	5:00:21	5:50:33					
01/26/2018	F	0:05:41		18:37:22	20:04:45	20:43:06	20:45:43	21:23:44	21:28:25	22:13:24	22:26:45	23:07:33	23:13:42	1:40:09	4:56:25	5:46:37					
01/27/2018	Sa	0:05:53		18:33:27	20:00:49	20:39:10	20:41:47	21:19:48	21:24:30	22:09:28	22:22:49	23:03:37	23:09:46	1:36:13	4:52:29	5:42:41					
01/28/2018	Su	0:06:05		18:29:31	19:56:53	20:35:14	20:37:51	21:15:52	21:20:34	22:05:32	22:18:53	22:59:41	23:05:50	1:32:17	4:48:33	5:38:45					
01/29/2018	M	0:06:16		18:25:35	19:52:57	20:31:18	20:33:55	21:11:56	21:16:38	22:01:36	22:14:57	22:55:45	23:01:54	1:28:21	4:44:37	5:34:49					
01/30/2018	Tu	0:06:26		18:21:39	19:49:01	20:27:22	20:29:59	21:08:00	21:12:42	21:57:40	22:11:01	22:51:49	22:57:58	1:24:25	4:40:42	5:30:53					
01/31/2018	W	0:06:35		18:17:43	19:45:05	20:23:26	20:26:03	21:04:04	21:08:46	21:53:44	22:07:06	22:47:53	22:54:02	1:20:30	4:36:46	5:26:57					
02/01/2018	Th	0:06:43		18:13:47	19:41:09	20:19:30	20:22:07	21:00:08	21:04:50	21:49:48	22:03:10	22:43:57	22:50:07	1:16:34	4:32:50	5:23:01					
02/02/2018	F	0:06:51			19:37:14	20:15:34	20:18:11	20:56:12	21:00:54	21:45:52	21:59:14	22:40:01	22:46:11	1:12:38	4:28:54	5:19:06					
02/03/2018	Sa	0:06:58			19:33:18	20:11:38	20:14:15	20:52:16	20:56:58	21:41:57	21:55:18	22:36:06	22:42:15	1:08:42	4:24:58	5:15:10					
02/04/2018	Su	0:07:04			19:29:22	20:07:42	20:10:19	20:48:20	20:53:02	21:38:01	21:51:22	22:32:10	22:38:19	1:04:46	4:21:02	5:11:14					
02/05/2018	M	0:07:09			19:25:26	20:03:47	20:06:23	20:44:25	20:49:06	21:34:05	21:47:26	22:28:14	22:34:23	1:00:50	4:17:06	5:07:18					
02/06/2018	Tu	0:07:13			19:21:30	19:59:51	20:02:28	20:40:29	20:45:10	21:30:09	21:43:30	22:24:18	22:30:27	0:56:54	4:13:10	5:03:22					
02/07/2018	W	0:07:17			19:17:34	19:55:55	19:58:32	20:36:33	20:41:14	21:26:13	21:39:34	22:20:22	22:26:31	0:52:58	4:09:14	4:59:26					
02/08/2018	Th	0:07:20			19:13:38	19:51:59	19:54:36	20:32:37	20:37:18	21:22:17	21:35:38	22:16:26	22:22:35	0:49:02	4:05:19	4:55:30					
02/09/2018	F	0:07:22			19:09:42	19:48:03	19:50:40	20:28:41	20:33:23	21:18:21	21:31:42	22:12:30	22:18:39	0:45:07	4:01:23	4:51:34					
02/10/2018	Sa	0:07:23			19:05:46	19:44:07	19:46:44	20:24:45	20:29:27	21:14:25	21:27:46	22:08:34	22:14:43	0:41:11	3:57:27	4:47:39					
02/11/2018	Su	0:07:23			19:01:50	19:40:11	19:42:48	20:20:49	20:25:31	21:10:29	21:23:50	22:04:38	22:10:47	0:37:15	3:53:31	4:43:43					
02/12/2018	M	0:07:23			18:57:54	19:36:15	19:38:52	20:16:53	20:21:35	21:06:33	21:19:55	22:00:42	22:06:52	0:33:19	3:49:35	4:39:47					
02/13/2018	Tu	0:07:22			18:53:58	19:32:19	19:34:56	20:12:57	20:17:39	21:02:37	21:15:59	21:56:46	22:02:56	0:29:23	3:45:39	4:35:51					
02/14/2018	W	0:07:20			18:50:02	19:28:23	19:31:00	20:09:01	20:13:43	20:58:41	21:12:03	21:52:51	21:59:00	0:25:27	3:41:43	4:31:55					
02/15/2018	Th	0:07:18			18:46:07	19:24:27	19:27:04	20:05:05	20:09:47	20:54:46	21:08:07	21:48:55	21:55:04	0:21:31	3:37:47	4:27:59					
02/16/2018	F	0:07:15			18:42:11	19:20:31	19:23:08	20:01:09	20:05:51	20:50:50	21:04:11	21:44:59	21:51:08	0:17:35	3:33:52	4:24:03					
02/17/2018	Sa	0:07:11			18:38:15	19:16:35	19:19:12	19:57:14	20:01:55	20:46:54	21:00:15	21:41:03	21:47:12	0:13:39	3:29:56	4:20:07					
02/18/2018	Su	0:07:06			18:34:19	19:12:40	19:15:16	19:53:18	19:57:59	20:42:58	20:56:19	21:37:07	21:43:16	0:09:43	3						

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=-	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
02/21/2018	W	0:06:49			19:00:52	19:03:29	19:41:30	19:46:11	20:31:10	20:44:31	21:25:19	21:31:28	23:54:00	3:14:12	4:04:24						
02/22/2018	Th	0:06:41			18:56:56	18:59:33	19:37:34	19:42:16	20:27:14	20:40:35	21:21:23	21:27:32	23:50:04	3:10:16	4:00:28						
02/23/2018	F	0:06:33			18:53:00	18:55:37	19:33:38	19:38:20	20:23:18	20:36:39	21:17:27	21:23:36	23:46:08	3:06:20	3:56:32						
02/24/2018	Sa	0:06:25			18:49:04	18:51:41	19:29:42	19:34:24	20:19:22	20:32:44	21:13:31	21:19:41	23:42:12	3:02:25	3:52:36						
02/25/2018	Su	0:06:16			18:45:08	18:47:45	19:25:46	19:30:28	20:15:26	20:28:48	21:09:35	21:15:45	23:38:16	2:58:29	3:48:40						
02/26/2018	M	0:06:06			18:41:12	18:43:49	19:21:50	19:26:32	20:11:30	20:24:52	21:05:40	21:11:49	23:34:20	2:54:33	3:44:44						
02/27/2018	Tu	0:05:56					19:17:54	19:22:36	20:07:34	20:20:56	21:01:44	21:07:53	23:30:24	2:50:37	3:40:49						
02/28/2018	W	0:05:45			19:13:58	19:18:40	19:13:58	19:18:40	20:03:39	20:17:00	20:57:48	21:03:57	23:26:29	2:46:41	3:36:53						
03/01/2018	Th	0:05:33			19:10:02	19:14:44	19:10:02	19:14:44	19:59:43	20:13:04	20:53:52	21:00:01	23:22:33	2:42:45	3:32:57						
03/02/2018	F	0:05:21			19:06:07	19:10:48	19:06:07	19:10:48	19:55:47	20:09:08	20:49:56	20:56:05	23:18:37	2:38:49	3:29:01						
03/03/2018	Sa	0:05:09			19:02:11	19:06:52	19:02:11	19:06:52	19:51:51	20:05:12	20:46:00	20:52:09	23:14:41	2:34:53	3:25:05						
03/04/2018	Su	0:04:56			18:58:15	19:02:56	18:58:15	19:02:56	19:47:55	20:01:16	20:42:04	20:48:13	23:10:45	2:30:57	3:21:09						
03/05/2018	M	0:04:43			18:54:19	18:59:00	18:54:19	18:59:00	19:43:59	19:57:20	20:38:08	20:44:17	23:06:49	2:27:02	3:17:13						
03/06/2018	Tu	0:04:29					18:55:04	18:55:04	19:40:03	19:53:24	20:34:12	20:40:21	23:02:53	2:23:06	3:13:17						
03/07/2018	W	0:04:15							19:36:07	19:49:28	20:30:16	20:36:25	22:58:57	2:19:10	3:09:22						
03/08/2018	Th	0:04:00							19:32:11	19:45:32	20:26:20	20:32:30	22:55:01	2:15:14	3:05:26						
03/09/2018	F	0:03:45							19:28:15	19:41:36	20:22:24	20:28:34	22:51:05	2:11:18	3:01:30						
03/10/2018	Sa	0:03:30							19:24:19	19:37:41	20:18:29	20:24:38	22:47:10	2:07:22	2:57:34	5:11:13					
03/11/2018	Su	0:03:15							19:20:23	19:33:45	20:14:33	20:20:42	22:43:14	2:03:26	2:53:38	5:07:17					
03/12/2018	M	0:02:59							19:16:27	19:29:49	20:10:37	20:16:46	22:39:18	1:59:30	2:49:42	5:03:22					
03/13/2018	Tu	0:02:43							19:12:32	19:25:53	20:06:41	20:12:50	22:35:22	1:55:34	2:45:46	4:59:26					
03/14/2018	W	0:02:26							19:08:36	19:21:57	20:02:45	20:08:54	22:31:26	1:51:39	2:41:50	4:55:30					
03/15/2018	Th	0:02:10							19:04:40	19:18:01	19:58:49	20:04:58	22:27:30	1:47:43	2:37:54	4:51:34					
03/16/2018	F	0:01:53								19:14:05	19:54:53	20:01:02	22:23:34	1:43:47	2:33:59	4:47:38					
03/17/2018	Sa	0:01:36							19:10:09	19:50:57	19:57:06	22:19:38	1:39:51	2:30:03	4:43:42						
03/18/2018	Su	0:01:19							19:06:13	19:47:01	19:53:10	22:15:42	1:35:55	2:26:07	4:39:46						
03/19/2018	M	0:01:01								19:43:05	19:49:14	22:11:46	1:31:59	2:22:11	4:35:50						
03/20/2018	Tu	0:00:44								19:39:09	19:45:19	22:07:50	1:28:03	2:18:15	4:31:55						
03/21/2018	W	0:00:26								19:35:13	19:41:23	22:03:55	1:24:07	2:14:19	4:27:59						
03/22/2018	Th	0:00:08								19:31:17	19:37:27	21:59:59	1:20:11	2:10:23	4:24:03						
03/22/2018	Th	23:59:50																			
03/23/2018	F	23:59:32									19:27:22	19:33:31	21:56:03	1:16:16	2:06:27	4:20:07					
03/24/2018	Sa	23:59:14									19:23:26	19:29:35	21:52:07	1:12:20	2:02:32	4:16:11					
03/25/2018	Su	23:58:56									19:19:30	19:25:39	21:48:11	1:08:24	1:58:36	4:12:15					
03/26/2018	M	23:58:38										19:21:43	21:44:15	1:04:28	1:54:40	4:08:19					
03/27/2018	Tu	23:58:19										19:17:47	21:40:19	1:00:32	1:50:44	4:04:23					
03/28/2018	W	23:58:01											21:36:23	0:56:36	1:46:48	4:00:28					
03/29/2018	Th	23:57:43											21:32:27	0:52:40	1:42:52	3:56:32					
03/30/2018	F	23:57:25											21:28:31	0:48:44	1:38:56	3:52:36					
03/31/2018	Sa	23:57:07											21:24:35	0:44:48	1:35:00	3:48:40					
04/01/2018	Su	23:56:49											21:20:39	0:40:53	1:31:04	3:44:44					
04/02/2018	M	23:56:32											21:16:44	0:36:57	1:27:09	3:40:48					
04/03/2018	Tu	23:56:14											21:12:48	0:33:01	1:23:13	3:36:52					
04/04/2018	W	23:55:57											21:08:52	0:29:05	1:19:17	3:32:56					
04/05/2018	Th	23:55:39											21:04:56	0:25:09	1:15:21	3:29:01					
04/06/2018	F	23:55:22											21:01:00	0:21:13	1:11:25	3:25:05					
04/07/2018	Sa	23:55:06											20:57:04	0:17:17	1:07:29	3:21:09					
04/08/2018	Su	23:54:49											20:53:08	0:13:21	1:03:33	3:17:13					
04/09/2018	M	23:54:33											20:49:12	0:09:25	0:59:37	3:13:17					
04/10/2018	Tu	23:54:17											20:45:16	0:05:29	0:55:41	3:09:21					
04/11/2018	W	23:54:01											20:41:20	0:01:34	0:51:45	3:05:25					
04/11/2018	W													23:57:38							
04/12/2018	Th	23:53:46											20:37:24	23:53:42	0:47:50	3:01:29					
04/13/2018	F	23:53:31											20:33:28	23:49:46	0:43:54	2:57:33					
04/14/2018	Sa	23:53:17											20:29:33	23:45:50	0:39:58	2:53:38					

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date=	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
04/15/2018	Su	23:53:02											20:25:37	23:41:54	0:36:02	2:49:42					
04/16/2018	M	23:52:48											20:21:41	23:37:58	0:32:06	2:45:46					
04/17/2018	Tu	23:52:35											20:17:45	23:34:02	0:28:10	2:41:50					
04/18/2018	W	23:52:22											20:13:49	23:30:06	0:24:14	2:37:54					
04/19/2018	Th	23:52:09											20:09:53	23:26:10	0:20:18	2:33:58					
04/20/2018	F	23:51:57											20:05:57	23:22:15	0:16:22	2:30:02					
04/21/2018	Sa	23:51:45											20:02:01	23:18:19	0:12:27	2:26:06					
04/22/2018	Su	23:51:33											19:58:05	23:14:23	0:08:31	2:22:11					
04/23/2018	M	23:51:22												23:10:27	0:04:35	2:18:15					
04/24/2018	Tu	23:51:12												23:06:31	0:00:39	2:14:19					
04/24/2018	Tu														23:56:43						
04/25/2018	W	23:51:02												23:02:35	23:52:47	2:10:23					
04/26/2018	Th	23:50:52												22:58:39	23:48:51	2:06:27					
04/27/2018	F	23:50:43												22:54:43	23:44:55	2:02:31					
04/28/2018	Sa	23:50:34												22:50:47	23:40:59	1:58:35					
04/29/2018	Su	23:50:26												22:46:51	23:37:03	1:54:39					
04/30/2018	M	23:50:18												22:42:56	23:33:08	1:50:43					
05/01/2018	Tu	23:50:11												22:39:00	23:29:12	1:46:48					
05/02/2018	W	23:50:05												22:35:04	23:25:16	1:42:52					
05/03/2018	Th	23:49:59												22:31:08	23:21:20	1:38:56					
05/04/2018	F	23:49:53												22:27:12	23:17:24	1:35:00					
05/05/2018	Sa	23:49:49												22:23:16	23:13:28	1:31:04					
05/06/2018	Su	23:49:44												22:19:20	23:09:32	1:27:08					
05/07/2018	M	23:49:41												22:15:24	23:05:36	1:23:12					
05/08/2018	Tu	23:49:38												22:11:28	23:01:40	1:19:16					
05/09/2018	W	23:49:35												22:07:32	22:57:44	1:15:20					
05/10/2018	Th	23:49:33												22:03:36	22:53:48	1:11:25	3:18:05				
05/11/2018	F	23:49:32												21:59:41	22:49:53	1:07:29	3:14:10				
05/12/2018	Sa	23:49:31												21:55:45	22:45:57	1:03:33	3:10:14				
05/13/2018	Su	23:49:31												21:51:49	22:42:01	0:59:37	3:06:18				
05/14/2018	M	23:49:32												21:47:53	22:38:05	0:55:41	3:02:22				
05/15/2018	Tu	23:49:33												21:43:57	22:34:09	0:51:45	2:58:26				
05/16/2018	W	23:49:34												21:40:01	22:30:13	0:47:49	2:54:30				
05/17/2018	Th	23:49:36												21:36:05	22:26:17	0:43:53	2:50:34				
05/18/2018	F	23:49:39												21:32:09	22:22:21	0:39:57	2:46:38				
05/19/2018	Sa	23:49:42												21:28:13	22:18:25	0:36:02	2:42:43				
05/20/2018	Su	23:49:46												21:24:17	22:14:29	0:32:06	2:38:47				
05/21/2018	M	23:49:50												21:20:21	22:10:33	0:28:10	2:34:51				
05/22/2018	Tu	23:49:55												21:16:25	22:06:38	0:24:14	2:30:55				
05/23/2018	W	23:50:00												21:12:30	22:02:42	0:20:18	2:26:59				
05/24/2018	Th	23:50:06												21:08:34	21:58:46	0:16:22	2:23:03				
05/25/2018	F	23:50:12												21:04:38	21:54:50	0:12:26	2:19:07				
05/26/2018	Sa	23:50:19												21:00:42	21:50:54	0:08:30	2:15:11				
05/27/2018	Su	23:50:26												20:56:46	21:46:58	0:04:34	2:11:15				
05/28/2018	M	23:50:33												20:52:50	21:43:02	0:00:39	2:07:20				
05/28/2018	M															23:56:43					
05/29/2018	Tu	23:50:41												20:48:54	21:39:06	23:52:47	2:03:24				
05/30/2018	W	23:50:50													21:35:10	23:48:51	1:59:28				
05/31/2018	Th	23:50:59													21:31:14	23:44:55	1:55:32				
06/01/2018	F	23:51:08													21:27:18	23:40:59	1:51:36				
06/02/2018	Sa	23:51:18													21:23:23	23:37:03	1:47:40				
06/03/2018	Su	23:51:28													21:19:27	23:33:07	1:43:44				
06/04/2018	M	23:51:38													21:15:31	23:29:11	1:39:48				
06/05/2018	Tu	23:51:49													21:11:35	23:25:15	1:35:52				
06/06/2018	W	23:52:00													21:07:39	23:21:20	1:31:57	2:45:51			

