

2005 ASTRONOMICAL CALENDAR for Kitt Peak

Moon Phases for 2005, at Kitt Peak

Times and dates are given in local time, zone = 7 hr West.
They are generally better than +/- 2 minutes.

The end of the previous year and the beginning of the next
are included for continuity.

NEW		1ST		FULL		LAST	
Dec 11	18 29	Dec 18	9 41	Dec 26	8 07	Jan 03	10 47
Jan 10	5 04	Jan 16	23 58	Jan 25	3 33	Feb 02	0 28
Feb 08	15 30	Feb 15	17 16	Feb 23	21 55	Mar 03	10 38
Mar 10	2 13	Mar 17	12 19	Mar 25	14 01	Apr 01	17 52
Apr 08	13 35	Apr 16	7 39	Apr 24	3 09	Apr 30	23 26
May 08	1 49	May 16	1 59	May 23	13 21	May 30	4 49
Jun 06	14 58	Jun 14	18 25	Jun 21	21 16	Jun 28	11 25
Jul 06	5 05	Jul 14	8 22	Jul 21	4 03	Jul 27	20 21
Aug 04	20 06	Aug 12	19 40	Aug 19	10 55	Aug 26	8 20
Sep 03	11 46	Sep 11	4 38	Sep 17	19 02	Sep 24	23 42
Oct 03	3 28	Oct 10	12 02	Oct 17	5 14	Oct 24	18 18
Nov 01	18 24	Nov 08	18 58	Nov 15	17 57	Nov 23	15 13
Dec 01	8 00	Dec 08	2 37	Dec 15	9 16	Dec 23	12 38
Dec 30	20 12	Jan 06	11 57	Jan 14	2 48	Jan 22	8 15

2005 Astronomical Calendar

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 JANUARY *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude
(d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar
dates. Rise/set times are given
in Mountain time (7 hr W), for 500 m above surroundings, in standard
time all year.

Moon coords. and illum. are for local midnight, even if moon is down.
Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	----- Sun: -----				
LST twilight:	----- Moon: -----						
(2005 at start)	(-2450000)		set	twi.end	twi.beg	rise	
eve	morn	rise	set	%illum	RA	Dec	
Sat Jan 01/Sun Jan 02	3372.8	6 21 36	17 37	19 01	6 00	7 23	1
21 12 23	23 09	64	11 49.8	4 01		

