

LICK OBSERVATORY CALENDAR FOR 2023 -NAUTICAL
 (computed for altitude 1283.0 m)

DATE (PST) 2023	SUN SET	TWILIGHT ENDS		MOON RISE	MOON SET	DAWN BEGINS		SUN RISE	NAUTICAL(12 deg) SIDEREAL TIMES			TWILIGHT/DAWN NIGHT (12 deg)			MOON(midnight) Zenith		
		12	18			18	12		TWI	MID	DAWN	LENGTH	DARK	%	RA	DEC	Dist
		h	h			h	h		h	h	h	h	h	h	h	m	d
SUN OCT 01	17 58	18 47	19 18	19 08		04 35	05 06	05 55	19 23	00 37	05 43	10.3	0.4	3	0302	1850	37
MON OCT 02	17 56	18 46	19 16	19 43		04 36	05 07	05 56	19 26	00 41	05 48	10.4	1.0	9	0358	2314	44
TUE OCT 03	17 55	18 44	19 15	20 24		04 37	05 08	05 57	19 28	00 44	05 53	10.4	1.7	16	0455	2613	53
WED OCT 04	17 53	18 43	19 13	21 11		04 38	05 08	05 58	19 31	00 48	05 57	10.4	2.5	23	0552	2740	63
THU OCT 05	17 52	18 41	19 12	22 05		04 39	05 09	05 59	19 32	00 52	06 02	10.5	3.4	32	0649	2737	73
FRI OCT 06	17 50	18 40	19 10	23 03		04 40	05 10	06 00	19 35	00 56	06 07	10.5	4.4	41	0743	2608	83
SAT OCT 07	17 49	18 39	19 09	00 04		04 41	05 11	06 01	19 38	01 00	06 12	10.5	5.4	51	0835	2336	>90
SUN OCT 08	17 48	18 37	19 07	01 05		04 42	05 12	06 02	19 40	01 04	06 17	10.6	6.5	61	0923	2000	>90
MON OCT 09	17 46	18 36	19 06	02 05		04 42	05 13	06 02	19 43	01 08	06 22	10.6	7.5	70	1009	1537	>90
TUE OCT 10	17 45	18 34	19 04	03 05	16 13	04 43	05 14	06 03	19 45	01 12	06 27	10.7	8.5	79	1053	1040	>90
WED OCT 11	17 43	18 33	19 03	04 03	16 36	04 44	05 15	06 04	19 48	01 16	06 32	10.7	9.5	88	1136	0517	>90
THU OCT 12	17 42	18 31	19 02	05 02	16 57	04 45	05 15	06 05	19 50	01 20	06 36	10.7	10.5	97	1218	-0021	>90
FRI OCT 13	17 40	18 30	19 00	06 01	17 19	04 46	05 16	06 06	19 53	01 24	06 41	10.8	10.8	100	1301	-0603	>90
SAT OCT 14	17 39	18 29	18 59	07 03	17 42	04 47	05 17	06 07	19 56	01 28	06 46	10.8	10.8	100	1345	-1137	>90
SUN OCT 15	17 38	18 27	18 58	08 07	18 08	04 48	05 18	06 08	19 58	01 32	06 51	10.8	10.8	100	1431	-1651	>90
MON OCT 16	17 36	18 26	18 56		18 37	04 49	05 19	06 09	20 01	01 36	06 56	10.9	10.7	98	1521	-2128	>90
TUE OCT 17	17 35	18 25	18 55		19 13	04 50	05 20	06 10	20 04	01 40	07 01	10.9	10.1	92	1615	-2511	>90
WED OCT 18	17 34	18 23	18 54		19 57	04 51	05 21	06 11	20 06	01 44	07 05	11.0	9.4	85	1712	-2741	>90
THU OCT 19	17 32	18 22	18 52		20 50	04 51	05 22	06 12	20 09	01 48	07 10	11.0	8.5	77	1812	-2840	>90
FRI OCT 20	17 31	18 21	18 51		21 53	04 52	05 23	06 13	20 12	01 51	07 15	11.0	7.5	67	1914	-2759	>90
SAT OCT 21	17 30	18 20	18 50		23 03	04 53	05 23	06 14	20 14	01 55	07 19	11.0	6.3	57	2015	-2535	>90
SUN OCT 22	17 28	18 18	18 49		00 17	04 54	05 24	06 15	20 16	01 59	07 24	11.1	5.1	46	2116	-2119	89
MON OCT 23	17 27	18 17	18 47		01 31	04 55	05 25	06 15	20 19	02 03	07 29	11.1	3.9	35	2211	-1616	77
TUE OCT 24	17 26	18 16	18 46		02 44	04 56	05 26	06 16	20 22	02 07	07 34	11.2	2.7	24	2305	-1006	64
WED OCT 25	17 25	18 15	18 45		03 57	04 57	05 27	06 17	20 25	02 11	07 39	11.2	1.5	13	2358	-0316	51
THU OCT 26	17 23	18 14	18 44	16 08	05 09	04 58	05 28	06 18	20 28	02 15	07 44	11.2	0.3	2	0050	0344	39
FRI OCT 27	17 22	18 13	18 43	16 35	06 22	04 59	05 29	06 19	20 31	02 19	07 49	11.3	0.0	0	0142	1028	28
SAT OCT 28	17 21	18 12	18 42	17 04	07 35	04 59	05 30	06 20	20 34	02 23	07 54	11.3	0.0	0	0236	1633	21
SUN OCT 29	17 20	18 10	18 41	17 37	08 48	05 00	05 31	06 21	20 36	02 27	07 59	11.4	0.0	0	0332	2136	21
MON OCT 30	17 19	18 09	18 40	18 15		05 01	05 32	06 22	20 39	02 31	08 04	11.4	0.1	0	0431	2518	28
TUE OCT 31	17 18	18 08	18 39	19 00		05 02	05 33	06 23	20 42	02 35	08 09	11.4	0.9	7	0530	2726	38

ONE LINE REFERS TO EVENING DATE
 AND FOLLOWING MORNING.
 All dates and times are zone PST
 in upper table (except sid time).

LAST QUARTER Oct 06 13:48 UT
 NEW MOON Oct 14 17:55 UT
 FIRST QUARTER Oct 22 03:28 UT
 FULL MOON Oct 28 20:25 UT