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
06/07/2018	Th	23:52:11													21:03:43	23:17:24	1:28:01	2:41:55			
06/08/2018	F	23:52:23													20:59:47	23:13:28	1:24:05	2:37:59			
06/09/2018	Sa	23:52:35														23:09:32	1:20:09	2:34:03			
06/10/2018	Su	23:52:47														23:05:36	1:16:13	2:30:07			
06/11/2018	M	23:52:59														23:01:40	1:12:17	2:26:11			
06/12/2018	Tu	23:53:12														22:57:44	1:08:21	2:22:15			
06/13/2018	W	23:53:25														22:53:48	1:04:25	2:18:20			
06/14/2018	Th	23:53:38														22:49:52	1:00:29	2:14:24			
06/15/2018	F	23:53:51														22:45:56	0:56:34	2:10:28	2:41:36		
06/16/2018	Sa	23:54:04														22:42:01	0:52:38	2:06:32	2:37:40		
06/17/2018	Su	23:54:17														22:38:05	0:48:42	2:02:36	2:33:44		
06/18/2018	M	23:54:30														22:34:09	0:44:46	1:58:40	2:29:48		
06/19/2018	Tu	23:54:43														22:30:13	0:40:50	1:54:44	2:25:52	2:44:59	
06/20/2018	W	23:54:56														22:26:17	0:36:54	1:50:48	2:21:56	2:41:03	
06/21/2018	Th	23:55:09														22:22:21	0:32:58	1:46:52	2:18:00	2:37:08	
06/22/2018	F	23:55:22														22:18:25	0:29:02	1:42:57	2:14:04	2:33:12	
06/23/2018	Sa	23:55:35														22:14:29	0:25:06	1:39:01	2:10:09	2:29:16	
06/24/2018	Su	23:55:48														22:10:33	0:21:10	1:35:05	2:06:13	2:25:20	
06/25/2018	M	23:56:00														22:06:37	0:17:15	1:31:09	2:02:17	2:21:24	
06/26/2018	Tu	23:56:13														22:02:41	0:13:19	1:27:13	1:58:21	2:17:28	
06/27/2018	W	23:56:25														21:58:46	0:09:23	1:23:17	1:54:25	2:13:32	
06/28/2018	Th	23:56:37														21:54:50	0:05:27	1:19:21	1:50:29	2:09:36	
06/29/2018	F	23:56:49														21:50:54	0:01:31	1:15:25	1:46:33	2:05:40	
06/29/2018	F																23:57:35				
06/30/2018	Sa	23:57:01														21:46:58	23:53:39	1:11:29	1:42:37	2:01:45	
07/01/2018	Su	23:57:12														21:43:02	23:49:43	1:07:33	1:38:41	1:57:49	
07/02/2018	M	23:57:23														21:39:06	23:45:47	1:03:38	1:34:46	1:53:53	
07/03/2018	Tu	23:57:34														21:35:10	23:41:51	0:59:42	1:30:50	1:49:57	
07/04/2018	W	23:57:45														21:31:14	23:37:56	0:55:46	1:26:54	1:46:01	
07/05/2018	Th	23:57:55														21:27:18	23:34:00	0:51:50	1:22:58	1:42:05	
07/06/2018	F	23:58:05														21:23:22	23:30:04	0:47:54	1:19:02	1:38:09	
07/07/2018	Sa	23:58:14														21:19:26	23:26:08	0:43:58	1:15:06	1:34:13	
07/08/2018	Su	23:58:23														21:15:31	23:22:12	0:40:02	1:11:10	1:30:17	
07/09/2018	M	23:58:32														21:11:35	23:18:16	0:36:06	1:07:14	1:26:22	
07/10/2018	Tu	23:58:40														21:07:39	23:14:20	0:32:10	1:03:18	1:22:26	
07/11/2018	W	23:58:48														21:03:43	23:10:24	0:28:15	0:59:23	1:18:30	
07/12/2018	Th	23:58:56														20:59:47	23:06:28	0:24:19	0:55:27	1:14:34	
07/13/2018	F	23:59:03														20:55:51	23:02:32	0:20:23	0:51:31	1:10:38	
07/14/2018	Sa	23:59:09														22:58:36	0:16:27	0:47:35	1:06:42		
07/15/2018	Su	23:59:15														22:54:41	0:12:31	0:43:39	1:02:46		
07/16/2018	M	23:59:21														22:50:45	0:08:35	0:39:43	0:58:50		
07/17/2018	Tu	23:59:26														22:46:49	0:04:39	0:35:47	0:54:54		
07/18/2018	W															22:42:53	0:00:43	0:31:51	0:50:58	3:07:11	
07/18/2018	W	23:59:30															23:56:47				
07/19/2018	Th	23:59:34														22:38:57	23:52:51	0:27:55	0:47:03	3:03:15	
07/20/2018	F	23:59:37														22:35:01	23:48:56	0:23:59	0:43:07	2:59:19	
07/21/2018	Sa	23:59:39														22:31:05	23:45:00	0:20:04	0:39:11	2:55:23	
07/22/2018	Su	23:59:41														22:27:09	23:41:04	0:16:08	0:35:15	2:51:27	
07/23/2018	M	23:59:43														22:23:13	23:37:08	0:12:12	0:31:19	2:47:31	
07/24/2018	Tu	23:59:44														22:19:17	23:33:12	0:08:16	0:27:23	2:43:36	
07/25/2018	W	23:59:44														22:15:21	23:29:16	0:04:20	0:23:27	2:39:40	
07/26/2018	Th															22:11:25	23:25:20	0:00:24	0:19:31	2:35:44	
07/26/2018	Th	23:59:43																23:56:28			
07/27/2018	F	23:59:42														22:07:30	23:21:24	23:52:32	0:15:35	2:31:48	
07/28/2018	Sa	23:59:41														22:03:34	23:17:28	23:48:36	0:11:39	2:27:52	

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
07/29/2018	Su	23:59:38															21:59:38	23:13:32	23:44:40	0:07:44	2:23:56
07/30/2018	M	23:59:36															21:55:42	23:09:36	23:40:45	0:03:48	2:20:00
07/30/2018	M																			23:59:52	
07/31/2018	Tu	23:59:32															21:51:46	23:05:41	23:36:49	23:55:56	2:16:04
08/01/2018	W	23:59:28															21:47:50	23:01:45	23:32:53	23:52:00	2:12:08
08/02/2018	Th	23:59:24															21:43:54	22:57:49	23:28:57	23:48:04	2:08:13
08/03/2018	F	23:59:18															21:39:58	22:53:53	23:25:01	23:44:08	2:04:17
08/04/2018	Sa	23:59:13															21:36:02	22:49:57	23:21:05	23:40:12	2:00:21
08/05/2018	Su	23:59:06															21:32:06	22:46:01	23:17:09	23:36:16	1:56:25
08/06/2018	M	23:58:59															21:28:10	22:42:05	23:13:13	23:32:20	1:52:29
08/07/2018	Tu	23:58:52															21:24:14	22:38:09	23:09:17	23:28:25	1:48:33
08/08/2018	W	23:58:44															21:20:19	22:34:13	23:05:21	23:24:29	1:44:37
08/09/2018	Th	23:58:35															21:16:23	22:30:17	23:01:25	23:20:33	1:40:41
08/10/2018	F	23:58:26															21:12:27	22:26:22	22:57:30	23:16:37	1:36:46
08/11/2018	Sa	23:58:16															21:08:31	22:22:26	22:53:34	23:12:41	1:32:50
08/12/2018	Su	23:58:06															21:04:35	22:18:30	22:49:38	23:08:45	1:28:54
08/13/2018	M	23:57:55															21:00:39	22:14:34	22:45:42	23:04:49	1:24:58
08/14/2018	Tu	23:57:44															20:56:43	22:10:38	22:41:46	23:00:53	1:21:02
08/15/2018	W	23:57:32															20:52:47	22:06:42	22:37:50	22:56:57	1:17:06
08/16/2018	Th	23:57:19															20:48:51	22:02:46	22:33:54	22:53:01	1:13:10
08/17/2018	F	23:57:06															20:44:55	21:58:50	22:29:58	22:49:05	1:09:14
08/18/2018	Sa	23:56:52															20:40:59	21:54:54	22:26:02	22:45:10	1:05:18
08/19/2018	Su	23:56:38															20:37:03	21:50:58	22:22:06	22:41:14	1:01:23
08/20/2018	M	23:56:24															20:33:07	21:47:02	22:18:10	22:37:18	0:57:27
08/21/2018	Tu	23:56:09															20:29:12	21:43:07	22:14:15	22:33:22	0:53:31
08/22/2018	W	23:55:53	3:55:26														20:25:16	21:39:11	22:10:19	22:29:26	0:49:35
08/23/2018	Th	23:55:37	3:51:31														20:21:20	21:35:15	22:06:23	22:25:30	0:45:39
08/24/2018	F	23:55:21	3:47:35														20:17:24	21:31:19	22:02:27	22:21:34	0:41:43
08/25/2018	Sa	23:55:04	3:43:39														20:13:28	21:27:23	21:58:31	22:17:38	0:37:47
08/26/2018	Su	23:54:47	3:39:43														20:09:32	21:23:27	21:54:35	22:13:42	0:33:51
08/27/2018	M	23:54:29	3:35:47														20:05:36	21:19:31	21:50:39	22:09:46	0:29:55
08/28/2018	Tu	23:54:11	3:31:51														20:01:40	21:15:35	21:46:43	22:05:50	0:25:59
08/29/2018	W	23:53:53	3:27:55														19:57:44	21:11:39	21:42:47	22:01:54	0:22:04
08/30/2018	Th	23:53:34	3:23:59														19:53:48	21:07:43	21:38:51	21:57:59	0:18:08
08/31/2018	F	23:53:16	3:20:04														19:49:52	21:03:47	21:34:55	21:54:03	0:14:12
09/01/2018	Sa	23:52:56	3:16:08														19:45:56	20:59:51	21:30:59	21:50:07	0:10:16
09/02/2018	Su	23:52:37	3:12:12														19:42:00	20:55:56	21:27:04	21:46:11	0:06:20
09/03/2018	M	23:52:17	3:08:16	4:12:25													19:38:05	20:52:00	21:23:08	21:42:15	0:02:24
09/03/2018	M																			23:58:28	
09/04/2018	Tu	23:51:57	3:04:20	4:08:29													19:34:09	20:48:04	21:19:12	21:38:19	23:54:32
09/05/2018	W	23:51:37	3:00:24	4:04:33													19:30:13	20:44:08	21:15:16	21:34:23	23:50:36
09/06/2018	Th	23:51:17	2:56:28	4:00:38													19:26:17	20:40:12	21:11:20	21:30:27	23:46:41
09/07/2018	F	23:50:57	2:52:32	3:56:42														20:36:16	21:07:24	21:26:31	23:42:45
09/08/2018	Sa	23:50:36	2:48:37	3:52:46														20:32:20	21:03:28	21:22:35	23:38:49
09/09/2018	Su	23:50:15	2:44:41	3:48:50														20:28:24	20:59:32	21:18:39	23:34:53
09/10/2018	M	23:49:54	2:40:45	3:44:54														20:24:28	20:55:36	21:14:43	23:30:57
09/11/2018	Tu	23:49:33	2:36:49	3:40:58														20:20:32	20:51:40	21:10:48	23:27:01
09/12/2018	W	23:49:12	2:32:53	3:37:02														20:16:36	20:47:44	21:06:52	23:23:05
09/13/2018	Th	23:48:51	2:28:57	3:33:06														20:12:40	20:43:48	21:02:56	23:19:09
09/14/2018	F	23:48:29	2:25:01	3:29:11														20:08:45	20:39:52	20:59:00	23:15:13
09/15/2018	Sa	23:48:08	2:21:05	3:25:15														20:04:49	20:35:57	20:55:04	23:11:17
09/16/2018	Su	23:47:47	2:17:10	3:21:19														20:00:53	20:32:01	20:51:08	23:07:21
09/17/2018	M	23:47:25	2:13:14	3:17:23														19:56:57	20:28:05	20:47:12	23:03:26
09/18/2018	Tu	23:47:04	2:09:18	3:13:27														19:53:01	20:24:09	20:43:16	22:59:30
09/19/2018	W	23:46:42	2:05:22	3:09:31														19:49:05	20:20:13	20:39:20	22:55:34

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 09m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkailinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
11/12/2018	M	23:37:26	22:29:08	23:33:18	1:04:35	1:42:55	1:45:33	2:23:33	2:28:15	3:13:12	3:26:33	4:07:21	4:13:31								19:23:14
11/13/2018	Tu	23:37:35	22:25:12	23:29:22	1:00:39	1:38:59	1:41:37	2:19:37	2:24:20	3:09:16	3:22:37	4:03:25	4:09:35								19:19:18
11/14/2018	W	23:37:45	22:21:16	23:25:26	0:56:43	1:35:03	1:37:41	2:15:41	2:20:24	3:05:21	3:18:41	3:59:29	4:05:39								19:15:23
11/15/2018	Th	23:37:55	22:17:20	23:21:30	0:52:47	1:31:07	1:33:45	2:11:45	2:16:28	3:01:25	3:14:46	3:55:34	4:01:43								19:11:27
11/16/2018	F	23:38:06	22:13:24	23:17:34	0:48:51	1:27:11	1:29:50	2:07:49	2:12:32	2:57:29	3:10:50	3:51:38	3:57:47								19:07:31
11/17/2018	Sa	23:38:18	22:09:28	23:13:38	0:44:55	1:23:15	1:25:54	2:03:53	2:08:36	2:53:33	3:06:54	3:47:42	3:53:51								19:03:35
11/18/2018	Su	23:38:31	22:05:32	23:09:42	0:41:00	1:19:20	1:21:58	1:59:58	2:04:40	2:49:37	3:02:58	3:43:46	3:49:55								18:59:39
11/19/2018	M	23:38:45	22:01:36	23:05:46	0:37:04	1:15:24	1:18:02	1:56:02	2:00:44	2:45:41	2:59:02	3:39:50	3:46:00								18:55:43
11/20/2018	Tu	23:38:59	21:57:41	23:01:50	0:33:08	1:11:28	1:14:06	1:52:06	1:56:48	2:41:45	2:55:06	3:35:54	3:42:04								18:51:47
11/21/2018	W	23:39:15	21:53:45	22:57:54	0:29:12	1:07:32	1:10:10	1:48:10	1:52:52	2:37:49	2:51:10	3:31:58	3:38:08								18:47:51
11/22/2018	Th	23:39:31	21:49:49	22:53:59	0:25:16	1:03:36	1:06:14	1:44:14	1:48:57	2:33:53	2:47:14	3:28:02	3:34:12								18:43:55
11/23/2018	F	23:39:47	21:45:53	22:50:03	0:21:20	0:59:40	1:02:18	1:40:18	1:45:01	2:29:58	2:43:19	3:24:07	3:30:16								18:39:59
11/24/2018	Sa	23:40:05	21:41:57	22:46:07	0:17:24	0:55:44	0:58:22	1:36:22	1:41:05	2:26:02	2:39:23	3:20:11	3:26:20	5:48:50							18:36:03
11/25/2018	Su	23:40:23	21:38:01	22:42:11	0:13:28	0:51:48	0:54:27	1:32:26	1:37:09	2:22:06	2:35:27	3:16:15	3:22:24	5:44:55							18:32:07
11/26/2018	M	23:40:43	21:34:05	22:38:15	0:09:32	0:47:52	0:50:31	1:28:30	1:33:13	2:18:10	2:31:31	3:12:19	3:18:28	5:40:59							18:28:11
11/27/2018	Tu	23:41:02	21:30:09	22:34:19	0:05:36	0:43:57	0:46:35	1:24:35	1:29:17	2:14:14	2:27:35	3:08:23	3:14:33	5:37:03							18:24:16
11/28/2018	W	23:41:23	21:26:13	22:30:23	0:01:41	0:40:01	0:42:39	1:20:39	1:25:21	2:10:18	2:23:39	3:04:27	3:10:37	5:33:07							18:20:20
11/28/2018	W			23:57:45																	
11/29/2018	Th	23:41:44	21:22:17	22:26:27	23:53:49	0:36:05	0:38:43	1:16:43	1:21:25	2:06:22	2:19:43	3:00:31	3:06:41	5:29:11							18:16:24
11/30/2018	F	23:42:06	21:18:21	22:22:31	23:49:53	0:32:09	0:34:47	1:12:47	1:17:30	2:02:26	2:15:47	2:56:35	3:02:45	5:25:15							18:12:28
12/01/2018	Sa	23:42:29	21:14:25	22:18:35	23:45:57	0:28:13	0:30:51	1:08:51	1:13:34	1:58:30	2:11:51	2:52:39	2:58:49	5:21:19							18:08:32
12/02/2018	Su	23:42:52	21:10:30	22:14:39	23:42:01	0:24:17	0:26:55	1:04:55	1:09:38	1:54:35	2:07:56	2:48:44	2:54:53	5:17:23							18:04:36
12/03/2018	M	23:43:16	21:06:34	22:10:44	23:38:05	0:20:21	0:22:59	1:00:59	1:05:42	1:50:39	2:04:00	2:44:48	2:50:57	5:13:27							18:00:40
12/04/2018	Tu	23:43:41	21:02:38	22:06:48	23:34:09	0:16:25	0:19:04	0:57:03	1:01:46	1:46:43	2:00:04	2:40:52	2:47:01	5:09:32							17:56:44
12/05/2018	W	23:44:06	20:58:42	22:02:52	23:30:13	0:12:29	0:15:08	0:53:07	0:57:50	1:42:47	1:56:08	2:36:56	2:43:05	5:05:36							17:52:48
12/06/2018	Th	23:44:32	20:54:46	21:58:56	23:26:17	0:08:33	0:11:12	0:49:12	0:53:54	1:38:51	1:52:12	2:33:00	2:39:10	5:01:40							17:48:52
12/07/2018	F	23:44:58	20:50:50	21:55:00	23:22:22	0:04:38	0:07:16	0:45:16	0:49:58	1:34:55	1:48:16	2:29:04	2:35:14	4:57:44							17:44:56
12/08/2018	Sa	23:45:24	20:46:54	21:51:04	23:18:26	0:00:42	0:03:20	0:41:20	0:46:02	1:30:59	1:44:20	2:25:08	2:31:18	4:53:48							17:41:00
12/08/2018	Sa			23:56:46	23:59:24																
12/09/2018	Su	23:45:51	20:42:58	21:47:08	23:14:30	23:52:50	23:55:28	0:37:24	0:42:07	1:27:03	1:40:24	2:21:12	2:27:22	4:49:52							17:37:04
12/10/2018	M	23:46:19	20:39:02	21:43:12	23:10:34	23:48:54	23:51:32	0:33:28	0:38:11	1:23:07	1:36:28	2:17:17	2:23:26	4:45:56							17:33:08
12/11/2018	Tu	23:46:47	20:35:06	21:39:16	23:06:38	23:44:58	23:47:36	0:29:32	0:34:15	1:19:12	1:32:33	2:13:21	2:19:30	4:42:00							17:29:13
12/12/2018	W	23:47:15	20:31:10	21:35:20	23:02:42	23:41:02	23:43:41	0:25:36	0:30:19	1:15:16	1:28:37	2:09:25	2:15:34	4:38:05							17:25:17
12/13/2018	Th	23:47:43	20:27:14	21:31:24	22:58:46	23:37:06	23:39:45	0:21:40	0:26:23	1:11:20	1:24:41	2:05:29	2:11:38	4:34:09							
12/14/2018	F	23:48:12	20:23:19	21:27:29	22:54:50	23:33:10	23:35:49	0:17:44	0:22:27	1:07:24	1:20:45	2:01:33	2:07:43	4:30:13							
12/15/2018	Sa	23:48:41	20:19:23	21:23:33	22:50:54	23:29:14	23:31:53	0:13:49	0:18:31	1:03:28	1:16:49	1:57:37	2:03:47	4:26:17							
12/16/2018	Su	23:49:10	20:15:27	21:19:37	22:46:58	23:25:19	23:27:57	0:09:53	0:14:35	0:59:32	1:12:53	1:53:41	1:59:51	4:22:21							
12/17/2018	M	23:49:40	20:11:31	21:15:41	22:43:03	23:21:23	23:24:01	0:05:57	0:10:39	0:55:36	1:08:57	1:49:45	1:55:55	4:18:25							
12/18/2018	Tu	23:50:09	20:07:35	21:11:45	22:39:07	23:17:27	23:20:05	0:02:01	0:06:44	0:51:40	1:05:01	1:45:49	1:51:59	4:14:29							
12/18/2018	Tu							23:58:05													
12/19/2018	W	23:50:39	20:03:39	21:07:49	22:35:11	23:13:31	23:16:09	23:54:09	0:02:48	0:47:44	1:01:05	1:41:54	1:48:03	4:10:33							
12/19/2018	W								23:58:52												
12/20/2018	Th	23:51:08	19:59:43	21:03:53	22:31:15	23:09:35	23:12:13	23:50:13	23:54:56	0:43:49	0:57:10	1:37:58	1:44:07	4:06:38							
12/21/2018	F	23:51:38	19:55:47	20:59:57	22:27:19	23:05:39	23:08:17	23:46:17	23:51:00	0:39:53	0:53:14	1:34:02	1:40:11	4:02:42							
12/22/2018	Sa	23:52:08	19:51:51	20:56:01	22:23:23	23:01:43	23:04:22	23:42:21	23:47:04	0:35:57	0:49:18	1:30:06	1:36:15	3:58:46							
12/23/2018	Su	23:52:38	19:47:55	20:52:05	22:19:27	22:57:47	23:00:26	23:38:25	23:43:08	0:32:01	0:45:22	1:26:10	1:32:20	3:54:50							
12/24/2018	M	23:53:07	19:43:59	20:48:09	22:15:31	22:53:51	22:56:30	23:34:30	23:39:12	0:28:05	0:41:26	1:22:14	1:28:24	3:50:54							
12/25/2018	Tu	23:53:37	19:40:03	20:44:13	22:11:35	22:49:55	22:52:34	23:30:34	23:35:16	0:24:09	0:37:30	1:18:18	1:24:28	3:46:58							
12/26/2018	W	23:54:07	19:36:07	20:40:18	22:07:39	22:46:00	22:48:38	23:26:38	23:31:21	0:20:13	0:33:34	1:14:22	1:20:32	3:43:02							
12/27/2018	Th	23:54:36	19:32:12	20:36:22	22:03:43	22:42:04	22:44:42	23:22:42	23:27:25	0:16:17	0:29:38	1:10:26	1:16:36	3:39:06							
12/28/2018	F	23:55:05	19:28:16	20:32:26	21:59:48	22:38:08	22:40:46	23:18:46	23:23:29	0:12:21	0:25:42	1:06:31	1:12:40	3:35:11							
12/29/2018	Sa	23:55:34	19:24:20	20:28:30	21:55:52	22:34:12	22:36:50	23:14:50	23:19:33	0:08:25	0:21:46	1:02:35	1:08:44	3:31:15							
12/30/2018	Su	23:56:03	19:20:24	20:24:34	21:51:56	22:30:16	22:32:54	23:10:54	23:15:37	0:04:30	0:17:51	0:58:39	1:04:48	3:27:19							
12/31/2018	M	23:56:32	19:16:28	20:20:38	21:48:00	22:26:20	22:28:58	23:06:58	23:												