Sun	Jan 02/Mon	Jan 03	3373.8	6 25 33	17 38	19 01	6 00	7 24	1
26	12 27	0 07	..... 54	12 34.4	- 1 53				
Mon	Jan 03/Tue	Jan 04	3374.8	6 29 30	17 39	19 02	6 01	7 24	1
31	12 31	1 06	..... 43	13 20.5	- 7 52				
Tue	Jan 04/Wed	Jan 05	3375.8	6 33 26	17 40	19 03	6 01	7 24	1
35	12 35	2 09	..... 33	14 09.2	-13 40				
Wed	Jan 05/Thu	Jan 06	3376.8	6 37 23	17 40	19 03	6 01	7 24	1
40	12 39	3 16	..... 23	15 01.9	-19 01				
Thu	Jan 06/Fri	Jan 07	3377.8	6 41 19	17 41	19 04	6 01	7 24	1
45	12 44	4 28	..... 14	15 59.5	-23 29				
Fri	Jan 07/Sat	Jan 08	3378.8	6 45 16	17 42	19 05	6 01	7 24	1
49	12 48	5 41	..... 7	17 02.2	-26 37				
Sat	Jan 08/Sun	Jan 09	3379.8	6 49 12	17 43	19 06	6 01	7 24	1
54	12 52	6 52	15 43 2	18 08.8	-27 59				
Sun	Jan 09/Mon	Jan 10	3380.8	6 53 09	17 44	19 06	6 01	7 24	1
59	12 56	7 55	16 51 0	19 16.6	-27 17				
Mon	Jan 10/Tue	Jan 11	3381.8	6 57 05	17 45	19 07	6 02	7 24	2
03	13 00	.....	18 06 1	20 22.6	-24 37				
Tue	Jan 11/Wed	Jan 12	3382.8	7 01 02	17 45	19 08	6 02	7 24	2
08	13 04	.....	19 22 5	21 24.5	-20 16				
Wed	Jan 12/Thu	Jan 13	3383.8	7 04 59	17 46	19 09	6 02	7 24	2
13	13 07	.....	20 35 11	22 21.5	-14 46				
Thu	Jan 13/Fri	Jan 14	3384.8	7 08 55	17 47	19 09	6 01	7 24	2
18	13 11	.....	21 44 19	23 14.2	- 8 37				
Fri	Jan 14/Sat	Jan 15	3385.8	7 12 52	17 48	19 10	6 01	7 23	2
22	13 15	.....	22 49 29	0 03.7	- 2 14				
Sat	Jan 15/Sun	Jan 16	3386.8	7 16 48	17 49	19 11	6 01	7 23	2
27	13 19	.....	23 52 39	0 51.3	4 04				
Sun	Jan 16/Mon	Jan 17	3387.8	7 20 45	17 50	19 12	6 01	7 23	2
32	13 23	.....	0 52 49	1 38.1	10 01				
Mon	Jan 17/Tue	Jan 18	3388.8	7 24 41	17 51	19 13	6 01	7 23	2
36	13 27	.....	1 52 59	2 25.4	15 23				
Tue	Jan 18/Wed	Jan 19	3389.8	7 28 38	17 52	19 13	6 01	7 22	2
41	13 30	.....	2 52 69	3 13.9	20 01				
Wed	Jan 19/Thu	Jan 20	3390.8	7 32 34	17 52	19 14	6 01	7 22	2
46	13 34	.....	3 51 77	4 04.3	23 43				
Thu	Jan 20/Fri	Jan 21	3391.8	7 36 31	17 53	19 15	6 00	7 22	2
51	13 38	.....	4 49 85	4 56.5	26 20				
Fri	Jan 21/Sat	Jan 22	3392.8	7 40 28	17 54	19 16	6 00	7 21	2
55	13 42	.....	5 44 91	5 50.2	27 42				
Sat	Jan 22/Sun	Jan 23	3393.8	7 44 24	17 55	19 16	6 00	7 21	3
00	13 45	.....	6 34 96	6 44.4	27 45				
Sun	Jan 23/Mon	Jan 24	3394.8	7 48 21	17 56	19 17	6 00	7 21	3
05	13 49	16 16	7 19 99	7 38.0	26 29				
Mon	Jan 24/Tue	Jan 25	3395.8	7 52 17	17 57	19 18	5 59	7 20	3
10	13 53	17 13	7 58 100	8 30.1	23 59				
Tue	Jan 25/Wed	Jan 26	3396.8	7 56 14	17 58	19 19	5 59	7 20	3
14	13 56	18 11	..... 99	9 20.0	20 24				
Wed	Jan 26/Thu	Jan 27	3397.8	8 00 10	17 59	19 20	5 59	7 19	3
19	14 00	19 10	..... 97	10 07.7	15 57				
Thu	Jan 27/Fri	Jan 28	3398.8	8 04 07	18 00	19 20	5 58	7 19	3
24	14 03	20 07	..... 92	10 53.5	10 50				
Fri	Jan 28/Sat	Jan 29	3399.8	8 08 03	18 01	19 21	5 58	7 18	3
29	14 07	21 04	..... 86	11 38.1	5 14				

Sat Jan 29/Sun Jan 30 3400.8 8 12 00 18 02 19 22 5 57 7 17 3
 33 14 10 22 01 79 12 22.5 - 0 38

Sun Jan 30/Mon Jan 31 3401.8 8 15 57 18 03 19 23 5 57 7 17 3
 38 14 14 22 58 70 13 07.6 - 6 35

Mon Jan 31/Tue Feb 01 3402.8 8 19 53 18 03 19 24 5 56 7 16 3
 43 14 17 23 59 60 13 54.7 -12 23

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 FEBRUARY *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down.

Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	Sun: -----			
LST twilight: -----	Moon: -----		set	twi.end	twi.beg	rise
(2005 at start)	(-2450000)		Dec			
eve morn rise set %illum RA						
Tue Feb 01/Wed Feb 02	3403.8	8 23 50	18 04	19 24	5 56	7 16
47 14 20 1 02	..... 49	14 44.9	-17 45			3
Wed Feb 02/Thu Feb 03	3404.8	8 27 46	18 05	19 25	5 55	7 15
52 14 24 2 09	..... 39	15 39.3	-22 24			3
Thu Feb 03/Fri Feb 04	3405.8	8 31 43	18 06	19 26	5 54	7 14
57 14 27 3 19	..... 28	16 38.4	-25 55			3
Fri Feb 04/Sat Feb 05	3406.8	8 35 39	18 07	19 27	5 54	7 13
02 14 30 4 29	..... 18	17 41.9	-27 54			4
Sat Feb 05/Sun Feb 06	3407.8	8 39 36	18 08	19 28	5 53	7 13
06 14 34 5 35	..... 10	18 47.9	-28 01			4
Sun Feb 06/Mon Feb 07	3408.8	8 43 32	18 09	19 28	5 53	7 12
11 14 37 6 32	..... 4	19 53.9	-26 08			4
Mon Feb 07/Tue Feb 08	3409.8	8 47 29	18 10	19 29	5 52	7 11
16 14 40 7 20	16 52 1	20 57.3	-22 27			4
Tue Feb 08/Wed Feb 09	3410.8	8 51 26	18 11	19 30	5 51	7 10
21 14 44 18 08	0	21 56.7	-17 19			4
Wed Feb 09/Thu Feb 10	3411.8	8 55 22	18 12	19 31	5 50	7 09
25 14 47 19 20	3	22 51.9	-11 15			4
Thu Feb 10/Fri Feb 11	3412.8	8 59 19	18 12	19 31	5 50	7 09
30 14 50 20 29	8	23 43.6	- 4 44			4
Fri Feb 11/Sat Feb 12	3413.8	9 03 15	18 13	19 32	5 49	7 08
35 14 53 21 35	14	0 33.0	1 50			4
Sat Feb 12/Sun Feb 13	3414.8	9 07 12	18 14	19 33	5 48	7 07
39 14 56 22 38	23	1 21.2	8 07			4
Sun Feb 13/Mon Feb 14	3415.8	9 11 08	18 15	19 34	5 47	7 06
44 14 59 23 40	32	2 09.4	13 51			4
Mon Feb 14/Tue Feb 15	3416.8	9 15 05	18 16	19 35	5 46	7 05
49 15 02 0 42	42	2 58.4	18 50			4

Tue Feb 15/Wed Feb 16	3417.8	9 19 01	18 17	19 35	5 45	7 04	4
54 15 05	..... 1 43	52	3 48.8	22 53			
Wed Feb 16/Thu Feb 17	3418.8	9 22 58	18 18	19 36	5 45	7 03	4
58 15 08	..... 2 42	62	4 40.9	25 50			
Thu Feb 17/Fri Feb 18	3419.8	9 26 55	18 18	19 37	5 44	7 02	5
03 15 12	..... 3 39	71	5 34.3	27 32			
Fri Feb 18/Sat Feb 19	3420.8	9 30 51	18 19	19 38	5 43	7 01	5
08 15 15	..... 4 31	79	6 28.3	27 57			
Sat Feb 19/Sun Feb 20	3421.8	9 34 48	18 20	19 38	5 42	7 00	5
12 15 18	..... 5 17	86	7 22.1	27 01			
Sun Feb 20/Mon Feb 21	3422.8	9 38 44	18 21	19 39	5 41	6 59	5
17 15 20	..... 5 57	92	8 14.6	24 50			
Mon Feb 21/Tue Feb 22	3423.8	9 42 41	18 22	19 40	5 40	6 58	5
22 15 23	..... 6 33	96	9 05.2	21 31			
Tue Feb 22/Wed Feb 23	3424.8	9 46 37	18 22	19 41	5 39	6 57	5
26 15 26	17 02 7 04	99	9 53.7	17 14			
Wed Feb 23/Thu Feb 24	3425.8	9 50 34	18 23	19 41	5 38	6 56	5
31 15 29	18 00 7 32	100	10 40.3	12 11			
Thu Feb 24/Fri Feb 25	3426.8	9 54 30	18 24	19 42	5 37	6 55	5
36 15 32	18 58	..... 99	11 25.7	6 35			
Fri Feb 25/Sat Feb 26	3427.8	9 58 27	18 25	19 43	5 36	6 53	5
40 15 35	19 55	..... 96	12 10.6	0 39			
Sat Feb 26/Sun Feb 27	3428.8	10 02 24	18 26	19 43	5 35	6 52	5
45 15 38	20 53	..... 90	12 55.9	- 5 24			
Sun Feb 27/Mon Feb 28	3429.8	10 06 20	18 26	19 44	5 33	6 51	5
50 15 41	21 53	..... 83	13 42.8	-11 20			
Mon Feb 28/Tue Mar 01	3430.8	10 10 17	18 27	19 45	5 32	6 50	5
55 15 44	22 55	..... 75	14 32.2	-16 52			

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 MARCH *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	----- Sun: -----			
LST twilight:	----- Moon: -----		set	twi.end	twi.beg	rise
(2005 at start)	(-2450000)		Dec			
eve morn rise set %illum RA						
Tue Mar 01/Wed Mar 02	3431.8	10 14 13	18 28	19 46	5 31	6 49
59 15 46	0 00	..... 65	15 25.2	-21 42		
Wed Mar 02/Thu Mar 03	3432.8	10 18 10	18 29	19 46	5 30	6 48
04 15 49	1 08	..... 54	16 22.3	-25 29		
Thu Mar 03/Fri Mar 04	3433.8	10 22 06	18 29	19 47	5 29	6 46
09 15 52	2 16	..... 43	17 23.3	-27 51		