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 09m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Capella	Betelgeuse	Menkailinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut	
01/01/2019	Tu	23:57:00	19:12:32	20:16:42	21:44:04	22:22:24	22:25:03	23:03:02	23:07:45	23:52:42	0:09:59	0:50:47	0:56:57	3:19:27							
01/02/2019	W	23:57:28	19:08:36	20:12:46	21:40:08	22:18:28	22:21:07	22:59:06	23:03:49	23:48:46	0:06:03	0:46:51	0:53:01	3:15:31							
01/03/2019	Th	23:57:56	19:04:40	20:08:50	21:36:12	22:14:32	22:17:11	22:55:10	22:59:53	23:44:50	0:02:07	0:42:55	0:49:05	3:11:35							
01/03/2019	Th										23:58:11										
01/04/2019	F	23:58:23	19:00:44	20:04:54	21:32:16	22:10:36	22:13:15	22:51:15	22:55:57	23:40:54	23:54:15	0:38:59	0:45:09	3:07:39							
01/05/2019	Sa	23:58:50	18:56:48	20:00:58	21:28:20	22:06:40	22:09:19	22:47:19	22:52:02	23:36:58	23:50:19	0:35:03	0:41:13	3:03:43							
01/06/2019	Su	23:59:16	18:52:52	19:57:02	21:24:24	22:02:45	22:05:23	22:43:23	22:48:06	23:33:02	23:46:23	0:31:07	0:37:17	2:59:48	6:16:03						
01/07/2019	M	23:59:42	18:48:56	19:53:07	21:20:28	21:58:49	22:01:27	22:39:27	22:44:10	23:29:06	23:42:27	0:27:12	0:33:21	2:55:52	6:12:07						
01/08/2019	Tu		18:45:00	19:49:11	21:16:33	21:54:53	21:57:31	22:35:31	22:40:14	23:25:11	23:38:32	0:23:16	0:29:25	2:51:56	6:08:12						
01/09/2019	W	0:00:07	18:41:04	19:45:15	21:12:37	21:50:57	21:53:35	22:31:35	22:36:18	23:21:15	23:34:36	0:19:20	0:25:29	2:48:00	6:04:16						
01/10/2019	Th	0:00:32	18:37:09	19:41:19	21:08:41	21:47:01	21:49:39	22:27:39	22:32:22	23:17:19	23:30:40	0:15:24	0:21:34	2:44:04	6:00:20						
01/11/2019	F	0:00:56	18:33:13	19:37:23	21:04:45	21:43:05	21:45:43	22:23:43	22:28:26	23:13:23	23:26:44	0:11:28	0:17:38	2:40:08	5:56:24						
01/12/2019	Sa	0:01:20	18:29:17	19:33:27	21:00:49	21:39:09	21:41:48	22:19:47	22:24:30	23:09:27	23:22:48	0:07:32	0:13:42	2:36:12	5:52:28						
01/13/2019	Su	0:01:43	18:25:21	19:29:31	20:56:53	21:35:13	21:37:52	22:15:51	22:20:34	23:05:31	23:18:52	0:03:36	0:09:46	2:32:16	5:48:32						
01/13/2019	Su										23:59:40										
01/14/2019	M	0:02:05	18:21:25	19:25:35	20:52:57	21:31:17	21:33:56	22:11:56	22:16:38	23:01:35	23:14:56	23:55:44	0:05:50	2:28:21	5:44:36						
01/15/2019	Tu	0:02:27	18:17:29	19:21:39	20:49:01	21:27:21	21:30:00	22:08:00	22:12:42	22:57:39	23:11:00	23:51:49	0:01:54	2:24:25	5:40:40						
01/15/2019	Tu												23:57:58								
01/16/2019	W	0:02:48	18:13:33	19:17:43	20:45:05	21:23:25	21:26:04	22:04:04	22:08:47	22:53:43	23:07:04	23:47:53	23:54:02	2:20:29	5:36:45						
01/17/2019	Th	0:03:08	18:09:37	19:13:47	20:41:09	21:19:29	21:22:08	22:00:08	22:04:51	22:49:47	23:03:08	23:43:57	23:50:06	2:16:33	5:32:49						
01/18/2019	F	0:03:28	18:05:41	19:09:51	20:37:13	21:15:34	21:18:12	21:56:12	22:00:55	22:45:51	22:59:12	23:40:01	23:46:10	2:12:37	5:28:53						
01/19/2019	Sa	0:03:47	18:01:45	19:05:55	20:33:17	21:11:38	21:14:16	21:52:16	21:56:59	22:41:56	22:55:17	23:36:05	23:42:15	2:08:41	5:24:57	6:15:08					
01/20/2019	Su	0:04:05	17:57:49	19:01:59	20:29:22	21:07:42	21:10:20	21:48:20	21:53:03	22:38:00	22:51:21	23:32:09	23:38:19	2:04:45	5:21:01	6:11:12					
01/21/2019	M	0:04:22		18:58:04	20:25:26	21:03:46	21:06:24	21:44:24	21:49:07	22:34:04	22:47:25	23:28:13	23:34:23	2:00:49	5:17:05	6:07:16					
01/22/2019	Tu	0:04:39		18:54:08	20:21:30	20:59:50	21:02:28	21:40:28	21:45:11	22:30:08	22:43:29	23:24:17	23:30:27	1:56:53	5:13:09	6:03:21					
01/23/2019	W	0:04:55		18:50:12	20:17:34	20:55:54	20:58:32	21:36:32	21:41:15	22:26:12	22:39:33	23:20:21	23:26:31	1:52:58	5:09:13	5:59:25					
01/24/2019	Th	0:05:10		18:46:16	20:13:38	20:51:58	20:54:37	21:32:36	21:37:19	22:22:16	22:35:37	23:16:25	23:22:35	1:49:02	5:05:18	5:55:29					
01/25/2019	F	0:05:24		18:42:20	20:09:42	20:48:02	20:50:41	21:28:40	21:33:23	22:18:20	22:31:41	23:12:29	23:18:39	1:45:06	5:01:22	5:51:33					
01/26/2019	Sa	0:05:37		18:38:24	20:05:46	20:44:06	20:46:45	21:24:45	21:29:27	22:14:24	22:27:45	23:08:34	23:14:43	1:41:10	4:57:26	5:47:37					
01/27/2019	Su	0:05:50		18:34:28	20:01:50	20:40:10	20:42:49	21:20:49	21:25:31	22:10:28	22:23:49	23:04:38	23:10:47	1:37:14	4:53:30	5:43:41					
01/28/2019	M	0:06:02		18:30:32	19:57:54	20:36:14	20:38:53	21:16:53	21:21:36	22:06:32	22:19:53	23:00:42	23:06:51	1:33:18	4:49:34	5:39:45					
01/29/2019	Tu	0:06:13		18:26:36	19:53:58	20:32:18	20:34:57	21:12:57	21:17:40	22:02:36	22:15:57	22:56:46	23:02:56	1:29:22	4:45:38	5:35:49					
01/30/2019	W	0:06:24		18:22:40	19:50:02	20:28:23	20:31:01	21:09:01	21:13:44	21:58:41	22:12:02	22:52:50	22:59:00	1:25:26	4:41:42	5:31:54					
01/31/2019	Th	0:06:33		18:18:44	19:46:06	20:24:27	20:27:05	21:05:05	21:09:48	21:54:45	22:08:06	22:48:54	22:55:04	1:21:30	4:37:46	5:27:58					
02/01/2019	F	0:06:42		18:14:48	19:42:11	20:20:31	20:23:09	21:01:09	21:05:52	21:50:49	22:04:10	22:44:58	22:51:08	1:17:35	4:33:51	5:24:02					
02/02/2019	Sa	0:06:50		18:10:52	19:38:15	20:16:35	20:19:13	20:57:13	21:01:56	21:46:53	22:00:14	22:41:02	22:47:12	1:13:39	4:29:55	5:20:06					
02/03/2019	Su	0:06:57			19:34:19	20:12:39	20:15:17	20:53:17	20:58:00	21:42:57	21:56:18	22:37:06	22:43:16	1:09:43	4:25:59	5:16:10					
02/04/2019	M	0:07:03			19:30:23	20:08:43	20:11:21	20:49:21	20:54:04	21:39:01	21:52:22	22:33:10	22:39:20	1:05:47	4:22:03	5:12:14					
02/05/2019	Tu	0:07:09			19:26:27	20:04:47	20:07:25	20:45:25	20:50:08	21:35:05	21:48:26	22:29:15	22:35:24	1:01:51	4:18:07	5:08:18					
02/06/2019	W	0:07:14			19:22:31	20:00:51	20:03:30	20:41:29	20:46:12	21:31:09	21:44:30	22:25:19	22:31:28	0:57:55	4:14:11	5:04:22					
02/07/2019	Th	0:07:18			19:18:35	19:56:55	19:59:34	20:37:34	20:42:16	21:27:13	21:40:34	22:21:23	22:27:32	0:53:59	4:10:15	5:00:27					
02/08/2019	F	0:07:21			19:14:39	19:52:59	19:55:38	20:33:38	20:38:20	21:23:17	21:36:38	22:17:27	22:23:36	0:50:03	4:06:19	4:56:31					
02/09/2019	Sa	0:07:23			19:10:43	19:49:03	19:51:42	20:29:42	20:34:25	21:19:21	21:32:42	22:13:31	22:19:41	0:46:07	4:02:23	4:52:35					
02/10/2019	Su	0:07:25			19:06:47	19:45:07	19:47:46	20:25:46	20:30:29	21:15:25	21:28:46	22:09:35	22:15:45	0:42:11	3:58:28	4:48:39					
02/11/2019	M	0:07:25			19:02:51	19:41:12	19:43:50	20:21:50	20:26:33	21:11:30	21:24:51	22:05:39	22:11:49	0:38:16	3:54:32	4:44:43					
02/12/2019	Tu	0:07:25			18:58:55	19:37:16	19:39:54	20:17:54	20:22:37	21:07:34	21:20:55	22:01:43	22:07:53	0:34:20	3:50:36	4:40:47					
02/13/2019	W	0:07:24			18:54:59	19:33:20	19:35:58	20:13:58	20:18:41	21:03:38	21:16:59	21:57:47	22:03:57	0:30:24	3:46:40	4:36:51					
02/14/2019	Th	0:07:23			18:51:04	19:29:24	19:32:02	20:10:02	20:14:45	20:59:42	21:13:03	21:53:51	22:00:01	0:26:28	3:42:44	4:32:55					
02/15/2019	F	0:07:20			18:47:08	19:25:28	19:28:06	20:06:06	20:10:49	20:55:46	21:09:07	21:49:55	21:56:05	0:22:32	3:38:48	4:29:00					
02/16/2019	Sa	0:07:17			18:43:12	19:21:32	19:24:10	20:02:10	20:06:53	20:51:50	21:05:11	21:45:59	21:52:09	0:18:36	3:34:52	4:25:04					
02/17/2019	Su	0:07:13			18:39:16	19:17:36	19:20:14	19:58:14	20:02:57	20:47:54	21:01:15	21:42:04	21:48:13	0:14:40	3:30:56	4:21:08					
02/18/2019	M	0:07:09			18:35:20	19:13:40	19:16:18	19:54:18	19:59:01	20:43:58	20:57:19	21:38:08	21:44:17	0:10:44	3:27:01	4:17:12					

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=-	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 07m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date=	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
02/21/2019	Th	0:06:51			19:01:52	19:04:31	19:42:31	19:47:13	20:32:10	20:45:31	21:26:20	21:32:30	23:55:01	3:15:13	4:05:24						
02/22/2019	F	0:06:44			18:57:56	19:00:35	19:38:35	19:43:17	20:28:14	20:41:35	21:22:24	21:28:34	23:51:05	3:11:17	4:01:28						
02/23/2019	Sa	0:06:36			18:54:00	18:56:39	19:34:39	19:39:22	20:24:18	20:37:39	21:18:28	21:24:38	23:47:09	3:07:21	3:57:33						
02/24/2019	Su	0:06:28			18:50:05	18:52:43	19:30:43	19:35:26	20:20:23	20:33:44	21:14:32	21:20:42	23:43:13	3:03:25	3:53:37						
02/25/2019	M	0:06:19			18:46:09	18:48:47	19:26:47	19:31:30	20:16:27	20:29:48	21:10:36	21:16:46	23:39:17	2:59:29	3:49:41						
02/26/2019	Tu	0:06:09			18:42:13	18:44:51	19:22:51	19:27:34	20:12:31	20:25:52	21:06:40	21:12:50	23:35:21	2:55:34	3:45:45						
02/27/2019	W	0:05:59					19:18:55	19:23:38	20:08:35	20:21:56	21:02:44	21:08:54	23:31:25	2:51:38	3:41:49						
02/28/2019	Th	0:05:48					19:14:59	19:19:42	20:04:39	20:18:00	20:58:49	21:04:58	23:27:29	2:47:42	3:37:53						
03/01/2019	F	0:05:37					19:11:03	19:15:46	20:00:43	20:14:04	20:54:53	21:01:02	23:23:34	2:43:46	3:33:57						
03/02/2019	Sa	0:05:25					19:07:07	19:11:50	19:56:47	20:10:08	20:50:57	20:57:06	23:19:38	2:39:50	3:30:01						
03/03/2019	Su	0:05:13					19:03:11	19:07:54	19:52:51	20:06:12	20:47:01	20:53:10	23:15:42	2:35:54	3:26:06						
03/04/2019	M	0:05:01					18:59:16	19:03:58	19:48:55	20:02:16	20:43:05	20:49:15	23:11:46	2:31:58	3:22:10						
03/05/2019	Tu	0:04:48					18:55:20	19:00:02	19:44:59	19:58:20	20:39:09	20:45:19	23:07:50	2:28:02	3:18:14						
03/06/2019	W	0:04:34					18:51:24	18:56:06	19:41:03	19:54:24	20:35:13	20:41:23	23:03:54	2:24:06	3:14:18						
03/07/2019	Th	0:04:20						18:52:10	19:37:07	19:50:28	20:31:17	20:37:27	22:59:58	2:20:11	3:10:22						
03/08/2019	F	0:04:06							19:33:11	19:46:32	20:27:21	20:33:31	22:56:02	2:16:15	3:06:26						
03/09/2019	Sa	0:03:51							19:29:16	19:42:37	20:23:25	20:29:35	22:52:06	2:12:19	3:02:30						
03/10/2019	Su	0:03:36							19:25:20	19:38:41	20:19:29	20:25:39	22:48:10	2:08:23	2:58:34	5:12:15					
03/11/2019	M	0:03:21							19:21:24	19:34:45	20:15:33	20:21:43	22:44:14	2:04:27	2:54:38	5:08:19					
03/12/2019	Tu	0:03:05							19:17:28	19:30:49	20:11:37	20:17:47	22:40:19	2:00:31	2:50:43	5:04:23					
03/13/2019	W	0:02:49							19:13:32	19:26:53	20:07:42	20:13:51	22:36:23	1:56:35	2:46:47	5:00:27					
03/14/2019	Th	0:02:33							19:09:36	19:22:57	20:03:46	20:09:55	22:32:27	1:52:39	2:42:51	4:56:31					
03/15/2019	F	0:02:16							19:05:40	19:19:01	19:59:50	20:05:59	22:28:31	1:48:43	2:38:55	4:52:35					
03/16/2019	Sa	0:01:59								19:15:05	19:55:54	20:02:04	22:24:35	1:44:48	2:34:59	4:48:39					
03/17/2019	Su	0:01:42							19:11:09	19:51:58	19:58:08	22:20:39	1:40:52	2:31:03	4:44:43						
03/18/2019	M	0:01:25							19:07:13	19:48:02	19:54:12	22:16:43	1:36:56	2:27:07	4:40:48						
03/19/2019	Tu	0:01:07								19:44:06	19:50:16	22:12:47	1:33:00	2:23:11	4:36:52						
03/20/2019	W	0:00:49								19:40:10	19:46:20	22:08:51	1:29:04	2:19:16	4:32:56						
03/21/2019	Th	0:00:32								19:36:14	19:42:24	22:04:55	1:25:08	2:15:20	4:29:00						
03/22/2019	F	0:00:14								19:32:18	19:38:28	22:00:59	1:21:12	2:11:24	4:25:04						
03/22/2019	F	23:59:56																			
03/23/2019	Sa	23:59:38									19:28:22	19:34:32	21:57:04	1:17:16	2:07:28	4:21:08					
03/24/2019	Su	23:59:19									19:24:26	19:30:36	21:53:08	1:13:20	2:03:32	4:17:12					
03/25/2019	M	23:59:01									19:20:31	19:26:40	21:49:12	1:09:25	1:59:36	4:13:16					
03/26/2019	Tu	23:58:43									19:16:35	19:22:44	21:45:16	1:05:29	1:55:40	4:09:21					
03/27/2019	W	23:58:25									19:18:48	21:41:20	1:01:33	1:51:44	4:05:25						
03/28/2019	Th	23:58:07										21:37:24	0:57:37	1:47:48	4:01:29						
03/29/2019	F	23:57:49										21:33:28	0:53:41	1:43:53	3:57:33						
03/30/2019	Sa	23:57:31										21:29:32	0:49:45	1:39:57	3:53:37						
03/31/2019	Su	23:57:13										21:25:36	0:45:49	1:36:01	3:49:41						
04/01/2019	M	23:56:55										21:21:40	0:41:53	1:32:05	3:45:45						
04/02/2019	Tu	23:56:38										21:17:44	0:37:57	1:28:09	3:41:49						
04/03/2019	W	23:56:20										21:13:48	0:34:01	1:24:13	3:37:54						
04/04/2019	Th	23:56:03										21:09:53	0:30:06	1:20:17	3:33:58						
04/05/2019	F	23:55:46										21:05:57	0:26:10	1:16:21	3:30:02						
04/06/2019	Sa	23:55:29										21:02:01	0:22:14	1:12:25	3:26:06						
04/07/2019	Su	23:55:12										20:58:05	0:18:18	1:08:29	3:22:10						
04/08/2019	M	23:54:56										20:54:09	0:14:22	1:04:34	3:18:14						
04/09/2019	Tu	23:54:40										20:50:13	0:10:26	1:00:38	3:14:18						
04/10/2019	W	23:54:24										20:46:17	0:06:30	0:56:42	3:10:22						
04/11/2019	Th	23:54:08										20:42:21	0:02:34	0:52:46	3:06:26						
04/11/2019	Th													23:58:38							
04/12/2019	F	23:53:52											20:38:25	23:54:43	0:48:50	3:02:31					
04/13/2019	Sa	23:53:37											20:34:29	23:50:47	0:44:54	2:58:35					
04/14/2019	Su	23:53:23											20:30:33	23:46:51	0:40:58	2:54:39					

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
04/15/2019	M	23:53:08											20:26:37	23:42:55	0:37:02	2:50:43					
04/16/2019	Tu	23:52:54											20:22:42	23:38:59	0:33:06	2:46:47					
04/17/2019	W	23:52:40											20:18:46	23:35:03	0:29:11	2:42:51					
04/18/2019	Th	23:52:27											20:14:50	23:31:07	0:25:15	2:38:55					
04/19/2019	F	23:52:14											20:10:54	23:27:11	0:21:19	2:34:59					
04/20/2019	Sa	23:52:01											20:06:58	23:23:15	0:17:23	2:31:04					
04/21/2019	Su	23:51:49											20:03:02	23:19:19	0:13:27	2:27:08					
04/22/2019	M	23:51:37											19:59:06	23:15:24	0:09:31	2:23:12					
04/23/2019	Tu	23:51:26												23:11:28	0:05:35	2:19:16					
04/24/2019	W	23:51:15												23:07:32	0:01:39	2:15:20					
04/24/2019	W													23:57:43							
04/25/2019	Th	23:51:05												23:03:36	23:53:47	2:11:24					
04/26/2019	F	23:50:56												22:59:40	23:49:52	2:07:28					
04/27/2019	Sa	23:50:46												22:55:44	23:45:56	2:03:32					
04/28/2019	Su	23:50:38												22:51:48	23:42:00	1:59:36					
04/29/2019	M	23:50:30												22:47:52	23:38:04	1:55:41					
04/30/2019	Tu	23:50:22												22:43:56	23:34:08	1:51:45					
05/01/2019	W	23:50:15												22:40:00	23:30:12	1:47:49					
05/02/2019	Th	23:50:08												22:36:04	23:26:16	1:43:53					
05/03/2019	F	23:50:03												22:32:09	23:22:20	1:39:57					
05/04/2019	Sa	23:49:57												22:28:13	23:18:24	1:36:01					
05/05/2019	Su	23:49:52												22:24:17	23:14:28	1:32:05					
05/06/2019	M	23:49:48												22:20:21	23:10:33	1:28:09					
05/07/2019	Tu	23:49:44												22:16:25	23:06:37	1:24:14					
05/08/2019	W	23:49:41												22:12:29	23:02:41	1:20:18					
05/09/2019	Th	23:49:39												22:08:33	22:58:45	1:16:22					
05/10/2019	F	23:49:37												22:04:37	22:54:49	1:12:26					
05/11/2019	Sa	23:49:35												22:00:41	22:50:53	1:08:30	3:15:09				
05/12/2019	Su	23:49:34												21:56:45	22:46:57	1:04:34	3:11:13				
05/13/2019	M	23:49:34												21:52:49	22:43:01	1:00:38	3:07:18				
05/14/2019	Tu	23:49:34												21:48:54	22:39:05	0:56:42	3:03:22				
05/15/2019	W	23:49:35												21:44:58	22:35:09	0:52:46	2:59:26				
05/16/2019	Th	23:49:36												21:41:02	22:31:13	0:48:51	2:55:30				
05/17/2019	F	23:49:38												21:37:06	22:27:18	0:44:55	2:51:34				
05/18/2019	Sa	23:49:40												21:33:10	22:23:22	0:40:59	2:47:38				
05/19/2019	Su	23:49:43												21:29:14	22:19:26	0:37:03	2:43:42				
05/20/2019	M	23:49:46												21:25:18	22:15:30	0:33:07	2:39:46				
05/21/2019	Tu	23:49:50												21:21:22	22:11:34	0:29:11	2:35:50				
05/22/2019	W	23:49:55												21:17:26	22:07:38	0:25:15	2:31:55				
05/23/2019	Th	23:50:00												21:13:30	22:03:42	0:21:19	2:27:59				
05/24/2019	F	23:50:06												21:09:34	21:59:46	0:17:23	2:24:03				
05/25/2019	Sa	23:50:12												21:05:39	21:55:50	0:13:27	2:20:07				
05/26/2019	Su	23:50:18												21:01:43	21:51:54	0:09:32	2:16:11				
05/27/2019	M	23:50:26												20:57:47	21:47:58	0:05:36	2:12:15				
05/28/2019	Tu	23:50:33												20:53:51	21:44:03	0:01:40	2:08:19				
05/28/2019	Tu															23:57:44					
05/29/2019	W	23:50:41												20:49:55	21:40:07	23:53:48	2:04:23				
05/30/2019	Th	23:50:50												21:36:11	23:49:52	2:00:28					
05/31/2019	F	23:50:59												21:32:15	23:45:56	1:56:32					
06/01/2019	Sa	23:51:08												21:28:19	23:42:00	1:52:36					
06/02/2019	Su	23:51:18												21:24:23	23:38:04	1:48:40					
06/03/2019	M	23:51:28												21:20:27	23:34:08	1:44:44					
06/04/2019	Tu	23:51:38												21:16:31	23:30:13	1:40:48					
06/05/2019	W	23:51:49												21:12:35	23:26:17	1:36:52					
06/06/2019	Th	23:52:00												21:08:39	23:22:21	1:32:56	2:46:51				

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=-	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
06/07/2019	F	23:52:11													21:04:43	23:18:25	1:29:00	2:42:55			
06/08/2019	Sa	23:52:23													21:00:47	23:14:29	1:25:04	2:39:00			
06/09/2019	Su	23:52:35													23:10:33	1:21:09	2:35:04				
06/10/2019	M	23:52:47													23:06:37	1:17:13	2:31:08				
06/11/2019	Tu	23:52:59													23:02:41	1:13:17	2:27:12				
06/12/2019	W	23:53:11													22:58:45	1:09:21	2:23:16				
06/13/2019	Th	23:53:24													22:54:49	1:05:25	2:19:20				
06/14/2019	F	23:53:36													22:50:54	1:01:29	2:15:24				
06/15/2019	Sa	23:53:49													22:46:58	0:57:33	2:11:28	2:42:35			
06/16/2019	Su	23:54:02													22:43:02	0:53:37	2:07:32	2:38:40			
06/17/2019	M	23:54:15													22:39:06	0:49:41	2:03:37	2:34:44			
06/18/2019	Tu	23:54:28													22:35:10	0:45:46	1:59:41	2:30:48			
06/19/2019	W	23:54:41													22:31:14	0:41:50	1:55:45	2:26:52			
06/20/2019	Th	23:54:54													22:27:18	0:37:54	1:51:49	2:22:56	2:42:03		
06/21/2019	F	23:55:07													22:23:22	0:33:58	1:47:53	2:19:00	2:38:07		
06/22/2019	Sa	23:55:20													22:19:26	0:30:02	1:43:57	2:15:04	2:34:11		
06/23/2019	Su	23:55:33													22:15:30	0:26:06	1:40:01	2:11:08	2:30:15		
06/24/2019	M	23:55:46													22:11:35	0:22:10	1:36:05	2:07:12	2:26:19		
06/25/2019	Tu	23:55:58													22:07:39	0:18:14	1:32:09	2:03:17	2:22:24		
06/26/2019	W	23:56:11													22:03:43	0:14:18	1:28:14	1:59:21	2:18:28		
06/27/2019	Th	23:56:23													21:59:47	0:10:22	1:24:18	1:55:25	2:14:32		
06/28/2019	F	23:56:36													21:55:51	0:06:27	1:20:22	1:51:29	2:10:36		
06/29/2019	Sa	23:56:48													21:51:55	0:02:31	1:16:26	1:47:33	2:06:40		
06/29/2019	Sa															23:58:35					
06/30/2019	Su	23:56:59													21:47:58	23:54:38	1:12:30	1:43:37	2:02:44		
07/01/2019	M	23:57:10													21:44:02	23:50:42	1:08:33	1:39:40	1:58:47		
07/02/2019	Tu	23:57:22													21:40:06	23:46:46	1:04:37	1:35:44	1:54:51		
07/03/2019	W	23:57:33													21:36:10	23:42:50	1:00:41	1:31:48	1:50:56		
07/04/2019	Th	23:57:43													21:32:14	23:38:54	0:56:45	1:27:53	1:47:00		
07/05/2019	F	23:57:54													21:28:19	23:34:58	0:52:49	1:23:57	1:43:04		
07/06/2019	Sa	23:58:04													21:24:23	23:31:02	0:48:54	1:20:01	1:39:08		
07/07/2019	Su	23:58:13													21:20:27	23:27:07	0:44:58	1:16:05	1:35:12		
07/08/2019	M	23:58:23													21:16:31	23:23:11	0:41:02	1:12:09	1:31:16		
07/09/2019	Tu	23:58:31													21:12:35	23:19:15	0:37:06	1:08:13	1:27:20		
07/10/2019	W	23:58:40													21:08:39	23:15:19	0:33:10	1:04:17	1:23:24		
07/11/2019	Th	23:58:47													21:04:43	23:11:23	0:29:14	1:00:21	1:19:28		
07/12/2019	F	23:58:55													21:00:47	23:07:27	0:25:18	0:56:25	1:15:32		
07/13/2019	Sa	23:59:02													20:56:51	23:03:31	0:21:22	0:52:30	1:11:37		
07/14/2019	Su	23:59:08													22:59:35	0:17:26	0:48:34	1:07:41			
07/15/2019	M	23:59:14													22:55:39	0:13:30	0:44:38	1:03:45			
07/16/2019	Tu	23:59:19													22:51:43	0:09:35	0:40:42	0:59:49			
07/17/2019	W	23:59:24													22:47:47	0:05:39	0:36:46	0:55:53			
07/18/2019	Th														22:43:52	0:01:43	0:32:50	0:51:57			
07/18/2019	Th	23:59:29															23:57:47				
07/19/2019	F	23:59:32															22:39:56	23:53:51	0:28:54	0:48:01	3:04:15
07/20/2019	Sa	23:59:36															22:36:00	23:49:55	0:24:58	0:44:05	3:00:19
07/21/2019	Su	23:59:38															22:32:04	23:45:59	0:21:02	0:40:09	2:56:23
07/22/2019	M	23:59:40															22:28:08	23:42:03	0:17:06	0:36:14	2:52:27
07/23/2019	Tu	23:59:42															22:24:12	23:38:07	0:13:11	0:32:18	2:48:31
07/24/2019	W	23:59:43															22:20:16	23:34:11	0:09:15	0:28:22	2:44:36
07/25/2019	Th	23:59:43															22:16:20	23:30:16	0:05:19	0:24:26	2:40:40
07/26/2019	F																22:12:24	23:26:20	0:01:23	0:20:30	2:36:44
07/26/2019	F	23:59:43																	23:57:27		
07/27/2019	Sa	23:59:42															22:08:28	23:22:24	23:53:31	0:16:34	2:32:48
07/28/2019	Su	23:59:41															22:04:32	23:18:28	23:49:35	0:12:38	2:28:52

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
07/29/2019	M	23:59:39															22:00:36	23:14:32	23:45:39	0:08:42	2:24:56
07/30/2019	Tu	23:59:37															21:56:41	23:10:36	23:41:43	0:04:46	2:21:00
07/31/2019	W																21:52:45	23:06:40	23:37:47	0:00:50	2:17:04
07/31/2019	W	23:59:34																		23:56:55	
08/01/2019	Th	23:59:30															21:48:49	23:02:44	23:33:51	23:52:59	2:13:09
08/02/2019	F	23:59:26															21:44:53	22:58:48	23:29:56	23:49:03	2:09:13
08/03/2019	Sa	23:59:21															21:40:57	22:54:52	23:26:00	23:45:07	2:05:17
08/04/2019	Su	23:59:15															21:37:01	22:50:57	23:22:04	23:41:11	2:01:21
08/05/2019	M	23:59:09															21:33:05	22:47:01	23:18:08	23:37:15	1:57:25
08/06/2019	Tu	23:59:02															21:29:09	22:43:05	23:14:12	23:33:19	1:53:29
08/07/2019	W	23:58:55															21:25:13	22:39:09	23:10:16	23:29:23	1:49:33
08/08/2019	Th	23:58:46															21:21:17	22:35:13	23:06:20	23:25:27	1:45:37
08/09/2019	F	23:58:38															21:17:21	22:31:17	23:02:24	23:21:31	1:41:41
08/10/2019	Sa	23:58:29															21:13:25	22:27:21	22:58:28	23:17:35	1:37:46
08/11/2019	Su	23:58:19															21:09:30	22:23:25	22:54:32	23:13:40	1:33:50
08/12/2019	M	23:58:08															21:05:34	22:19:29	22:50:36	23:09:44	1:29:54
08/13/2019	Tu	23:57:57															21:01:38	22:15:33	22:46:41	23:05:48	1:25:58
08/14/2019	W	23:57:46															20:57:42	22:11:37	22:42:45	23:01:52	1:22:02
08/15/2019	Th	23:57:34															20:53:46	22:07:42	22:38:49	22:57:56	1:18:06
08/16/2019	F	23:57:21															20:49:50	22:03:46	22:34:53	22:54:00	1:14:10
08/17/2019	Sa	23:57:08															20:45:54	21:59:50	22:30:57	22:50:04	1:10:14
08/18/2019	Su	23:56:55															20:41:58	21:55:54	22:27:01	22:46:08	1:06:18
08/19/2019	M	23:56:41															20:38:02	21:51:58	22:23:05	22:42:12	1:02:23
08/20/2019	Tu	23:56:26															20:34:06	21:48:02	22:19:09	22:38:16	0:58:27
08/21/2019	W	23:56:11															20:30:10	21:44:06	22:15:13	22:34:20	0:54:31
08/22/2019	Th	23:55:56	3:56:27														20:26:14	21:40:10	22:11:17	22:30:25	0:50:35
08/23/2019	F	23:55:40	3:52:31														20:22:18	21:36:14	22:07:21	22:26:29	0:46:39
08/24/2019	Sa	23:55:24	3:48:35														20:18:23	21:32:18	22:03:26	22:22:33	0:42:43
08/25/2019	Su	23:55:07	3:44:39														20:14:27	21:28:22	21:59:30	22:18:37	0:38:47
08/26/2019	M	23:54:50	3:40:43														20:10:31	21:24:27	21:55:34	22:14:41	0:34:51
08/27/2019	Tu	23:54:33	3:36:47														20:06:35	21:20:31	21:51:38	22:10:45	0:30:55
08/28/2019	W	23:54:15	3:32:51														20:02:39	21:16:35	21:47:42	22:06:49	0:26:59
08/29/2019	Th	23:53:57	3:28:56														19:58:43	21:12:39	21:43:46	22:02:53	0:23:04
08/30/2019	F	23:53:39	3:25:00														19:54:47	21:08:43	21:39:50	21:58:57	0:19:08
08/31/2019	Sa	23:53:20	3:21:04														19:50:51	21:04:47	21:35:54	21:55:01	0:15:12
09/01/2019	Su	23:53:01	3:17:08														19:46:55	21:00:51	21:31:58	21:51:05	0:11:16
09/02/2019	M	23:52:42	3:13:12														19:42:59	20:56:55	21:28:02	21:47:09	0:07:20
09/03/2019	Tu	23:52:22	3:09:16														19:39:03	20:52:59	21:24:06	21:43:13	0:03:24
09/03/2019	Tu																				23:59:28
09/04/2019	W	23:52:02	3:05:20	4:09:30													19:35:07	20:49:03	21:20:10	21:39:18	23:55:32
09/05/2019	Th	23:51:42	3:01:24	4:05:34													19:31:11	20:45:07	21:16:14	21:35:22	23:51:36
09/06/2019	F	23:51:22	2:57:29	4:01:38													19:27:15	20:41:11	21:12:19	21:31:26	23:47:41
09/07/2019	Sa	23:51:01	2:53:33	3:57:42													19:23:20	20:37:16	21:08:23	21:27:30	23:43:45
09/08/2019	Su	23:50:41	2:49:37	3:53:46																	
09/09/2019	M	23:50:20	2:45:41	3:49:50													20:33:20	21:04:27	21:23:34	23:39:49	
09/10/2019	Tu	23:49:59	2:41:45	3:45:54													20:29:24	21:00:31	21:19:38	23:35:53	
09/11/2019	W	23:49:37	2:37:49	3:41:59													20:25:28	20:56:35	21:15:42	23:31:57	
09/12/2019	Th	23:49:16	2:33:53	3:38:03													20:21:32	20:52:39	21:11:46	23:28:01	
09/13/2019	F	23:48:55	2:29:57	3:34:07													20:17:36	20:48:43	21:07:50	23:24:05	
09/14/2019	Sa	23:48:33	2:26:01	3:30:11													20:13:40	20:44:47	21:03:54	23:20:09	
09/15/2019	Su	23:48:12	2:22:06	3:26:15													20:09:44	20:40:51	20:59:58	23:16:13	
09/16/2019	M	23:47:50	2:18:10	3:22:19													20:05:48	20:36:55	20:56:02	23:12:17	
09/17/2019	Tu	23:47:29	2:14:14	3:18:23													20:01:52	20:32:59	20:52:07	23:08:22	
09/18/2019	W	23:47:07	2:10:18	3:14:27													19:57:56	20:29:03	20:48:11	23:04:26	
09/19/2019	Th	23:46:46	2:06:22	3:10:32													19:54:00	20:25:07	20:44:15	23:00:30	
																	19:50:04	20:21:12	20:40:19	22:56:34	