Fri Mar 04/Sat Mar 05	3434.8	10 26 03	18 30	19 48	5 28	6 45	6
13 15 55	3 21	.....	32	18 27.1	-28 30		
Sat Mar 05/Sun Mar 06	3435.8	10 29 59	18 31	19 49	5 26	6 44	6
18 15 57	4 20	.....	22	19 31.4	-27 17		
Sun Mar 06/Mon Mar 07	3436.8	10 33 56	18 32	19 49	5 25	6 43	6
23 16 00	5 10	.....	13	20 34.1	-24 16		
Mon Mar 07/Tue Mar 08	3437.8	10 37 53	18 32	19 50	5 24	6 42	6
27 16 03	5 52	.....	6	21 33.6	-19 42		
Tue Mar 08/Wed Mar 09	3438.8	10 41 49	18 33	19 51	5 23	6 40	6
32 16 06	6 29	16 55	2	22 29.5	-14 01		
Wed Mar 09/Thu Mar 10	3439.8	10 45 46	18 34	19 52	5 22	6 39	6
37 16 08	7 01	18 05	0	23 22.1	- 7 38		
Thu Mar 10/Fri Mar 11	3440.8	10 49 42	18 35	19 52	5 20	6 38	6
41 16 11	7 32	19 13	1	0 12.4	- 0 59		
Fri Mar 11/Sat Mar 12	3441.8	10 53 39	18 35	19 53	5 19	6 37	6
46 16 14	.....	20 18	5	1 01.5	5 34		
Sat Mar 12/Sun Mar 13	3442.8	10 57 35	18 36	19 54	5 18	6 35	6
51 16 16	.....	21 22	10	1 50.3	11 41		
Sun Mar 13/Mon Mar 14	3443.8	11 01 32	18 37	19 55	5 16	6 34	6
55 16 19	.....	22 26	17	2 39.8	17 06		
Mon Mar 14/Tue Mar 15	3444.8	11 05 28	18 37	19 55	5 15	6 33	7
00 16 21	.....	23 29	26	3 30.6	21 36		
Tue Mar 15/Wed Mar 16	3445.8	11 09 25	18 38	19 56	5 14	6 32	7
05 16 24	.....	0 31	35	4 22.9	25 00		
Wed Mar 16/Thu Mar 17	3446.8	11 13 22	18 39	19 57	5 13	6 30	7
09 16 27	.....	1 30	44	5 16.5	27 09		
Thu Mar 17/Fri Mar 18	3447.8	11 17 18	18 40	19 58	5 11	6 29	7
14 16 29	.....	2 24	54	6 10.7	27 59		
Fri Mar 18/Sat Mar 19	3448.8	11 21 15	18 40	19 58	5 10	6 28	7
19 16 32	.....	3 13	63	7 04.7	27 28		
Sat Mar 19/Sun Mar 20	3449.8	11 25 11	18 41	19 59	5 08	6 27	7
24 16 35	.....	3 55	72	7 57.5	25 40		
Sun Mar 20/Mon Mar 21	3450.8	11 29 08	18 42	20 00	5 07	6 25	7
28 16 37	.....	4 33	80	8 48.5	22 42		
Mon Mar 21/Tue Mar 22	3451.8	11 33 04	18 42	20 01	5 06	6 24	7
33 16 40	.....	5 05	88	9 37.5	18 42		
Tue Mar 22/Wed Mar 23	3452.8	11 37 01	18 43	20 01	5 04	6 23	7
38 16 42	.....	5 34	93	10 24.6	13 52		
Wed Mar 23/Thu Mar 24	3453.8	11 40 57	18 44	20 02	5 03	6 21	7
42 16 45	16 48	6 02	97	11 10.5	8 22		
Thu Mar 24/Fri Mar 25	3454.8	11 44 54	18 44	20 03	5 02	6 20	7
47 16 47	17 46	6 28	100	11 55.9	2 25		
Fri Mar 25/Sat Mar 26	3455.8	11 48 51	18 45	20 04	5 00	6 19	7
52 16 50	18 45	6 55	100	12 41.7	- 3 45		
Sat Mar 26/Sun Mar 27	3456.8	11 52 47	18 46	20 04	4 59	6 18	7
57 16 52	19 45	.....	98	13 28.9	- 9 54		
Sun Mar 27/Mon Mar 28	3457.8	11 56 44	18 46	20 05	4 57	6 16	8
01 16 55	20 47	.....	93	14 18.6	-15 43		
Mon Mar 28/Tue Mar 29	3458.8	12 00 40	18 47	20 06	4 56	6 15	8
06 16 58	21 53	.....	87	15 11.6	-20 52		
Tue Mar 29/Wed Mar 30	3459.8	12 04 37	18 48	20 07	4 55	6 14	8
11 17 00	23 01	.....	78	16 08.5	-25 00		