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 07m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
09/20/2019	F	23:46:25	2:02:26	3:06:36	4:33:57													19:46:09	20:17:16	20:36:23	22:52:38
09/21/2019	Sa	23:46:03	1:58:30	3:02:40	4:30:01													19:42:13	20:13:20	20:32:27	22:48:42
09/22/2019	Su	23:45:42	1:54:34	2:58:44	4:26:05													19:38:17	20:09:24	20:28:31	22:44:46
09/23/2019	M	23:45:21	1:50:39	2:54:48	4:22:09													19:34:21	20:05:28	20:24:35	22:40:50
09/24/2019	Tu	23:45:00	1:46:43	2:50:52	4:18:13													19:30:25	20:01:32	20:20:39	22:36:54
09/25/2019	W	23:44:40	1:42:47	2:46:56	4:14:17													19:26:29	19:57:36	20:16:43	22:32:58
09/26/2019	Th	23:44:19	1:38:51	2:43:01	4:10:21													19:22:33	19:53:40	20:12:47	22:29:02
09/27/2019	F	23:43:59	1:34:55	2:39:05	4:06:25													19:18:37	19:49:44	20:08:51	22:25:07
09/28/2019	Sa	23:43:39	1:30:59	2:35:09	4:02:30	4:40:49	4:43:28											19:14:41	19:45:48	20:04:55	22:21:11
09/29/2019	Su	23:43:19	1:27:03	2:31:13	3:58:34	4:36:53	4:39:32											19:10:45	19:41:52	20:00:59	22:17:15
09/30/2019	M	23:43:00	1:23:07	2:27:17	3:54:38	4:32:57	4:35:36											19:06:49	19:37:56	19:57:04	22:13:19
10/01/2019	Tu	23:42:40	1:19:11	2:23:21	3:50:42	4:29:02	4:31:41											19:02:53	19:34:00	19:53:08	22:09:23
10/02/2019	W	23:42:21	1:15:16	2:19:25	3:46:46	4:25:06	4:27:45											18:58:58	19:30:05	19:49:12	22:05:27
10/03/2019	Th	23:42:03	1:11:20	2:15:29	3:42:50	4:21:10	4:23:49											18:55:02	19:26:09	19:45:16	22:01:31
10/04/2019	F	23:41:44	1:07:24	2:11:33	3:38:54	4:17:14	4:19:53											18:51:06	19:22:13	19:41:20	21:57:35
10/05/2019	Sa	23:41:26	1:03:28	2:07:38	3:34:58	4:13:18	4:15:57											18:47:10	19:18:17	19:37:24	21:53:39
10/06/2019	Su	23:41:09	0:59:32	2:03:42	3:31:03	4:09:22	4:12:01	4:50:00										18:43:14	19:14:21	19:33:28	21:49:43
10/07/2019	M	23:40:51	0:55:36	1:59:46	3:27:07	4:05:26	4:08:05	4:46:04	4:50:48									18:39:18	19:10:25	19:29:32	21:45:47
10/08/2019	Tu	23:40:35	0:51:40	1:55:50	3:23:11	4:01:30	4:04:10	4:42:09	4:46:52									18:35:22	19:06:29	19:25:36	21:41:52
10/09/2019	W	23:40:18	0:47:44	1:51:54	3:19:15	3:57:34	4:00:14	4:38:13	4:42:56									18:31:26	19:02:33	19:21:40	21:37:56
10/10/2019	Th	23:40:02	0:43:48	1:47:58	3:15:19	3:53:39	3:56:18	4:34:17	4:39:00									18:27:30	18:58:37	19:17:44	21:34:00
10/11/2019	F	23:39:47	0:39:53	1:44:02	3:11:23	3:49:43	3:52:22	4:30:21	4:35:04									18:23:34	18:54:41	19:13:48	21:30:04
10/12/2019	Sa	23:39:32	0:35:57	1:40:06	3:07:27	3:45:47	3:48:26	4:26:25	4:31:08									18:19:38	18:50:45	19:09:52	21:26:08
10/13/2019	Su	23:39:17	0:32:01	1:36:11	3:03:31	3:41:51	3:44:30	4:22:29	4:27:12									18:15:42	18:46:49	19:05:56	21:22:12
10/14/2019	M	23:39:03	0:28:05	1:32:15	2:59:36	3:37:55	3:40:34	4:18:33	4:23:17									18:42:53	19:02:00	21:18:16	
10/15/2019	Tu	23:38:50	0:24:09	1:28:19	2:55:40	3:33:59	3:36:38	4:14:37	4:19:21	5:04:16								18:38:57	18:58:05	21:14:20	
10/16/2019	W	23:38:37	0:20:13	1:24:23	2:51:44	3:30:03	3:32:43	4:10:42	4:15:25	5:00:20								18:35:02	18:54:09	21:10:24	
10/17/2019	Th	23:38:25	0:16:17	1:20:27	2:47:48	3:26:07	3:28:47	4:06:46	4:11:29	4:56:24								18:31:06	18:50:13	21:06:28	
10/18/2019	F	23:38:13	0:12:21	1:16:31	2:43:52	3:22:12	3:24:51	4:02:50	4:07:33	4:52:29	5:05:49							18:27:10	18:46:17	21:02:32	
10/19/2019	Sa	23:38:02	0:08:25	1:12:35	2:39:56	3:18:16	3:20:55	3:58:54	4:03:37	4:48:33	5:01:53							18:23:14	18:42:21	20:58:36	
10/20/2019	Su	23:37:52	0:04:30	1:08:39	2:36:00	3:14:20	3:16:59	3:54:58	3:59:41	4:44:37	4:57:57							18:19:18	18:38:25	20:54:41	
10/21/2019	M	23:37:42	0:00:34	1:04:43	2:32:04	3:10:24	3:13:03	3:51:02	3:55:46	4:40:41	4:54:02							18:15:22	18:34:29	20:50:45	
10/21/2019	M		23:56:38																		
10/22/2019	Tu	23:37:34	23:52:42	1:00:48	2:28:09	3:06:28	3:09:07	3:47:06	3:51:50	4:36:45	4:50:06							18:11:26	18:30:33	20:46:49	
10/23/2019	W	23:37:25	23:48:46	0:56:52	2:24:13	3:02:32	3:05:12	3:43:10	3:47:54	4:32:49	4:46:10							18:07:30	18:26:37	20:42:53	
10/24/2019	Th	23:37:18	23:44:50	0:52:56	2:20:17	2:58:36	3:01:16	3:39:14	3:43:58	4:28:53	4:42:14							18:03:34	18:22:41	20:38:57	
10/25/2019	F	23:37:11	23:40:54	0:49:00	2:16:21	2:54:40	2:57:20	3:35:19	3:40:02	4:24:57	4:38:18							17:59:38	18:18:45	20:35:01	
10/26/2019	Sa	23:37:05	23:36:58	0:45:04	2:12:25	2:50:45	2:53:24	3:31:23	3:36:06	4:21:02	4:34:22	5:15:11						17:55:42	18:14:49	20:31:05	
10/27/2019	Su	23:37:00	23:33:02	0:41:08	2:08:29	2:46:49	2:49:28	3:27:27	3:32:10	4:17:06	4:30:26	5:11:15	5:17:25					18:10:53	18:10:53	20:27:09	
10/28/2019	M	23:36:55	23:29:07	0:37:12	2:04:33	2:42:53	2:45:32	3:23:31	3:28:14	4:13:10	4:26:30	5:07:19	5:13:29					18:06:57	18:06:57	20:23:13	
10/29/2019	Tu	23:36:51	23:25:11	0:33:16	2:00:37	2:38:57	2:41:36	3:19:35	3:24:19	4:09:14	4:22:35	5:03:23	5:09:33					18:03:01	18:03:01	20:19:17	
10/30/2019	W	23:36:48	23:21:15	0:29:20	1:56:41	2:35:01	2:37:40	3:15:39	3:20:23	4:05:18	4:18:39	4:59:27	5:05:37					17:59:06	17:59:06	20:15:21	
10/31/2019	Th	23:36:46	23:17:19	0:25:25	1:52:46	2:31:05	2:33:45	3:11:43	3:16:27	4:01:22	4:14:43	4:55:32	5:01:41					17:55:10	17:55:10	20:11:25	
11/01/2019	F	23:36:45	23:13:23	0:21:29	1:48:50	2:27:09	2:29:49	3:07:47	3:12:31	3:57:26	4:10:47	4:51:36	4:57:46					17:51:14	17:51:14	20:07:30	
11/02/2019	Sa	23:36:44	23:09:27	0:17:33	1:44:54	2:23:13	2:25:53	3:03:52	3:08:35	3:53:30	4:06:51	4:47:40	4:53:50					17:47:18	17:47:18	20:03:34	
11/03/2019	Su	23:36:44	23:05:31	0:13:37	1:40:58	2:19:17	2:21:57	2:59:56	3:04:39	3:49:34	4:02:55	4:43:44	4:49:54							19:59:38	
11/04/2019	M	23:36:45	23:01:35	0:09:41	1:37:02	2:15:22	2:18:01	2:56:00	3:00:43	3:45:39	3:58:59	4:39:48	4:45:58							19:55:42	
11/05/2019	Tu	23:36:47	22:57:39	0:05:45	1:33:06	2:11:26	2:14:05	2:52:04	2:56:47	3:41:43	3:55:03	4:35:52	4:42:02							19:51:46	
11/06/2019	W	23:36:49	22:53:43	0:01:49	1:29:10	2:07:30	2:10:09	2:48:08	2:52:52	3:37:47	3:51:07	4:31:56	4:38:06							19:47:50	
11/06/2019	W		23:57:53																		
11/07/2019	Th	23:36:53	22:49:47	23:53:57	1:25:14	2:03:34	2:06:13	2:44:12	2:48:56	3:33:51	3:47:12	4:28:00	4:34:10							19:43:54	
11/08/2019	F	23:36:57	22:45:52	23:50:02	1:21:18	1:59:38	2:02:18	2:40:16	2:45:00	3:29:55	3:43:16	4:24:05	4:30:14							19:39:58	
11/09/2019	Sa	23:37:02	22:41:56	23:46:06	1:17:23	1:55:42	1:58:22	2:36:20	2:41:04	3:25:59	3:39:20	4:20:09	4:26:19							19:36:02	
11/10/2019	Su	23:37:08	22:38:00	23:42:10	1:13:27	1:51:46	1:54:26	2:32:25	2:37:08	3:22:03	3:35:24	4:16:13	4:22:23							19:32:06	
11/11/2019	M	23:37:15	22:34:04	23:38:14	1:09:31	1:47:50	1:50:30	2:28:29	2:33:12	3:18:07	3:31:28	4:12:17	4:18:27							19:28:10	

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 29m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 24m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Ahara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
12/31/2019	Tu								23:57:37												
01/01/2020	W	23:56:53	19:13:32	20:17:42	21:45:04	22:23:24	22:26:04	23:04:02	23:08:46	23:53:41	0:10:58	0:51:47	0:57:57	3:20:27							
01/02/2020	Th	23:57:21	19:09:36	20:13:47	21:41:08	22:19:28	22:22:08	23:00:06	23:04:50	23:49:45	0:07:02	0:47:51	0:54:01	3:16:31							
01/03/2020	F	23:57:49	19:05:40	20:09:51	21:37:12	22:15:32	22:18:12	22:56:10	23:00:54	23:45:49	0:03:06	0:43:55	0:50:05	3:12:35							
01/03/2020	F											23:59:10									
01/04/2020	Sa	23:58:16	19:01:44	20:05:55	21:33:16	22:11:36	22:14:16	22:52:14	22:56:58	23:41:53	23:55:14	0:39:59	0:46:09	3:08:39							
01/05/2020	Su	23:58:43	18:57:48	20:01:59	21:29:20	22:07:40	22:10:20	22:48:19	22:53:03	23:37:58	23:51:18	0:36:03	0:42:13	3:04:43							
01/06/2020	M	23:59:09	18:53:52	19:58:03	21:25:24	22:03:44	22:06:24	22:44:23	22:49:07	23:34:02	23:47:22	0:32:07	0:38:17	3:00:47	6:17:03						
01/07/2020	Tu	23:59:35	18:49:57	19:54:07	21:21:29	21:59:48	22:02:28	22:40:27	22:45:11	23:30:06	23:43:26	0:28:11	0:34:22	2:56:52	6:13:07						
01/08/2020	W		18:46:01	19:50:11	21:17:33	21:55:52	21:58:32	22:36:31	22:41:15	23:26:10	23:39:31	0:24:15	0:30:26	2:52:56	6:09:11						
01/09/2020	Th	0:00:00	18:42:05	19:46:15	21:13:37	21:51:56	21:54:36	22:32:35	22:37:19	23:22:14	23:35:35	0:20:20	0:26:30	2:49:00	6:05:15						
01/10/2020	F	0:00:25	18:38:09	19:42:19	21:09:41	21:48:00	21:50:40	22:28:39	22:33:23	23:18:18	23:31:39	0:16:24	0:22:34	2:45:04	6:01:20						
01/11/2020	Sa	0:00:49	18:34:13	19:38:23	21:05:45	21:44:05	21:46:44	22:24:43	22:29:27	23:14:22	23:27:43	0:12:28	0:18:38	2:41:08	5:57:24						
01/12/2020	Su	0:01:13	18:30:17	19:34:27	21:01:49	21:40:09	21:42:49	22:20:47	22:25:31	23:10:26	23:23:47	0:08:32	0:14:42	2:37:12	5:53:28						
01/13/2020	M	0:01:36	18:26:21	19:30:31	20:57:53	21:36:13	21:38:53	22:16:51	22:21:35	23:06:30	23:19:51	0:04:36	0:10:46	2:33:16	5:49:32						
01/14/2020	Tu	0:01:58	18:22:25	19:26:35	20:53:57	21:32:17	21:34:57	22:12:55	22:17:39	23:02:34	23:15:55	0:00:40	0:06:50	2:29:20	5:45:36						
01/14/2020	Tu											23:56:44									
01/15/2020	W	0:02:20	18:18:29	19:22:40	20:50:01	21:28:21	21:31:01	22:08:59	22:13:43	22:58:38	23:11:59	23:52:48	0:02:54	2:25:25	5:41:40						
01/15/2020	W											23:58:59									
01/16/2020	Th	0:02:41	18:14:33	19:18:44	20:46:05	21:24:25	21:27:05	22:05:04	22:09:48	22:54:43	23:08:03	23:48:52	23:55:03	2:21:29	5:37:44						
01/17/2020	F	0:03:02	18:10:37	19:14:48	20:42:09	21:20:29	21:23:09	22:01:08	22:05:52	22:50:47	23:04:07	23:44:56	23:51:07	2:17:33	5:33:48						
01/18/2020	Sa	0:03:21	18:06:41	19:10:52	20:38:13	21:16:33	21:19:13	21:57:12	22:01:56	22:46:51	23:00:11	23:41:01	23:47:11	2:13:37	5:29:53						
01/19/2020	Su	0:03:41	18:02:45	19:06:56	20:34:18	21:12:37	21:15:17	21:53:16	21:58:00	22:42:55	22:56:16	23:37:05	23:43:15	2:09:41	5:25:57						
01/20/2020	M	0:03:59	17:58:49	19:03:00	20:30:22	21:08:41	21:11:21	21:49:20	21:54:04	22:38:59	22:52:20	23:33:09	23:39:19	2:05:45	5:22:01	6:12:12					
01/21/2020	Tu	0:04:17	17:54:54	18:59:04	20:26:26	21:04:45	21:07:25	21:45:24	21:50:08	22:35:03	22:48:24	23:29:13	23:35:23	2:01:49	5:18:05	6:08:16					
01/22/2020	W	0:04:34		18:55:08	20:22:30	21:00:49	21:03:29	21:41:28	21:46:12	22:31:07	22:44:28	23:25:17	23:31:27	1:57:53	5:14:09	6:04:20					
01/23/2020	Th	0:04:50		18:51:12	20:18:34	20:56:54	20:59:33	21:37:32	21:42:16	22:27:11	22:40:32	23:21:21	23:27:31	1:53:57	5:10:13	6:00:24					
01/24/2020	F	0:05:05		18:47:16	20:14:38	20:52:58	20:55:38	21:33:36	21:38:20	22:23:15	22:36:36	23:17:25	23:23:35	1:50:02	5:06:17	5:56:28					
01/25/2020	Sa	0:05:20		18:43:20	20:10:42	20:49:02	20:51:42	21:29:40	21:34:24	22:19:19	22:32:40	23:13:29	23:19:40	1:46:06	5:02:21	5:52:32					
01/26/2020	Su	0:05:34		18:39:24	20:06:46	20:45:06	20:47:46	21:25:44	21:30:28	22:15:23	22:28:44	23:09:33	23:15:44	1:42:10	4:58:26	5:48:37					
01/27/2020	M	0:05:47		18:35:28	20:02:50	20:41:10	20:43:50	21:21:49	21:26:33	22:11:28	22:24:48	23:05:37	23:11:48	1:38:14	4:54:30	5:44:41					
01/28/2020	Tu	0:05:59		18:31:32	19:58:54	20:37:14	20:39:54	21:17:53	21:22:37	22:07:32	22:20:52	23:01:42	23:07:52	1:34:18	4:50:34	5:40:45					
01/29/2020	W	0:06:11		18:27:37	19:54:58	20:33:18	20:35:58	21:13:57	21:18:41	22:03:36	22:16:56	22:57:46	23:03:56	1:30:22	4:46:38	5:36:49					
01/30/2020	Th	0:06:21		18:23:41	19:51:02	20:29:22	20:32:02	21:10:01	21:14:45	21:59:40	22:13:01	22:53:50	23:00:00	1:26:26	4:42:42	5:32:53					
01/31/2020	F	0:06:31		18:19:45	19:47:07	20:25:26	20:28:06	21:06:05	21:10:49	21:55:44	22:09:05	22:49:54	22:56:04	1:22:30	4:38:46	5:28:57					
02/01/2020	Sa	0:06:40		18:15:49	19:43:11	20:21:30	20:24:10	21:02:09	21:06:53	21:51:48	22:05:09	22:45:58	22:52:08	1:18:34	4:34:50	5:25:01					
02/02/2020	Su	0:06:48		18:11:53	19:39:15	20:17:34	20:20:14	20:58:13	21:02:57	21:47:52	22:01:13	22:42:02	22:48:12	1:14:39	4:30:54	5:21:05					
02/03/2020	M	0:06:55			19:35:19	20:13:38	20:16:18	20:54:17	20:59:01	21:43:56	21:57:17	22:38:06	22:44:16	1:10:43	4:26:59	5:17:10					
02/04/2020	Tu	0:07:02			19:31:23	20:09:43	20:12:22	20:50:21	20:55:05	21:40:00	21:53:21	22:34:10	22:40:20	1:06:47	4:23:03	5:13:14					
02/05/2020	W	0:07:07			19:27:27	20:05:47	20:08:26	20:46:25	20:51:09	21:36:04	21:49:25	22:30:14	22:36:25	1:02:51	4:19:07	5:09:18					
02/06/2020	Th	0:07:12			19:23:31	20:01:51	20:04:31	20:42:29	20:47:13	21:32:08	21:45:29	22:26:18	22:32:29	0:58:55	4:15:11	5:05:22					
02/07/2020	F	0:07:16			19:19:35	19:57:55	20:00:35	20:38:33	20:43:17	21:28:12	21:41:33	22:22:22	22:28:33	0:54:59	4:11:15	5:01:26					
02/08/2020	Sa	0:07:19			19:15:39	19:53:59	19:56:39	20:34:38	20:39:21	21:24:17	21:37:37	22:18:27	22:24:37	0:51:03	4:07:19	4:57:30					
02/09/2020	Su	0:07:22			19:11:43	19:50:03	19:52:43	20:30:42	20:35:26	21:20:21	21:33:41	22:14:31	22:20:41	0:47:07	4:03:23	4:53:34					
02/10/2020	M	0:07:23			19:07:47	19:46:07	19:48:47	20:26:46	20:31:30	21:16:25	21:29:45	22:10:35	22:16:45	0:43:11	3:59:27	4:49:38					
02/11/2020	Tu	0:07:24			19:03:51	19:42:11	19:44:51	20:22:50	20:27:34	21:12:29	21:25:50	22:06:39	22:12:49	0:39:15	3:55:32	4:45:43					
02/12/2020	W	0:07:24			18:59:55	19:38:15	19:40:55	20:18:54	20:23:38	21:08:33	21:21:54	22:02:43	22:08:53	0:35:20	3:51:36	4:41:47					
02/13/2020	Th	0:07:23																			

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 07m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
02/20/2020	Th												23:59:56								
02/21/2020	F	0:06:52			19:02:52	19:05:32	19:43:31	19:48:14	20:33:10	20:46:30	21:27:20	21:33:30	23:56:01	3:16:13	4:06:24						
02/22/2020	Sa	0:06:45			18:58:56	19:01:36	19:39:35	19:44:19	20:29:14	20:42:34	21:23:24	21:29:34	23:52:05	3:12:17	4:02:28						
02/23/2020	Su	0:06:38			18:55:00	18:57:40	19:35:39	19:40:23	20:25:18	20:38:38	21:19:28	21:25:38	23:48:09	3:08:21	3:58:32						
02/24/2020	M	0:06:30			18:51:04	18:53:44	19:31:43	19:36:27	20:21:22	20:34:43	21:15:32	21:21:42	23:44:13	3:04:25	3:54:36						
02/25/2020	Tu	0:06:21			18:47:08	18:49:48	19:27:47	19:32:31	20:17:26	20:30:47	21:11:36	21:17:46	23:40:17	3:00:29	3:50:40						
02/26/2020	W	0:06:11			18:43:12	18:45:52	19:23:51	19:28:35	20:13:30	20:26:51	21:07:40	21:13:50	23:36:21	2:56:33	3:46:44						
02/27/2020	Th	0:06:02				18:41:56	19:19:55	19:24:39	20:09:34	20:22:55	21:03:44	21:09:54	23:32:25	2:52:37	3:42:48						
02/28/2020	F	0:05:51					19:15:59	19:20:43	20:05:38	20:18:59	20:59:48	21:05:59	23:28:29	2:48:42	3:38:53						
02/29/2020	Sa	0:05:40					19:12:03	19:16:47	20:01:42	20:15:03	20:55:52	21:02:03	23:24:33	2:44:46	3:34:57						
03/01/2020	Su	0:05:28					19:08:07	19:12:51	19:57:46	20:11:07	20:51:56	20:58:07	23:20:37	2:40:50	3:31:01						
03/02/2020	M	0:05:16					19:04:11	19:08:55	19:53:50	20:07:11	20:48:01	20:54:11	23:16:42	2:36:54	3:27:05						
03/03/2020	Tu	0:05:04					19:00:15	19:04:59	19:49:54	20:03:15	20:44:05	20:50:15	23:12:46	2:32:58	3:23:09						
03/04/2020	W	0:04:51					18:56:20	19:01:03	19:45:59	19:59:19	20:40:09	20:46:19	23:08:50	2:29:02	3:19:13						
03/05/2020	Th	0:04:37					18:52:24	18:57:07	19:42:03	19:55:23	20:36:13	20:42:23	23:04:54	2:25:06	3:15:17						
03/06/2020	F	0:04:23						18:53:11	19:38:07	19:51:27	20:32:17	20:38:27	23:00:58	2:21:10	3:11:21						
03/07/2020	Sa	0:04:09							19:34:11	19:47:31	20:28:21	20:34:31	22:57:02	2:17:14	3:07:26						
03/08/2020	Su	0:03:54							19:30:15	19:43:36	20:24:25	20:30:35	22:53:06	2:13:19	3:03:30						
03/09/2020	M	0:03:39							19:26:19	19:39:40	20:20:29	20:26:39	22:49:10	2:09:23	2:59:34						
03/10/2020	Tu	0:03:24							19:22:23	19:35:44	20:16:33	20:22:43	22:45:14	2:05:27	2:55:38	5:09:19					
03/11/2020	W	0:03:08							19:18:27	19:31:48	20:12:37	20:18:48	22:41:18	2:01:31	2:51:42	5:05:23					
03/12/2020	Th	0:02:52							19:14:31	19:27:52	20:08:41	20:14:52	22:37:22	1:57:35	2:47:46	5:01:27					
03/13/2020	F	0:02:35							19:10:35	19:23:56	20:04:45	20:10:56	22:33:27	1:53:39	2:43:50	4:57:31					
03/14/2020	Sa	0:02:19							19:06:39	19:20:00	20:00:50	20:07:00	22:29:31	1:49:43	2:39:54	4:53:35					
03/15/2020	Su	0:02:02							19:02:43	19:16:04	19:56:54	20:03:04	22:25:35	1:45:47	2:35:58	4:49:40					
03/16/2020	M	0:01:45							19:12:08	19:52:58	19:59:08	22:21:39	1:41:51	2:32:03	4:45:44						
03/17/2020	Tu	0:01:28								19:08:12	19:49:02	19:55:12	22:17:43	1:37:56	2:28:07	4:41:48					
03/18/2020	W	0:01:10									19:45:06	19:51:16	22:13:47	1:34:00	2:24:11	4:37:52					
03/19/2020	Th	0:00:53							19:41:10	19:47:20	22:09:51	1:30:04	2:20:15	4:33:56							
03/20/2020	F	0:00:35								19:37:14	19:43:24	22:05:55	1:26:08	2:16:19	4:30:00						
03/21/2020	Sa	0:00:17								19:33:18	19:39:28	22:01:59	1:22:12	2:12:23	4:26:04						
03/21/2020	Sa	0:00:00																			
03/22/2020	Su	23:59:42									19:29:22	19:35:32	21:58:03	1:18:16	2:08:27	4:22:08					
03/23/2020	M	23:59:24									19:25:26	19:31:36	21:54:07	1:14:20	2:04:31	4:18:13					
03/24/2020	Tu	23:59:06									19:21:30	19:27:41	21:50:12	1:10:24	2:00:36	4:14:17					
03/25/2020	W	23:58:48									19:17:34	19:23:45	21:46:16	1:06:28	1:56:40	4:10:21					
03/26/2020	Th	23:58:30										19:19:49	21:42:20	1:02:33	1:52:44	4:06:25					
03/27/2020	F	23:58:12											21:38:24	0:58:37	1:48:48	4:02:29					
03/28/2020	Sa	23:57:54											21:34:28	0:54:41	1:44:52	3:58:33					
03/29/2020	Su	23:57:36											21:30:32	0:50:45	1:40:56	3:54:37					
03/30/2020	M	23:57:18											21:26:36	0:46:49	1:37:00	3:50:41					
03/31/2020	Tu	23:57:00											21:22:40	0:42:53	1:33:04	3:46:46					
04/01/2020	W	23:56:42											21:18:44	0:38:57	1:29:08	3:42:50					
04/02/2020	Th	23:56:25											21:14:48	0:35:01	1:25:13	3:38:54					
04/03/2020	F	23:56:07											21:10:52	0:31:05	1:21:17	3:34:58					
04/04/2020	Sa	23:55:50											21:06:57	0:27:09	1:17:21	3:31:02					
04/05/2020	Su	23:55:33											21:03:01	0:23:14	1:13:25	3:27:06					
04/06/2020	M	23:55:16											20:59:05	0:19:18	1:09:29	3:23:10					
04/07/2020	Tu	23:54:59											20:55:09	0:15:22	1:05:33	3:19:14					
04/08/2020	W	23:54:43											20:51:13	0:11:26	1:01:37	3:15:19					
04/09/2020	Th	23:54:26											20:47:17	0:07:30	0:57:41	3:11:23					
04/10/2020	F	23:54:11											20:43:21	0:03:34	0:53:45	3:07:27					
04/10/2020	F													23:59:38							
04/11/2020	Sa	23:53:55											20:39:25	23:55:42	0:49:49	3:03:31					
04/12/2020	Su	23:53:40											20:35:29	23:51:46	0:45:54	2:59:35					

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
04/13/2020	M	23:53:25											20:31:33	23:47:50	0:41:58	2:55:39					
04/14/2020	Tu	23:53:10											20:27:37	23:43:55	0:38:02	2:51:43					
04/15/2020	W	23:52:56											20:23:41	23:39:59	0:34:06	2:47:47					
04/16/2020	Th	23:52:42											20:19:46	23:36:03	0:30:10	2:43:51					
04/17/2020	F	23:52:29											20:15:50	23:32:07	0:26:14	2:39:56					
04/18/2020	Sa	23:52:16											20:11:54	23:28:11	0:22:18	2:36:00					
04/19/2020	Su	23:52:04											20:07:58	23:24:15	0:18:22	2:32:04					
04/20/2020	M	23:51:52											20:04:02	23:20:19	0:14:26	2:28:08					
04/21/2020	Tu	23:51:40											20:00:06	23:16:23	0:10:31	2:24:12					
04/22/2020	W	23:51:29										19:56:10	23:12:27	0:06:35	2:20:16						
04/23/2020	Th	23:51:18												23:08:31	0:02:39	2:16:20					
04/23/2020	Th													23:58:43							
04/24/2020	F	23:51:08												23:04:36	23:54:47	2:12:24					
04/25/2020	Sa	23:50:58												23:00:40	23:50:51	2:08:29					
04/26/2020	Su	23:50:49												22:56:44	23:46:55	2:04:33					
04/27/2020	M	23:50:40												22:52:48	23:42:59	2:00:37					
04/28/2020	Tu	23:50:32												22:48:52	23:39:03	1:56:41					
04/29/2020	W	23:50:24												22:44:56	23:35:07	1:52:45					
04/30/2020	Th	23:50:17												22:41:00	23:31:11	1:48:49					
05/01/2020	F	23:50:10												22:37:04	23:27:16	1:44:53					
05/02/2020	Sa	23:50:04												22:33:08	23:23:20	1:40:57					
05/03/2020	Su	23:49:58												22:29:12	23:19:24	1:37:01					
05/04/2020	M	23:49:53												22:25:17	23:15:28	1:33:06					
05/05/2020	Tu	23:49:48												22:21:21	23:11:32	1:29:10					
05/06/2020	W	23:49:44												22:17:25	23:07:36	1:25:14					
05/07/2020	Th	23:49:41												22:13:29	23:03:40	1:21:18					
05/08/2020	F	23:49:38												22:09:33	22:59:44	1:17:22					
05/09/2020	Sa	23:49:36												22:05:37	22:55:48	1:13:26					
05/10/2020	Su	23:49:34												22:01:41	22:51:52	1:09:30	3:16:08				
05/11/2020	M	23:49:33												21:57:45	22:47:57	1:05:34	3:12:12				
05/12/2020	Tu	23:49:32												21:53:49	22:44:01	1:01:38	3:08:16				
05/13/2020	W	23:49:32												21:49:53	22:40:05	0:57:43	3:04:20				
05/14/2020	Th	23:49:33												21:45:57	22:36:09	0:53:47	3:00:24				
05/15/2020	F	23:49:34												21:42:02	22:32:13	0:49:51	2:56:29				
05/16/2020	Sa	23:49:36												21:38:06	22:28:17	0:45:55	2:52:33				
05/17/2020	Su	23:49:38												21:34:10	22:24:21	0:41:59	2:48:37				
05/18/2020	M	23:49:41												21:30:14	22:20:25	0:38:03	2:44:41				
05/19/2020	Tu	23:49:45												21:26:18	22:16:29	0:34:07	2:40:45				
05/20/2020	W	23:49:49												21:22:22	22:12:33	0:30:11	2:36:49				
05/21/2020	Th	23:49:53												21:18:26	22:08:37	0:26:15	2:32:53				
05/22/2020	F	23:49:59												21:14:30	22:04:42	0:22:20	2:28:57				
05/23/2020	Sa	23:50:04												21:10:34	22:00:46	0:18:24	2:25:02				
05/24/2020	Su	23:50:10												21:06:38	21:56:50	0:14:28	2:21:06				
05/25/2020	M	23:50:17												21:02:42	21:52:54	0:10:32	2:17:10				
05/26/2020	Tu	23:50:24												20:58:46	21:48:58	0:06:36	2:13:14				
05/27/2020	W	23:50:31												20:54:51	21:45:02	0:02:40	2:09:18				
05/27/2020	W															23:58:44					
05/28/2020	Th	23:50:39												20:50:55	21:41:06	23:54:48	2:05:22				
05/29/2020	F	23:50:48													21:37:10	23:50:52	2:01:26				
05/30/2020	Sa	23:50:56													21:33:14	23:46:56	1:57:30				
05/31/2020	Su	23:51:05													21:29:18	23:43:01	1:53:34				
06/01/2020	M	23:51:15													21:25:22	23:39:05	1:49:39				
06/02/2020	Tu	23:51:25													21:21:27	23:35:09	1:45:43				
06/03/2020	W	23:51:35													21:17:31	23:31:13	1:41:47				
06/04/2020	Th	23:51:45													21:13:35	23:27:17	1:37:51				

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
06/05/2020	F	23:51:56													21:09:39	23:23:21	1:33:55	2:47:51			
06/06/2020	Sa	23:52:07													21:05:43	23:19:25	1:29:59	2:43:55			
06/07/2020	Su	23:52:19													21:01:47	23:15:29	1:26:03	2:39:59			
06/08/2020	M	23:52:30														23:11:33	1:22:07	2:36:03			
06/09/2020	Tu	23:52:42														23:07:37	1:18:11	2:32:07			
06/10/2020	W	23:52:54														23:03:42	1:14:15	2:28:11			
06/11/2020	Th	23:53:07														22:59:46	1:10:20	2:24:16			
06/12/2020	F	23:53:19														22:55:50	1:06:24	2:20:20			
06/13/2020	Sa	23:53:32														22:51:54	1:02:28	2:16:24			
06/14/2020	Su	23:53:45														22:47:58	0:58:32	2:12:28	2:43:34		
06/15/2020	M	23:53:58														22:44:02	0:54:36	2:08:32	2:39:38		
06/16/2020	Tu	23:54:11														22:40:06	0:50:40	2:04:36	2:35:42		
06/17/2020	W	23:54:24														22:36:10	0:46:44	2:00:40	2:31:47		
06/18/2020	Th	23:54:37														22:32:14	0:42:48	1:56:44	2:27:51		
06/19/2020	F	23:54:50														22:28:18	0:38:52	1:52:48	2:23:55	2:43:02	
06/20/2020	Sa	23:55:03														22:24:23	0:34:57	1:48:53	2:19:59	2:39:06	
06/21/2020	Su	23:55:16														22:20:27	0:31:01	1:44:57	2:16:03	2:35:10	
06/22/2020	M	23:55:29														22:16:31	0:27:05	1:41:01	2:12:07	2:31:14	
06/23/2020	Tu	23:55:42														22:12:35	0:23:09	1:37:05	2:08:11	2:27:18	
06/24/2020	W	23:55:55														22:08:39	0:19:13	1:33:09	2:04:15	2:23:22	
06/25/2020	Th	23:56:08														22:04:43	0:15:17	1:29:13	2:00:19	2:19:26	
06/26/2020	F	23:56:20														22:00:47	0:11:21	1:25:17	1:56:24	2:15:30	
06/27/2020	Sa	23:56:33														21:56:51	0:07:25	1:21:21	1:52:28	2:11:35	
06/28/2020	Su	23:56:45														21:52:55	0:03:29	1:17:25	1:48:32	2:07:39	
06/28/2020	Su																23:59:33				
06/29/2020	M	23:56:56														21:48:59	23:55:38	1:13:29	1:44:36	2:03:43	
06/30/2020	Tu	23:57:08														21:45:03	23:51:42	1:09:34	1:40:40	1:59:47	
07/01/2020	W	23:57:19														21:41:08	23:47:46	1:05:38	1:36:44	1:55:51	
07/02/2020	Th	23:57:30														21:37:12	23:43:50	1:01:42	1:32:48	1:51:55	
07/03/2020	F	23:57:41														21:33:16	23:39:54	0:57:46	1:28:52	1:47:59	
07/04/2020	Sa	23:57:51														21:29:20	23:35:58	0:53:50	1:24:56	1:44:03	
07/05/2020	Su	23:58:01														21:25:24	23:32:02	0:49:54	1:21:00	1:40:07	
07/06/2020	M	23:58:11														21:21:28	23:28:06	0:45:58	1:17:05	1:36:12	
07/07/2020	Tu	23:58:20														21:17:32	23:24:10	0:42:02	1:13:09	1:32:16	
07/08/2020	W	23:58:29														21:13:36	23:20:14	0:38:06	1:09:13	1:28:20	
07/09/2020	Th	23:58:37														21:09:40	23:16:18	0:34:11	1:05:17	1:24:24	
07/10/2020	F	23:58:45														21:05:44	23:12:23	0:30:15	1:01:21	1:20:28	
07/11/2020	Sa	23:58:53														21:01:48	23:08:27	0:26:19	0:57:25	1:16:32	
07/12/2020	Su	23:59:00														20:57:52	23:04:31	0:22:23	0:53:29	1:12:36	
07/13/2020	M	23:59:06															23:00:35	0:18:27	0:49:33	1:08:40	
07/14/2020	Tu	23:59:12															22:56:39	0:14:31	0:45:37	1:04:44	
07/15/2020	W	23:59:18														22:52:43	0:10:35	0:41:42	1:00:48		
07/16/2020	Th	23:59:23														22:48:47	0:06:39	0:37:46	0:56:53		
07/17/2020	F															22:44:51	0:02:43	0:33:50	0:52:57		
07/17/2020	F	23:59:28															23:58:47				
07/18/2020	Sa	23:59:32															22:40:55	23:54:52	0:29:54	0:49:01	3:05:16
07/19/2020	Su	23:59:36															22:36:59	23:50:56	0:25:58	0:45:05	3:01:20
07/20/2020	M	23:59:38															22:33:03	23:47:00	0:22:02	0:41:09	2:57:24
07/21/2020	Tu	23:59:41															22:29:08	23:43:04	0:18:06	0:37:13	2:53:28
07/22/2020	W	23:59:43															22:25:12	23:39:08	0:14:10	0:33:17	2:49:33
07/23/2020	Th	23:59:44															22:21:16	23:35:12	0:10:14	0:29:21	2:45:37
07/24/2020	F	23:59:45															22:17:20	23:31:16	0:06:18	0:25:25	2:41:41
07/25/2020	Sa																22:13:24	23:27:20	0:02:23	0:21:29	2:37:45
07/25/2020	Sa	23:59:45																			
07/25/2020	Sa																	23:58:27			
07/26/2020	Su	23:59:44															22:09:28	23:23:24	23:54:31	0:17:34	2:33:49

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
07/27/2020	M	23:59:43															22:05:32	23:19:28	23:50:35	0:13:38	2:29:53
07/28/2020	Tu	23:59:41															22:01:36	23:15:33	23:46:39	0:09:42	2:25:57
07/29/2020	W	23:59:38															21:57:40	23:11:37	23:42:43	0:05:46	2:22:01
07/30/2020	Th																21:53:44	23:07:41	23:38:47	0:01:50	2:18:05
07/30/2020	Th	23:59:35																		23:57:54	
07/31/2020	F	23:59:31															21:49:48	23:03:45	23:34:51	23:53:58	2:14:10
08/01/2020	Sa	23:59:27															21:45:52	22:59:49	23:30:55	23:50:02	2:10:14
08/02/2020	Su	23:59:22															21:41:57	22:55:53	23:26:59	23:46:06	2:06:18
08/03/2020	M	23:59:17															21:38:01	22:51:57	23:23:03	23:42:10	2:02:22
08/04/2020	Tu	23:59:10															21:34:05	22:48:01	23:19:08	23:38:15	1:58:26
08/05/2020	W	23:59:04															21:30:09	22:44:05	23:15:12	23:34:19	1:54:30
08/06/2020	Th	23:58:56															21:26:13	22:40:09	23:11:16	23:30:23	1:50:34
08/07/2020	F	23:58:48															21:22:17	22:36:13	23:07:20	23:26:27	1:46:38
08/08/2020	Sa	23:58:40															21:18:21	22:32:18	23:03:24	23:22:31	1:42:42
08/09/2020	Su	23:58:31															21:14:25	22:28:22	22:59:28	23:18:35	1:38:47
08/10/2020	M	23:58:21															21:10:29	22:24:26	22:55:32	23:14:39	1:34:51
08/11/2020	Tu	23:58:11															21:06:33	22:20:30	22:51:36	23:10:43	1:30:55
08/12/2020	W	23:58:00															21:02:37	22:16:34	22:47:40	23:06:47	1:26:59
08/13/2020	Th	23:57:49															20:58:41	22:12:38	22:43:44	23:02:51	1:23:03
08/14/2020	F	23:57:37															20:54:45	22:08:42	22:39:48	22:58:55	1:19:07
08/15/2020	Sa	23:57:25															20:50:50	22:04:46	22:35:53	22:55:00	1:15:11
08/16/2020	Su	23:57:12															20:46:54	22:00:50	22:31:57	22:51:04	1:11:15
08/17/2020	M	23:56:59															20:42:58	21:56:54	22:28:01	22:47:08	1:07:19
08/18/2020	Tu	23:56:45															20:39:02	21:52:58	22:24:05	22:43:12	1:03:24
08/19/2020	W	23:56:31															20:35:06	21:49:03	22:20:09	22:39:16	0:59:28
08/20/2020	Th	23:56:16															20:31:10	21:45:07	22:16:13	22:35:20	0:55:32
08/21/2020	F	23:56:01															20:27:14	21:41:11	22:12:17	22:31:24	0:51:36
08/22/2020	Sa	23:55:46	3:53:32														20:23:18	21:37:15	22:08:21	22:27:28	0:47:40
08/23/2020	Su	23:55:30	3:49:36														20:19:22	21:33:19	22:04:25	22:23:32	0:43:44
08/24/2020	M	23:55:13	3:45:40														20:15:26	21:29:23	22:00:29	22:19:36	0:39:48
08/25/2020	Tu	23:54:56	3:41:44														20:11:30	21:25:27	21:56:33	22:15:40	0:35:52
08/26/2020	W	23:54:39	3:37:48														20:07:34	21:21:31	21:52:37	22:11:45	0:31:56
08/27/2020	Th	23:54:21	3:33:53														20:03:38	21:17:35	21:48:42	22:07:49	0:28:01
08/28/2020	F	23:54:03	3:29:57														19:59:43	21:13:39	21:44:46	22:03:53	0:24:05
08/29/2020	Sa	23:53:44	3:26:01														19:55:47	21:09:43	21:40:50	21:59:57	0:20:09
08/30/2020	Su	23:53:26	3:22:05														19:51:51	21:05:47	21:36:54	21:56:01	0:16:13
08/31/2020	M	23:53:07	3:18:09														19:47:55	21:01:52	21:32:58	21:52:05	0:12:17
09/01/2020	Tu	23:52:47	3:14:13														19:43:59	20:57:56	21:29:02	21:48:09	0:08:21
09/02/2020	W	23:52:28	3:10:17														19:40:03	20:54:00	21:25:06	21:44:13	0:04:25
09/03/2020	Th	23:52:08	3:06:21	4:10:31													19:36:07	20:50:04	21:21:10	21:40:17	0:00:29
09/03/2020	Th																				23:56:33
09/04/2020	F	23:51:48	3:02:26	4:06:35													19:32:11	20:46:08	21:17:14	21:36:21	23:52:37
09/05/2020	Sa	23:51:27	2:58:30	4:02:39													19:28:15	20:42:12	21:13:18	21:32:25	23:48:42
09/06/2020	Su	23:51:07	2:54:34	3:58:44													19:24:19	20:38:16	21:09:22	21:28:29	23:44:46
09/07/2020	M	23:50:46	2:50:38	3:54:48													20:34:20	21:05:26	21:24:33	21:24:33	23:40:50
09/08/2020	Tu	23:50:25	2:46:42	3:50:52													20:30:24	21:01:31	21:20:38	21:20:38	23:36:54
09/09/2020	W	23:50:04	2:42:46	3:46:56													20:26:28	20:57:35	21:16:42	21:16:42	23:32:58
09/10/2020	Th	23:49:43	2:38:50	3:43:00													20:22:32	20:53:39	21:12:46	21:12:46	23:29:02
09/11/2020	F	23:49:22	2:34:54	3:39:04													20:18:36	20:49:43	21:08:50	21:08:50	23:25:06
09/12/2020	Sa	23:49:01	2:30:59	3:35:08													20:14:41	20:45:47	21:04:54	21:04:54	23:21:10
09/13/2020	Su	23:48:39	2:27:03	3:31:12													20:10:45	20:41:51	21:00:58	21:00:58	23:17:14
09/14/2020	M	23:48:18	2:23:07	3:27:17													20:06:49	20:37:55	20:57:02	20:57:02	23:13:18
09/15/2020	Tu	23:47:57	2:19:11	3:23:21													20:02:53	20:33:59	20:53:06	20:53:06	23:09:23
09/16/2020	W	23:47:35	2:15:15	3:19:25													19:58:57	20:30:03	20:49:10	20:49:10	23:05:27
09/17/2020	Th	23:47:14	2:11:19	3:15:29													19:55:01	20:26:07	20:45:14	20:45:14	23:01:31