Wed Mar 30/Thu Mar 31 3460.8 12 08 33 18 48 20 08 4 53 6 12 8
 16 17 03 0 09 69 17 09.1 -27 45
 Thu Mar 31/Fri Apr 01 3461.8 12 12 30 18 49 20 08 4 52 6 11 8
 20 17 05 1 15 58 18 12.3 -28 48

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 APRIL *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	----- Sun: -----				
LST twilight:	----- Moon: -----		set	twi.end	twi.beg	rise	
(2005 at start)	(-2450000)		Dec				
eve morn rise set %illum RA							
Fri Apr 01/Sat Apr 02	3462.8	12 16 26	18 50	20 09	4 50	6 10	8
25 17 08 2 14	..... 46	19 16.0	-28 02				
Sat Apr 02/Sun Apr 03	3463.8	12 20 23	18 50	20 10	4 49	6 09	8
30 17 10 3 06	..... 35	20 18.1	-25 29				
Sun Apr 03/Mon Apr 04	3464.8	12 24 20	18 51	20 11	4 48	6 07	8
35 17 13 3 49	..... 25	21 17.1	-21 24				
Mon Apr 04/Tue Apr 05	3465.8	12 28 16	18 52	20 12	4 46	6 06	8
39 17 15 4 27	..... 16	22 12.5	-16 08				
Tue Apr 05/Wed Apr 06	3466.8	12 32 13	18 52	20 13	4 45	6 05	8
44 17 18 4 59	..... 8	23 04.7	-10 04				
Wed Apr 06/Thu Apr 07	3467.8	12 36 09	18 53	20 13	4 43	6 04	8
49 17 20 5 30	..... 3	23 54.6	- 3 35				
Thu Apr 07/Fri Apr 08	3468.8	12 40 06	18 54	20 14	4 42	6 02	8
54 17 23 5 59	17 59 0	0 43.3	2 58				
Fri Apr 08/Sat Apr 09	3469.8	12 44 02	18 55	20 15	4 41	6 01	8
59 17 25 6 29	19 04 0	1 31.8	9 15				
Sat Apr 09/Sun Apr 10	3470.8	12 47 59	18 55	20 16	4 39	6 00	9
03 17 28 7 00	20 08 2	2 21.0	14 59				
Sun Apr 10/Mon Apr 11	3471.8	12 51 55	18 56	20 17	4 38	5 59	9
08 17 30	..... 21 12 6	3 11.6	19 54				
Mon Apr 11/Tue Apr 12	3472.8	12 55 52	18 57	20 18	4 36	5 58	9
13 17 33	..... 22 15 12	4 03.8	23 47				
Tue Apr 12/Wed Apr 13	3473.8	12 59 49	18 57	20 19	4 35	5 56	9
18 17 35	..... 23 17 20	4 57.5	26 25				
Wed Apr 13/Thu Apr 14	3474.8	13 03 45	18 58	20 20	4 34	5 55	9
23 17 38	..... 0 14 28	5 52.0	27 44				
Thu Apr 14/Fri Apr 15	3475.8	13 07 42	18 59	20 21	4 32	5 54	9
28 17 41	..... 1 06 37	6 46.3	27 41				
Fri Apr 15/Sat Apr 16	3476.8	13 11 38	18 59	20 21	4 31	5 53	9
32 17 43	..... 1 51 46	7 39.5	26 19				