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkailinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
12/30/2020	W	23:56:18	19:18:29	20:22:40	21:50:01	22:28:20	22:31:02	23:08:59	23:13:44	0:02:33	0:15:54	0:56:43	1:02:54	3:25:24							
12/30/2020	W									23:58:37											
12/31/2020	Th	23:56:46	19:14:33	20:18:44	21:46:05	22:24:24	22:27:06	23:05:03	23:09:48	23:54:41	0:11:58	0:52:48	0:58:58	3:21:28							
01/01/2021	F	23:57:14	19:10:37	20:14:48	21:42:09	22:20:28	22:23:10	23:01:07	23:05:52	23:50:46	0:08:02	0:48:52	0:55:02	3:17:32							
01/02/2021	Sa	23:57:42	19:06:41	20:10:52	21:38:13	22:16:32	22:19:14	22:57:11	23:01:56	23:46:50	0:04:06	0:44:56	0:51:07	3:13:36							
01/03/2021	Su		19:02:46	20:06:56	21:34:17	22:12:36	22:15:18	22:53:15	22:58:00	23:42:54	0:00:10	0:41:00	0:47:11	3:09:40							
01/03/2021	Su	23:58:09										23:56:14									
01/04/2021	M	23:58:36	18:58:50	20:03:00	21:30:21	22:08:41	22:11:22	22:49:19	22:54:05	23:38:58	23:52:18	0:37:04	0:43:15	3:05:44							
01/05/2021	Tu	23:59:02	18:54:54	19:59:04	21:26:26	22:04:45	22:07:26	22:45:24	22:50:09	23:35:02	23:48:22	0:33:08	0:39:19	3:01:48	6:18:04						
01/06/2021	W	23:59:28	18:50:58	19:55:08	21:22:30	22:00:49	22:03:30	22:41:28	22:46:13	23:31:06	23:44:26	0:29:12	0:35:23	2:57:52	6:14:08						
01/07/2021	Th	23:59:54	18:47:02	19:51:12	21:18:34	21:56:53	21:59:34	22:37:32	22:42:17	23:27:10	23:40:31	0:25:16	0:31:27	2:53:57	6:10:12						
01/08/2021	F		18:43:06	19:47:17	21:14:38	21:52:57	21:55:38	22:33:36	22:38:21	23:23:14	23:36:35	0:21:20	0:27:31	2:50:01	6:06:16						
01/09/2021	Sa	0:00:19	18:39:10	19:43:21	21:10:42	21:49:01	21:51:42	22:29:40	22:34:25	23:19:18	23:32:39	0:17:24	0:23:35	2:46:05	6:02:20						
01/10/2021	Su	0:00:43	18:35:14	19:39:25	21:06:46	21:45:05	21:47:46	22:25:44	22:30:29	23:15:22	23:28:43	0:13:29	0:19:39	2:42:09	5:58:24						
01/11/2021	M	0:01:07	18:31:18	19:35:29	21:02:50	21:41:09	21:43:51	22:21:48	22:26:33	23:11:26	23:24:47	0:09:33	0:15:43	2:38:13	5:54:29						
01/12/2021	Tu	0:01:31	18:27:22	19:31:33	20:58:54	21:37:13	21:39:55	22:17:52	22:22:37	23:07:31	23:20:51	0:05:37	0:11:48	2:34:17	5:50:33						
01/13/2021	W	0:01:54	18:23:26	19:27:37	20:54:58	21:33:17	21:35:59	22:13:56	22:18:41	23:03:35	23:16:55	0:01:41	0:07:52	2:30:21	5:46:37						
01/13/2021	W											23:57:45									
01/14/2021	Th	0:02:16	18:19:30	19:23:41	20:51:02	21:29:21	21:32:03	22:10:00	22:14:46	22:59:39	23:12:59	23:53:49	0:03:56	2:26:25	5:42:41						
01/14/2021	Th												0:00:00								
01/15/2021	F	0:02:37	18:15:34	19:19:45	20:47:06	21:25:25	21:28:07	22:06:04	22:10:50	22:55:43	23:09:03	23:49:53	23:56:04	2:22:29	5:38:45						
01/16/2021	Sa	0:02:58	18:11:38	19:15:49	20:43:10	21:21:30	21:24:11	22:02:09	22:06:54	22:51:47	23:05:07	23:45:57	23:52:08	2:18:34	5:34:49						
01/17/2021	Su	0:03:18	18:07:43	19:11:53	20:39:15	21:17:34	21:20:15	21:58:13	22:02:58	22:47:51	23:01:11	23:42:01	23:48:12	2:14:38	5:30:53						
01/18/2021	M	0:03:37	18:03:47	19:07:57	20:35:19	21:13:38	21:16:19	21:54:17	21:59:02	22:43:55	22:57:16	23:38:05	23:44:16	2:10:42	5:26:57						
01/19/2021	Tu	0:03:56	17:59:51	19:04:01	20:31:23	21:09:42	21:12:23	21:50:21	21:55:06	22:39:59	22:53:20	23:34:10	23:40:20	2:06:46	5:23:02	6:13:12					
01/20/2021	W	0:04:14	17:55:55	19:00:05	20:27:27	21:05:46	21:08:27	21:46:25	21:51:10	22:36:03	22:49:24	23:30:14	23:36:24	2:02:50	5:19:06	6:09:16					
01/21/2021	Th	0:04:31		18:56:10	20:23:31	21:01:50	21:04:31	21:42:29	21:47:14	22:32:07	22:45:28	23:26:18	23:32:29	1:58:54	5:15:10	6:05:21					
01/22/2021	F	0:04:47		18:52:14	20:19:35	20:57:54	21:00:35	21:38:33	21:43:18	22:28:12	22:41:32	23:22:22	23:28:33	1:54:58	5:11:14	6:01:25					
01/23/2021	Sa	0:05:03		18:48:18	20:15:39	20:53:58	20:56:40	21:34:37	21:39:22	22:24:16	22:37:36	23:18:26	23:24:37	1:51:02	5:07:18	5:57:29					
01/24/2021	Su	0:05:17		18:44:22	20:11:43	20:50:02	20:52:44	21:30:41	21:35:26	22:20:20	22:33:40	23:14:30	23:20:41	1:47:07	5:03:22	5:53:33					
01/25/2021	M	0:05:31		18:40:26	20:07:47	20:46:06	20:48:48	21:26:45	21:31:30	22:16:24	22:29:44	23:10:34	23:16:45	1:43:11	4:59:26	5:49:37					
01/26/2021	Tu	0:05:44		18:36:30	20:03:51	20:42:10	20:44:52	21:22:49	21:27:35	22:12:28	22:25:48	23:06:38	23:12:49	1:39:15	4:55:30	5:45:41					
01/27/2021	W	0:05:56		18:32:34	19:59:55	20:38:15	20:40:56	21:18:54	21:23:39	22:08:32	22:21:52	23:02:42	23:08:53	1:35:19	4:51:35	5:41:45					
01/28/2021	Th	0:06:08		18:28:38	19:55:59	20:34:19	20:37:00	21:14:58	21:19:43	22:04:36	22:17:56	22:58:46	23:04:57	1:31:23	4:47:39	5:37:49					
01/29/2021	F	0:06:19		18:24:42	19:52:04	20:30:23	20:33:04	21:11:02	21:15:47	22:00:40	22:14:01	22:54:51	23:01:01	1:27:27	4:43:43	5:33:53					
01/30/2021	Sa	0:06:28		18:20:46	19:48:08	20:26:27	20:29:08	21:07:06	21:11:51	21:56:44	22:10:05	22:50:55	22:57:05	1:23:31	4:39:47	5:29:58					
01/31/2021	Su	0:06:37		18:16:50	19:44:12	20:22:31	20:25:12	21:03:10	21:07:55	21:52:48	22:06:09	22:46:59	22:53:10	1:19:35	4:35:51	5:26:02					
02/01/2021	M	0:06:46		18:12:54	19:40:16	20:18:35	20:21:16	20:59:14	21:03:59	21:48:52	22:02:13	22:43:03	22:49:14	1:15:39	4:31:55	5:22:06					
02/02/2021	Tu	0:06:53			19:36:20	20:14:39	20:17:20	20:55:18	21:00:03	21:44:56	21:58:17	22:39:07	22:45:18	1:11:43	4:27:59	5:18:10					
02/03/2021	W	0:07:00				19:32:24	20:10:43	20:13:24	20:51:22	20:56:07	21:41:01	21:54:21	22:35:11	22:41:22	1:07:48	4:24:03	5:14:14				
02/04/2021	Th	0:07:05					19:28:28	20:06:47	20:09:29	20:47:26	20:52:11	21:37:05	21:50:25	22:31:15	22:37:26	1:03:52	4:20:08	5:10:18			
02/05/2021	F	0:07:10					19:24:32	20:02:51	20:05:33	20:43:30	20:48:15	21:33:09	21:46:29	22:27:19	22:33:30	0:59:56	4:16:12	5:06:22			
02/06/2021	Sa	0:07:15					19:20:36	19:58:55	20:01:37	20:39:34	20:44:19	21:29:13	21:42:33	22:23:23	22:29:34	0:56:00	4:12:16	5:02:26			
02/07/2021	Su	0:07:18					19:16:40	19:54:59	19:57:41	20:35:38	20:40:24	21:25:17	21:38:37	22:19:27	22:25:38	0:52:04	4:08:20	4:58:31			
02/08/2021	M	0:07:21					19:12:44	19:51:03	19:53:45	20:31:43	20:36:28	21:21:21	21:34:41	22:15:31	22:21:42	0:48:08	4:04:24	4:54:35			
02/09/2021	Tu	0:07:23					19:08:48	19:47:08	19:49:49	20:27:47	20:32:32	21:17:25	21:30:45	22:11:36	22:17:46	0:44:12	4:00:28	4:50:39			
02/10/2021	W	0:07:24					19:04:52	19:43:12	19:45:53	20:23:51	20:28:36	21:13:29	21:26:50	22:07:40	22:13:50	0:40:16	3:56:32	4:46:43			
02/11/2021	Th	0:07:24																			

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
02/19/2021	F	0:07:01			19:07:48	19:10:30	19:48:27	19:53:12	20:38:06	20:51:26	21:32:16	21:38:27	0:04:53	3:21:09	4:11:20						
02/20/2021	Sa	0:06:54			19:03:52	19:06:34	19:44:31	19:49:17	20:34:10	20:47:30	21:28:21	21:34:31	0:00:57	3:17:13	4:07:24						
02/20/2021	Sa												23:57:01								
02/21/2021	Su	0:06:48			18:59:56	19:02:38	19:40:36	19:45:21	20:30:14	20:43:34	21:24:25	21:30:35	23:53:06	3:13:18	4:03:28						
02/22/2021	M	0:06:40			18:56:01	18:58:42	19:36:40	19:41:25	20:26:18	20:39:38	21:20:29	21:26:40	23:49:10	3:09:22	3:59:32						
02/23/2021	Tu	0:06:32			18:52:05	18:54:46	19:32:44	19:37:29	20:22:22	20:35:43	21:16:33	21:22:44	23:45:14	3:05:26	3:55:37						
02/24/2021	W	0:06:23			18:48:09	18:50:50	19:28:48	19:33:33	20:18:26	20:31:47	21:12:37	21:18:48	23:41:18	3:01:30	3:51:41						
02/25/2021	Th	0:06:14			18:44:13	18:46:54	19:24:52	19:29:37	20:14:30	20:27:51	21:08:41	21:14:52	23:37:22	2:57:34	3:47:45						
02/26/2021	F	0:06:04				18:42:58	19:20:56	19:25:41	20:10:34	20:23:55	21:04:45	21:10:56	23:33:26	2:53:38	3:43:49						
02/27/2021	Sa	0:05:53					19:17:00	19:21:45	20:06:38	20:19:59	21:00:49	21:07:00	23:29:30	2:49:42	3:39:53						
02/28/2021	Su	0:05:42					19:13:04	19:17:49	20:02:43	20:16:03	20:56:53	21:03:04	23:25:34	2:45:46	3:35:57						
03/01/2021	M	0:05:31					19:09:08	19:13:53	19:58:47	20:12:07	20:52:57	20:59:08	23:21:38	2:41:51	3:32:01						
03/02/2021	Tu	0:05:19					19:05:12	19:09:57	19:54:51	20:08:11	20:49:01	20:55:12	23:17:42	2:37:55	3:28:05						
03/03/2021	W	0:05:06					19:01:16	19:06:01	19:50:55	20:04:15	20:45:05	20:51:16	23:13:47	2:33:59	3:24:10						
03/04/2021	Th	0:04:53					18:57:20	19:02:05	19:46:59	20:00:19	20:41:10	20:47:20	23:09:51	2:30:03	3:20:14						
03/05/2021	F	0:04:40					18:53:25	18:58:09	19:43:03	19:56:23	20:37:14	20:43:24	23:05:55	2:26:07	3:16:18						
03/06/2021	Sa	0:04:26							18:54:14	19:39:07	19:52:27	20:33:18	20:39:29	23:01:59	2:22:11	3:12:22					
03/07/2021	Su	0:04:12							19:35:11	19:48:31	20:29:22	20:35:33	22:58:03	2:18:15	3:08:26						
03/08/2021	M	0:03:57							19:31:15	19:44:36	20:25:26	20:31:37	22:54:07	2:14:19	3:04:30						
03/09/2021	Tu	0:03:43							19:27:19	19:40:40	20:21:30	20:27:41	22:50:11	2:10:23	3:00:34						
03/10/2021	W	0:03:27							19:23:23	19:36:44	20:17:34	20:23:45	22:46:15	2:06:28	2:56:38	5:10:20					
03/11/2021	Th	0:03:12							19:19:27	19:32:48	20:13:38	20:19:49	22:42:19	2:02:32	2:52:42	5:06:24					
03/12/2021	F	0:02:56							19:15:31	19:28:52	20:09:42	20:15:53	22:38:23	1:58:36	2:48:47	5:02:28					
03/13/2021	Sa	0:02:40							19:11:36	19:24:56	20:05:46	20:11:57	22:34:27	1:54:40	2:44:51	4:58:33					
03/14/2021	Su	0:02:23							19:07:40	19:21:00	20:01:50	20:08:01	22:30:32	1:50:44	2:40:55	4:54:37					
03/15/2021	M	0:02:07							19:03:44	19:17:04	19:57:54	20:04:05	22:26:36	1:46:48	2:36:59	4:50:41					
03/16/2021	Tu	0:01:50								19:13:08	19:53:58	20:00:09	22:22:40	1:42:52	2:33:03	4:46:45					
03/17/2021	W	0:01:33								19:09:12	19:50:03	19:56:13	22:18:44	1:38:56	2:29:07	4:42:49					
03/18/2021	Th	0:01:15								19:46:07	19:52:17	22:14:48	1:35:00	2:25:11	4:38:53						
03/19/2021	F	0:00:58								19:42:11	19:48:22	22:10:52	1:31:05	2:21:15	4:34:57						
03/20/2021	Sa	0:00:40								19:38:15	19:44:26	22:06:56	1:27:09	2:17:20	4:31:01						
03/21/2021	Su	0:00:22								19:34:19	19:40:30	22:03:00	1:23:13	2:13:24	4:27:06						
03/22/2021	M	0:00:04									19:30:23	19:36:34	21:59:04	1:19:17	2:09:28	4:23:10					
03/22/2021	M	23:59:46																			
03/23/2021	Tu	23:59:28									19:26:27	19:32:38	21:55:08	1:15:21	2:05:32	4:19:14					
03/24/2021	W	23:59:10									19:22:31	19:28:42	21:51:12	1:11:25	2:01:36	4:15:18					
03/25/2021	Th	23:58:52									19:18:35	19:24:46	21:47:17	1:07:29	1:57:40	4:11:22					
03/26/2021	F	23:58:34										19:20:50	21:43:21	1:03:33	1:53:44	4:07:26					
03/27/2021	Sa	23:58:16											21:39:25	0:59:37	1:49:48	4:03:30					
03/28/2021	Su	23:57:57											21:35:29	0:55:42	1:45:52	3:59:34					
03/29/2021	M	23:57:39											21:31:33	0:51:46	1:41:57	3:55:39					
03/30/2021	Tu	23:57:21											21:27:37	0:47:50	1:38:01	3:51:43					
03/31/2021	W	23:57:03											21:23:41	0:43:54	1:34:05	3:47:47					
04/01/2021	Th	23:56:46											21:19:45	0:39:58	1:30:09	3:43:51					
04/02/2021	F	23:56:28											21:15:49	0:36:02	1:26:13	3:39:55					
04/03/2021	Sa	23:56:11											21:11:53	0:32:06	1:22:17	3:35:59					
04/04/2021	Su	23:55:53											21:07:57	0:28:10	1:18:21	3:32:03					
04/05/2021	M	23:55:36											21:04:01	0:24:14	1:14:25	3:28:07					
04/06/2021	Tu	23:55:19											21:00:06	0:20:18	1:10:29	3:24:12					
04/07/2021	W	23:55:03											20:56:10	0:16:23	1:06:33	3:20:16					
04/08/2021	Th	23:54:46											20:52:14	0:12:27	1:02:38	3:16:20					
04/09/2021	F	23:54:30											20:48:18	0:08:31	0:58:42	3:12:24					
04/10/2021	Sa	23:54:15											20:44:22	0:04:35	0:54:46	3:08:28					
04/11/2021	Su	23:53:59											20:40:26	0:00:39	0:50:50	3:04:32					
04/11/2021	Su													23:56:43							

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
04/12/2021	M	23:53:44											20:36:30	23:52:47	0:46:54	3:00:36					
04/13/2021	Tu	23:53:29											20:32:34	23:48:51	0:42:58	2:56:40					
04/14/2021	W	23:53:14											20:28:38	23:44:55	0:39:02	2:52:45					
04/15/2021	Th	23:53:00											20:24:42	23:40:59	0:35:06	2:48:49					
04/16/2021	F	23:52:46											20:20:46	23:37:04	0:31:10	2:44:53					
04/17/2021	Sa	23:52:33											20:16:50	23:33:08	0:27:15	2:40:57					
04/18/2021	Su	23:52:20											20:12:55	23:29:12	0:23:19	2:37:01					
04/19/2021	M	23:52:07											20:08:59	23:25:16	0:19:23	2:33:05					
04/20/2021	Tu	23:51:55											20:05:03	23:21:20	0:15:27	2:29:09					
04/21/2021	W	23:51:43											20:01:07	23:17:24	0:11:31	2:25:13					
04/22/2021	Th	23:51:32											19:57:11	23:13:28	0:07:35	2:21:18					
04/23/2021	F	23:51:21												23:09:32	0:03:39	2:17:22					
04/23/2021	F													23:59:43							
04/24/2021	Sa	23:51:10												23:05:36	23:55:47	2:13:26					
04/25/2021	Su	23:51:00												23:01:40	23:51:51	2:09:30					
04/26/2021	M	23:50:51												22:57:45	23:47:56	2:05:34					
04/27/2021	Tu	23:50:42												22:53:49	23:44:00	2:01:38					
04/28/2021	W	23:50:33												22:49:53	23:40:04	1:57:42					
04/29/2021	Th	23:50:25												22:45:57	23:36:08	1:53:46					
04/30/2021	F	23:50:18												22:42:01	23:32:12	1:49:50					
05/01/2021	Sa	23:50:11												22:38:05	23:28:16	1:45:55					
05/02/2021	Su	23:50:04												22:34:09	23:24:20	1:41:59					
05/03/2021	M	23:49:59												22:30:13	23:20:24	1:38:03					
05/04/2021	Tu	23:49:53												22:26:17	23:16:28	1:34:07					
05/05/2021	W	23:49:49												22:22:21	23:12:32	1:30:11					
05/06/2021	Th	23:49:45												22:18:25	23:08:37	1:26:15					
05/07/2021	F	23:49:41												22:14:30	23:04:41	1:22:19					
05/08/2021	Sa	23:49:39												22:10:34	23:00:45	1:18:23					
05/09/2021	Su	23:49:36												22:06:38	22:56:49	1:14:27					
05/10/2021	M	23:49:35												22:02:42	22:52:53	1:10:32	3:17:08				
05/11/2021	Tu	23:49:34												21:58:46	22:48:57	1:06:36	3:13:12				
05/12/2021	W	23:49:33												21:54:50	22:45:01	1:02:40	3:09:16				
05/13/2021	Th	23:49:33												21:50:54	22:41:05	0:58:44	3:05:20				
05/14/2021	F	23:49:34												21:46:58	22:37:09	0:54:48	3:01:24				
05/15/2021	Sa	23:49:35												21:43:02	22:33:13	0:50:52	2:57:28				
05/16/2021	Su	23:49:36												21:39:06	22:29:17	0:46:56	2:53:32				
05/17/2021	M	23:49:39												21:35:10	22:25:22	0:43:00	2:49:36				
05/18/2021	Tu	23:49:41												21:31:15	22:21:26	0:39:04	2:45:41				
05/19/2021	W	23:49:45												21:27:19	22:17:30	0:35:09	2:41:45				
05/20/2021	Th	23:49:48												21:23:23	22:13:34	0:31:13	2:37:49				
05/21/2021	F	23:49:53												21:19:27	22:09:38	0:27:17	2:33:53				
05/22/2021	Sa	23:49:58												21:15:31	22:05:42	0:23:21	2:29:57				
05/23/2021	Su	23:50:03												21:11:35	22:01:46	0:19:25	2:26:01				
05/24/2021	M	23:50:09												21:07:39	21:57:50	0:15:29	2:22:05				
05/25/2021	Tu	23:50:15												21:03:43	21:53:54	0:11:33	2:18:09				
05/26/2021	W	23:50:22												20:59:47	21:49:58	0:07:37	2:14:14				
05/27/2021	Th	23:50:29												20:55:51	21:46:02	0:03:41	2:10:18				
05/27/2021	Th														23:59:45						
05/28/2021	F	23:50:37												20:51:55	21:42:07	23:55:50	2:06:22				
05/29/2021	Sa	23:50:45													21:38:11	23:51:54	2:02:26				
05/30/2021	Su	23:50:53													21:34:15	23:47:58	1:58:30				
05/31/2021	M	23:51:02													21:30:19	23:44:02	1:54:34				
06/01/2021	Tu	23:51:12													21:26:23	23:40:06	1:50:38				
06/02/2021	W	23:51:22													21:22:27	23:36:10	1:46:42				
06/03/2021	Th	23:51:32													21:18:31	23:32:14	1:42:46				

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=	2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=	42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=	10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut
07/26/2021	M	23:59:43															22:10:27	23:24:24	23:55:29	0:18:32	2:34:49
07/27/2021	Tu	23:59:42															22:06:31	23:20:28	23:51:34	0:14:36	2:30:53
07/28/2021	W	23:59:40															22:02:35	23:16:32	23:47:38	0:10:40	2:26:57
07/29/2021	Th	23:59:38															21:58:39	23:12:36	23:43:42	0:06:44	2:23:01
07/30/2021	F																21:54:43	23:08:40	23:39:46	0:02:49	2:19:06
07/30/2021	F	23:59:35																		23:58:53	
07/31/2021	Sa	23:59:31															21:50:47	23:04:44	23:35:50	23:54:57	2:15:10
08/01/2021	Su	23:59:27															21:46:51	23:00:48	23:31:54	23:51:01	2:11:14
08/02/2021	M	23:59:22															21:42:55	22:56:53	23:27:58	23:47:05	2:07:18
08/03/2021	Tu	23:59:17															21:38:59	22:52:57	23:24:02	23:43:09	2:03:22
08/04/2021	W	23:59:11															21:35:03	22:49:01	23:20:06	23:39:13	1:59:26
08/05/2021	Th	23:59:05															21:31:07	22:45:05	23:16:10	23:35:17	1:55:30
08/06/2021	F	23:58:58															21:27:12	22:41:09	23:12:14	23:31:21	1:51:34
08/07/2021	Sa	23:58:50															21:23:16	22:37:13	23:08:19	23:27:25	1:47:38
08/08/2021	Su	23:58:42															21:19:20	22:33:17	23:04:23	23:23:29	1:43:43
08/09/2021	M	23:58:33															21:15:24	22:29:21	23:00:27	23:19:34	1:39:47
08/10/2021	Tu	23:58:24															21:11:28	22:25:25	22:56:31	23:15:38	1:35:51
08/11/2021	W	23:58:14															21:07:32	22:21:29	22:52:35	23:11:42	1:31:55
08/12/2021	Th	23:58:03															21:03:36	22:17:33	22:48:39	23:07:46	1:27:59
08/13/2021	F	23:57:52															20:59:40	22:13:38	22:44:43	23:03:50	1:24:03
08/14/2021	Sa	23:57:41															20:55:44	22:09:42	22:40:47	22:59:54	1:20:07
08/15/2021	Su	23:57:28															20:51:48	22:05:46	22:36:51	22:55:58	1:16:11
08/16/2021	M	23:57:16															20:47:52	22:01:50	22:32:55	22:52:02	1:12:15
08/17/2021	Tu	23:57:02															20:43:56	21:57:54	22:28:59	22:48:06	1:08:20
08/18/2021	W	23:56:49															20:40:00	21:53:58	22:25:04	22:44:10	1:04:24
08/19/2021	Th	23:56:34															20:36:05	21:50:02	22:21:08	22:40:14	1:00:28
08/20/2021	F	23:56:20															20:32:09	21:46:06	22:17:12	22:36:19	0:56:32
08/21/2021	Sa	23:56:04															20:28:13	21:42:10	22:13:16	22:32:23	0:52:36
08/22/2021	Su	23:55:49	3:54:32														20:24:17	21:38:14	22:09:20	22:28:27	0:48:40
08/23/2021	M	23:55:33	3:50:36														20:20:21	21:34:18	22:05:24	22:24:31	0:44:44
08/24/2021	Tu	23:55:16	3:46:40														20:16:25	21:30:23	22:01:28	22:20:35	0:40:48
08/25/2021	W	23:54:59	3:42:45														20:12:29	21:26:27	21:57:32	22:16:39	0:36:52
08/26/2021	Th	23:54:42	3:38:49														20:08:33	21:22:31	21:53:36	22:12:43	0:32:57
08/27/2021	F	23:54:24	3:34:53														20:04:37	21:18:35	21:49:40	22:08:47	0:29:01
08/28/2021	Sa	23:54:06	3:30:57														20:00:41	21:14:39	21:45:44	22:04:51	0:25:05
08/29/2021	Su	23:53:48	3:27:01														19:56:45	21:10:43	21:41:48	22:00:55	0:21:09
08/30/2021	M	23:53:29	3:23:05														19:52:49	21:06:47	21:37:53	21:56:59	0:17:13
08/31/2021	Tu	23:53:10	3:19:09														19:48:53	21:02:51	21:33:57	21:53:03	0:13:17
09/01/2021	W	23:52:51	3:15:13														19:44:57	20:58:55	21:30:01	21:49:08	0:09:21
09/02/2021	Th	23:52:32	3:11:18														19:41:02	20:54:59	21:26:05	21:45:12	0:05:25
09/03/2021	F	23:52:12	3:07:22	4:11:32													19:37:06	20:51:03	21:22:09	21:41:16	0:01:29
09/03/2021	F																			23:57:33	
09/04/2021	Sa	23:51:52	3:03:26	4:07:36													19:33:10	20:47:07	21:18:13	21:37:20	23:53:38
09/05/2021	Su	23:51:32	2:59:30	4:03:40													19:29:14	20:43:12	21:14:17	21:33:24	23:49:42
09/06/2021	M	23:51:12	2:55:34	3:59:44													19:25:18	20:39:16	21:10:21	21:29:28	23:45:46
09/07/2021	Tu	23:50:51	2:51:38	3:55:48														20:35:20	21:06:25	21:25:32	23:41:50
09/08/2021	W	23:50:30	2:47:42	3:51:52														20:31:24	21:02:29	21:21:36	23:37:54
09/09/2021	Th	23:50:10	2:43:46	3:47:56														20:27:28	20:58:33	21:17:40	23:33:58
09/10/2021	F	23:49:49	2:39:51	3:44:01														20:23:32	20:54:37	21:13:44	23:30:02
09/11/2021	Sa	23:49:27	2:35:55	3:40:05														20:19:36	20:50:41	21:09:48	23:26:06
09/12/2021	Su	23:49:06	2:31:59	3:36:09														20:15:40	20:46:46	21:05:52	23:22:10
09/13/2021	M	23:48:45	2:28:03	3:32:13														20:11:44	20:42:50	21:01:56	23:18:14
09/14/2021	Tu	23:48:23	2:24:07	3:28:17														20:07:48	20:38:54	20:58:01	23:14:19
09/15/2021	W	23:48:02	2:20:11	3:24:21														20:03:52	20:34:58	20:54:05	23:10:23
09/16/2021	Th	23:47:40	2:16:15	3:20:25														19:59:56	20:31:02	20:50:09	23:06:27

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=		2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=		42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 07m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=		10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut	
09/17/2021	F	23:47:19	2:12:19	3:16:29														19:56:01	20:27:06	20:46:13	23:02:31	
09/18/2021	Sa	23:46:58	2:08:24	3:12:34														19:52:05	20:23:10	20:42:17	22:58:35	
09/19/2021	Su	23:46:36	2:04:28	3:08:38														19:48:09	20:19:14	20:38:21	22:54:39	
09/20/2021	M	23:46:15	2:00:32	3:04:42	4:32:02													19:44:13	20:15:18	20:34:25	22:50:43	
09/21/2021	Tu	23:45:53	1:56:36	3:00:46	4:28:06													19:40:17	20:11:22	20:30:29	22:46:47	
09/22/2021	W	23:45:32	1:52:40	2:56:50	4:24:10													19:36:21	20:07:26	20:26:33	22:42:51	
09/23/2021	Th	23:45:11	1:48:44	2:52:54	4:20:14													19:32:25	20:03:30	20:22:37	22:38:55	
09/24/2021	F	23:44:50	1:44:48	2:48:58	4:16:18													19:28:29	19:59:34	20:18:41	22:34:59	
09/25/2021	Sa	23:44:30	1:40:52	2:45:02	4:12:23													19:24:33	19:55:39	20:14:45	22:31:04	
09/26/2021	Su	23:44:09	1:36:56	2:41:07	4:08:27													19:20:37	19:51:43	20:10:49	22:27:08	
09/27/2021	M	23:43:49	1:33:01	2:37:11	4:04:31	4:42:49												19:16:41	19:47:47	20:06:54	22:23:12	
09/28/2021	Tu	23:43:29	1:29:05	2:33:15	4:00:35	4:38:53	4:41:35											19:12:45	19:43:51	20:02:58	22:19:16	
09/29/2021	W	23:43:09	1:25:09	2:29:19	3:56:39	4:34:57	4:37:40											19:08:50	19:39:55	19:59:02	22:15:20	
09/30/2021	Th	23:42:50	1:21:13	2:25:23	3:52:43	4:31:02	4:33:44											19:04:54	19:35:59	19:55:06	22:11:24	
10/01/2021	F	23:42:31	1:17:17	2:21:27	3:48:47	4:27:06	4:29:48											19:00:58	19:32:03	19:51:10	22:07:28	
10/02/2021	Sa	23:42:12	1:13:21	2:17:31	3:44:51	4:23:10	4:25:52											18:57:02	19:28:07	19:47:14	22:03:32	
10/03/2021	Su	23:41:53	1:09:25	2:13:35	3:40:56	4:19:14	4:21:56											18:53:06	19:24:11	19:43:18	21:59:36	
10/04/2021	M	23:41:35	1:05:29	2:09:40	3:37:00	4:15:18	4:18:00											18:49:10	19:20:15	19:39:22	21:55:40	
10/05/2021	Tu	23:41:18	1:01:33	2:05:44	3:33:04	4:11:22	4:14:04	4:52:01										18:45:14	19:16:19	19:35:26	21:51:45	
10/06/2021	W	23:41:00	0:57:38	2:01:48	3:29:08	4:07:26	4:10:09	4:48:05	4:52:51									18:41:18	19:12:23	19:31:30	21:47:49	
10/07/2021	Th	23:40:43	0:53:42	1:57:52	3:25:12	4:03:30	4:06:13	4:44:09	4:48:55									18:37:22	19:08:27	19:27:34	21:43:53	
10/08/2021	F	23:40:27	0:49:46	1:53:56	3:21:16	3:59:35	4:02:17	4:40:13	4:44:59									18:33:26	19:04:31	19:23:38	21:39:57	
10/09/2021	Sa	23:40:11	0:45:50	1:50:00	3:17:20	3:55:39	3:58:21	4:36:18	4:41:03									18:29:30	19:00:36	19:19:42	21:36:01	
10/10/2021	Su	23:39:55	0:41:54	1:46:04	3:13:24	3:51:43	3:54:25	4:32:22	4:37:07									18:25:34	18:56:40	19:15:46	21:32:05	
10/11/2021	M	23:39:40	0:37:58	1:42:08	3:09:29	3:47:47	3:50:29	4:28:26	4:33:11									18:21:38	18:52:44	19:11:50	21:28:09	
10/12/2021	Tu	23:39:25	0:34:02	1:38:13	3:05:33	3:43:51	3:46:33	4:24:30	4:29:16									18:17:43	18:48:48	19:07:55	21:24:13	
10/13/2021	W	23:39:11	0:30:06	1:34:17	3:01:37	3:39:55	3:42:37	4:20:34	4:25:20										18:44:52	19:03:59	21:20:17	
10/14/2021	Th	23:38:58	0:26:10	1:30:21	2:57:41	3:35:59	3:38:42	4:16:38	4:21:24									18:40:56	19:00:03	21:16:21		
10/15/2021	F	23:38:45	0:22:15	1:26:25	2:53:45	3:32:03	3:34:46	4:12:42	4:17:28	5:02:20								18:37:00	18:56:07	21:12:25		
10/16/2021	Sa	23:38:32	0:18:19	1:22:29	2:49:49	3:28:08	3:30:50	4:08:46	4:13:32	4:58:24									18:33:04	18:52:11	21:08:29	
10/17/2021	Su	23:38:20	0:14:23	1:18:33	2:45:53	3:24:12	3:26:54	4:04:51	4:09:36	4:54:28	5:07:48								18:29:08	18:48:15	21:04:34	
10/18/2021	M	23:38:09	0:10:27	1:14:37	2:41:57	3:20:16	3:22:58	4:00:55	4:05:40	4:50:32	5:03:52								18:25:12	18:44:19	21:00:38	
10/19/2021	Tu	23:37:58	0:06:31	1:10:41	2:38:01	3:16:20	3:19:02	3:56:59	4:01:45	4:46:36	4:59:56								18:21:16	18:40:23	20:56:42	
10/20/2021	W	23:37:48	0:02:35	1:06:45	2:34:06	3:12:24	3:15:06	3:53:03	3:57:49	4:42:40	4:56:00								18:17:20	18:36:27	20:52:46	
10/20/2021	W		23:58:39																			
10/21/2021	Th	23:37:39	23:54:43	1:02:50	2:30:10	3:08:28	3:11:11	3:49:07	3:53:53	4:38:45	4:52:05								18:13:24	18:32:31	20:48:50	
10/22/2021	F	23:37:30	23:50:47	0:58:54	2:26:14	3:04:32	3:07:15	3:45:11	3:49:57	4:34:49	4:48:09								18:09:28	18:28:35	20:44:54	
10/23/2021	Sa	23:37:22	23:46:52	0:54:58	2:22:18	3:00:36	3:03:19	3:41:15	3:46:01	4:30:53	4:44:13								18:05:32	18:24:39	20:40:58	
10/24/2021	Su	23:37:15	23:42:56	0:51:02	2:18:22	2:56:40	2:59:23	3:37:19	3:42:05	4:26:57	4:40:17								18:01:37	18:20:43	20:37:02	
10/25/2021	M	23:37:08	23:39:00	0:47:06	2:14:26	2:52:45	2:55:27	3:33:24	3:38:09	4:23:01	4:36:21	5:17:12							17:57:41	18:16:47	20:33:06	
10/26/2021	Tu	23:37:03	23:35:04	0:43:10	2:10:30	2:48:49	2:51:31	3:29:28	3:34:13	4:19:05	4:32:25	5:13:16								18:12:51	20:29:10	
10/27/2021	W	23:36:58	23:31:08	0:39:14	2:06:34	2:44:53	2:47:35	3:25:32	3:30:18	4:15:09	4:28:29	5:09:20	5:15:31							18:08:56	20:25:14	
10/28/2021	Th	23:36:53	23:27:12	0:35:18	2:02:39	2:40:57	2:43:39	3:21:36	3:26:22	4:11:13	4:24:33	5:05:24	5:11:35							18:05:00	20:21:18	
10/29/2021	F	23:36:50	23:23:16	0:31:22	1:58:43	2:37:01	2:39:44	3:17:40	3:22:26	4:07:18	4:20:38	5:01:28	5:07:39							18:01:04	20:17:23	
10/30/2021	Sa	23:36:47	23:19:20	0:27:27	1:54:47	2:33:05	2:35:48	3:13:44	3:18:30	4:03:22	4:16:42	4:57:32	5:03:43							17:57:08	20:13:27	
10/31/2021	Su	23:36:45	23:15:24	0:23:31	1:50:51	2:29:09	2:31:52	3:09:48	3:14:34	3:59:26	4:12:46	4:53:36	4:59:47							17:53:12	20:09:31	
11/01/2021	M	23:36:44	23:11:28	0:19:35	1:46:55	2:25:13	2:27:56	3:05:52	3:10:38	3:55:30	4:08:50	4:49:40	4:55:51							17:49:16	20:05:35	
11/02/2021	Tu	23:36:44	23:07:33	0:15:39	1:42:59	2:21:18	2:24:00	3:01:57	3:06:42	3:51:34	4:04:54	4:45:45	4:51:56								20:01:39	
11/03/2021	W	23:36:45	23:03:37	0:11:43	1:39:03	2:17:22	2:20:04	2:58:01	3:02:46	3:47:38	4:00:58	4:41:49	4:48:00								19:57:43	
11/04/2021	Th	23:36:46	22:59:41	0:07:47	1:35:07	2:13:26	2:16:08	2:54:05	2:58:51	3:43:42	3:57:02	4:37:53	4:44:04								19:53:47	
11/05/2021	F	23:36:48	22:55:45	0:03:51	1:31:11	2:09:30	2:12:12	2:50:09	2:54:55	3:39:46	3:53:06	4:33:57	4:40:08								19:49:51	
11/05/2021	F		23:59:55																			
11/06/2021	Sa	23:36:51	22:51:49	23:55:59	1:27:16	2:05:34	2:08:17	2:46:13	2:50:59	3:35:51	3:49:11	4:30:01	4:36:12								19:45:55	
11/07/2021	Su	23:36:55	22:47:53	23:52:04	1:23:20	2:01:38	2:04:21	2:42:17	2:47:03	3:31:55	3:45:15	4:26:05	4:32:16								19:41:59	
11/08/2021	M	23:37:00	22:43:57	23:48:08	1:19:24	1:57:42	2:00:25	2:38:21	2:43:07	3:27:59	3:41:19	4:22:09	4:28:20								19:38:03	

Transit times (MST) for selected stars as observed at HVO but only when sun 12+ degrees below the horizon. Subtract or add the offset to obtain rising or setting time.

R.A.=		2h 05m	3h 09m	4h 37m	5h 15m	5h 18m	5h 56m	6h 01m	6h 46m	6h 59m	7h 40m	7h 46m	10h 09m	13h 26m	14h 17m	16h 31m	18h 38m	19h 52m	20h 23m	20h 42m	22h 59m	
Decl.=		42d 25m	41d 01m	16d 33m	-8d 11m	46d 01m	7d 24m	44d 57m	-16d 45m	-29d 00m	5d 11m	27d 59m	11d 53m	-11d 15m	19d 05m	-26d 28m	38d 48m	8d 55m	40d 19m	45d 21m	-29d 31m	
Offset=		10h 08m	9h 49m	7h 07m	5h 28m		6h 29m	11h 01m	4h 52m	3h 50m	6h 20m	8h 04m	6h 47m	5h 16m	7h 19m	4h 05m	9h 25m	6h 35m	9h 41m	11h 13m	3h 46m	
Date	Midnight	Almach	Algol	Aldebaran	Rigel	Capella	Betelgeuse	Menkalinan	Sirius	Adhara	Procyron	Pollux	Regulus	Spica	Arcturus	Antares	Vega	Altair	Sadr	Deneb	Fomalhaut	
12/29/2021	W	23:55:40	19:23:25	20:27:36	21:54:57	22:33:16	22:35:59	23:13:55	23:18:41	0:07:28	0:20:49	1:01:39	1:07:50	3:30:19								
12/30/2021	Th	23:56:09	19:19:29	20:23:40	21:51:01	22:29:20	22:32:03	23:09:59	23:14:45	0:03:33	0:16:53	0:57:43	1:03:55	3:26:24								
12/30/2021	Th									23:59:37												
12/31/2021	F	23:56:38	19:15:34	20:19:44	21:47:05	22:25:24	22:28:07	23:06:03	23:10:49	23:55:41	0:12:57	0:53:47	0:59:59	3:22:28								

Program starview3.py ver 180124a + gglib version 180120a