Sat Apr 16/Sun Apr 17	3477.8	13 15 35	19 00	20 22	4 29	5 52	9
37 17 46	.....	2 30	56	8 30.9	23 44		
Sun Apr 17/Mon Apr 18	3478.8	13 19 31	19 01	20 23	4 28	5 50	9
42 17 48	.....	3 04	65	9 20.1	20 06		
Mon Apr 18/Tue Apr 19	3479.8	13 23 28	19 01	20 24	4 27	5 49	9
47 17 51	.....	3 35	74	10 07.4	15 35		
Tue Apr 19/Wed Apr 20	3480.8	13 27 24	19 02	20 25	4 25	5 48	9
52 17 53	.....	4 02	82	10 53.3	10 20		
Wed Apr 20/Thu Apr 21	3481.8	13 31 21	19 03	20 26	4 24	5 47	9
57 17 56	.....	4 29	89	11 38.5	4 33		
Thu Apr 21/Fri Apr 22	3482.8	13 35 18	19 04	20 27	4 23	5 46	10
02 17 59	.....	4 55	95	12 24.1	- 1 35		
Fri Apr 22/Sat Apr 23	3483.8	13 39 14	19 04	20 28	4 21	5 45	10
07 18 01	17 32	5 23	99	13 11.0	- 7 49		
Sat Apr 23/Sun Apr 24	3484.8	13 43 11	19 05	20 29	4 20	5 44	10
12 18 04	18 34	5 54	100	14 00.5	-13 54		
Sun Apr 24/Mon Apr 25	3485.8	13 47 07	19 06	20 30	4 19	5 43	10
16 18 06	19 40	6 29	99	14 53.5	-19 27		
Mon Apr 25/Tue Apr 26	3486.8	13 51 04	19 06	20 31	4 17	5 42	10
21 18 09	20 48	.....	95	15 50.7	-24 04		
Tue Apr 26/Wed Apr 27	3487.8	13 55 00	19 07	20 32	4 16	5 41	10
26 18 12	21 59	.....	89	16 52.1	-27 20		
Wed Apr 27/Thu Apr 28	3488.8	13 58 57	19 08	20 33	4 15	5 40	10
31 18 14	23 07	.....	81	17 56.5	-28 53		
Thu Apr 28/Fri Apr 29	3489.8	14 02 53	19 09	20 34	4 13	5 39	10
36 18 17	0 10	.....	71	19 01.5	-28 33		
Fri Apr 29/Sat Apr 30	3490.8	14 06 50	19 09	20 35	4 12	5 38	10
41 18 20	1 04	.....	61	20 04.8	-26 21		
Sat Apr 30/Sun May 01	3491.8	14 10 47	19 10	20 36	4 11	5 37	10
46 18 22	1 49	49	21 04.6	-22 34		

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 MAY *****

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Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	Sun: -----
LST twilight: -----	Moon: -----		
(2005 at start)	(-2450000)	set twi.end twi.beg rise	
eve morn rise set %illum RA	Dec		

Sun May 01/Mon May 02	3492.8	14 14 43	19 11	20 37	4 10	5 36	10
51 18 25	2 28	.....	38	22 00.3	-17 34		
Mon May 02/Tue May 03	3493.8	14 18 40	19 11	20 38	4 09	5 35	10
56 18 28	3 01	.....	27	22 52.4	-11 44		

Tue	May 03	Wed	May 04	3494.8	14	22	36	19	12	20	39	4	07	5	34	11
01	18	31	3	31	.....	18	23	41.9	-	5	27					
Wed	May 04	Thu	May 05	3495.8	14	26	33	19	13	20	40	4	06	5	33	11
06	18	33	4	00	.....	10	0	29.8	0	58						
Thu	May 05	Fri	May 06	3496.8	14	30	29	19	14	20	41	4	05	5	32	11
11	18	36	4	29	.....	5	1	17.3	7	15						
Fri	May 06	Sat	May 07	3497.8	14	34	26	19	14	20	42	4	04	5	31	11
16	18	39	4	59	17	53	1	2	05.4	13	05					
Sat	May 07	Sun	May 08	3498.8	14	38	22	19	15	20	43	4	03	5	31	11
21	18	42	5	32	18	57	0	2	55.0	18	13					
Sun	May 08	Mon	May 09	3499.8	14	42	19	19	16	20	44	4	02	5	30	11
26	18	45	6	10	20	00	1	3	46.4	22	26					
Mon	May 09	Tue	May 10	3500.8	14	46	16	19	16	20	45	4	01	5	29	11
31	18	48	.....	21	03	4	4	39.5	25	29						
Tue	May 10	Wed	May 11	3501.8	14	50	12	19	17	20	46	4	00	5	28	11
35	18	50	.....	22	02	8	5	33.9	27	15						
Wed	May 11	Thu	May 12	3502.8	14	54	09	19	18	20	47	3	59	5	27	11
40	18	53	.....	22	57	15	6	28.5	27	38						
Thu	May 12	Fri	May 13	3503.8	14	58	05	19	19	20	48	3	58	5	27	11
45	18	56	.....	23	45	22	7	22.1	26	41						
Fri	May 13	Sat	May 14	3504.8	15	02	02	19	19	20	49	3	57	5	26	11
50	18	59	.....	0	27	30	8	13.9	24	29						
Sat	May 14	Sun	May 15	3505.8	15	05	58	19	20	20	50	3	56	5	25	11
55	19	02	.....	1	03	39	9	03.4	21	13						
Sun	May 15	Mon	May 16	3506.8	15	09	55	19	21	20	51	3	55	5	25	12
00	19	05	.....	1	34	49	9	50.6	17	02						
Mon	May 16	Tue	May 17	3507.8	15	13	51	19	21	20	52	3	54	5	24	12
05	19	08	.....	2	03	58	10	36.2	12	07						
Tue	May 17	Wed	May 18	3508.8	15	17	48	19	22	20	53	3	53	5	23	12
10	19	11	.....	2	29	68	11	20.8	6	37						
Wed	May 18	Thu	May 19	3509.8	15	21	45	19	23	20	54	3	52	5	23	12
15	19	14	.....	2	55	77	12	05.4	0	42						
Thu	May 19	Fri	May 20	3510.8	15	25	41	19	23	20	55	3	51	5	22	12
20	19	17	.....	3	22	85	12	51.1	-	5	26					
Fri	May 20	Sat	May 21	3511.8	15	29	38	19	24	20	56	3	50	5	22	12
25	19	21	.....	3	51	92	13	39.2	-11	35						
Sat	May 21	Sun	May 22	3512.8	15	33	34	19	25	20	56	3	49	5	21	12
30	19	24	.....	4	24	97	14	30.8	-17	24						
Sun	May 22	Mon	May 23	3513.8	15	37	31	19	25	20	57	3	49	5	21	12
34	19	27	18	29	5	04	100	15	27.1	-22	29					
Mon	May 23	Tue	May 24	3514.8	15	41	27	19	26	20	58	3	48	5	20	12
39	19	30	19	40	5	52	100	16	28.3	-26	24					
Tue	May 24	Wed	May 25	3515.8	15	45	24	19	27	20	59	3	47	5	20	12
44	19	33	20	52	.....	97	17	33.7	-28	39						
Wed	May 25	Thu	May 26	3516.8	15	49	20	19	27	21	00	3	47	5	19	12
49	19	37	21	59	.....	91	18	41.0	-28	55						
Thu	May 26	Fri	May 27	3517.8	15	53	17	19	28	21	01	3	46	5	19	12
54	19	40	22	58	.....	83	19	47.2	-27	11						
Fri	May 27	Sat	May 28	3518.8	15	57	14	19	29	21	02	3	45	5	19	12
59	19	43	23	48	.....	74	20	49.9	-23	40						
Sat	May 28	Sun	May 29	3519.8	16	01	10	19	29	21	03	3	45	5	18	13
03	19	47	0	29	.....	63	21	47.9	-18	49						


```

Sun May 29/Mon May 30 3520.8 16 05 07 19 30 21 04 3 44 5 18 13
08 19 50 1 04 ..... 52 22 41.4 -13 03
Mon May 30/Tue May 31 3521.8 16 09 03 19 30 21 04 3 44 5 18 13
13 19 53 1 34 ..... 41 23 31.6 - 6 48
Tue May 31/Wed Jun 01 3522.8 16 13 00 19 31 21 05 3 43 5 17 13
18 19 57 2 03 ..... 30 0 19.5 - 0 25

```

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 JUNE *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	----- Sun: -----			
LST twilight:	----- Moon: -----		set	twi.end	twi.beg	rise
(2005 at start)	(-2450000)		Dec			
eve morn rise set %illum RA						
Wed Jun 01/Thu Jun 02	3523.8	16 16 56	19 32	21 06	3 43	5 17 13
22 20 00 2 31	..... 21	1 06.6	5 50			
Thu Jun 02/Fri Jun 03	3524.8	16 20 53	19 32	21 07	3 42	5 17 13
27 20 04 3 00	..... 13	1 53.9	11 42			
Fri Jun 03/Sat Jun 04	3525.8	16 24 49	19 33	21 07	3 42	5 17 13
32 20 07 3 32	..... 7	2 42.4	16 56			
Sat Jun 04/Sun Jun 05	3526.8	16 28 46	19 33	21 08	3 42	5 17 13
36 20 11 4 08	17 49 3	3 32.7	21 19			
Sun Jun 05/Mon Jun 06	3527.8	16 32 43	19 34	21 09	3 41	5 16 13
41 20 15 4 48	18 52 0	4 24.9	24 38			
Mon Jun 06/Tue Jun 07	3528.8	16 36 39	19 34	21 09	3 41	5 16 13
46 20 18 5 34	19 52 0	5 18.6	26 43			
Tue Jun 07/Wed Jun 08	3529.8	16 40 36	19 35	21 10	3 41	5 16 13
50 20 22 6 26	20 49 2	6 12.9	27 28			
Wed Jun 08/Thu Jun 09	3530.8	16 44 32	19 35	21 11	3 41	5 16 13
55 20 26	..... 21 39 5	7 06.7	26 52			
Thu Jun 09/Fri Jun 10	3531.8	16 48 29	19 36	21 11	3 40	5 16 13
59 20 29	..... 22 23 10	7 58.8	25 01			
Fri Jun 10/Sat Jun 11	3532.8	16 52 25	19 36	21 12	3 40	5 16 14
04 20 33	..... 23 01 17	8 48.7	22 02			
Sat Jun 11/Sun Jun 12	3533.8	16 56 22	19 36	21 12	3 40	5 16 14
08 20 37	..... 23 34 24	9 36.1	18 08			
Sun Jun 12/Mon Jun 13	3534.8	17 00 18	19 37	21 13	3 40	5 16 14
13 20 41	..... 0 03 33	10 21.5	13 30			
Mon Jun 13/Tue Jun 14	3535.8	17 04 15	19 37	21 13	3 40	5 16 14
17 20 45	..... 0 30 42	11 05.4	8 16			
Tue Jun 14/Wed Jun 15	3536.8	17 08 12	19 38	21 14	3 40	5 16 14
21 20 49	..... 0 55 52	11 48.9	2 37			

Wed	Jun 15/Thu	Jun 16	3537.8	17 12 08	19 38	21 14	3 40	5 16	14
26	20 53	.....	1 21 62	12 33.0	- 3 19				
Thu	Jun 16/Fri	Jun 17	3538.8	17 16 05	19 38	21 14	3 40	5 16	14
30	20 57	.....	1 49 72	13 18.9	- 9 19				
Fri	Jun 17/Sat	Jun 18	3539.8	17 20 01	19 38	21 15	3 40	5 17	14
34	21 01	.....	2 19 81	14 07.9	-15 10				
Sat	Jun 18/Sun	Jun 19	3540.8	17 23 58	19 39	21 15	3 40	5 17	14
39	21 05	.....	2 55 89	15 01.3	-20 31				
Sun	Jun 19/Mon	Jun 20	3541.8	17 27 54	19 39	21 15	3 41	5 17	14
43	21 09	.....	3 39 95	16 00.1	-24 57				
Mon	Jun 20/Tue	Jun 21	3542.8	17 31 51	19 39	21 16	3 41	5 17	14
47	21 13	18 29	4 32 99	17 04.3	-27 58				
Tue	Jun 21/Wed	Jun 22	3543.8	17 35 47	19 39	21 16	3 41	5 17	14
51	21 17	19 39	5 36 100	18 12.3	-29 05				
Wed	Jun 22/Thu	Jun 23	3544.8	17 39 44	19 40	21 16	3 41	5 18	14
55	21 22	20 44	.....	98	19 21.2	-28 05			
Thu	Jun 23/Fri	Jun 24	3545.8	17 43 41	19 40	21 16	3 42	5 18	14
59	21 26	21 39	.....	93	20 27.6	-25 04			
Fri	Jun 24/Sat	Jun 25	3546.8	17 47 37	19 40	21 16	3 42	5 18	15
03	21 30	22 25	.....	86	21 29.4	-20 25			
Sat	Jun 25/Sun	Jun 26	3547.8	17 51 34	19 40	21 16	3 42	5 19	15
07	21 34	23 03	.....	76	22 26.2	-14 39			
Sun	Jun 26/Mon	Jun 27	3548.8	17 55 30	19 40	21 16	3 43	5 19	15
11	21 39	23 36	.....	66	23 18.8	- 8 18			
Mon	Jun 27/Tue	Jun 28	3549.8	17 59 27	19 40	21 16	3 43	5 19	15
15	21 43	0 06	.....	55	0 08.3	- 1 45			
Tue	Jun 28/Wed	Jun 29	3550.8	18 03 23	19 40	21 16	3 44	5 20	15
19	21 48	0 35	.....	44	0 56.3	4 40			
Wed	Jun 29/Thu	Jun 30	3551.8	18 07 20	19 40	21 16	3 44	5 20	15
23	21 52	1 03	.....	33	1 43.8	10 40			
Thu	Jun 30/Fri	Jul 01	3552.8	18 11 16	19 40	21 16	3 45	5 20	15
27	21 56	1 34	.....	24	2 32.1	16 02			

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 JULY *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	----- Sun: -----			
LST twilight:	----- Moon: -----					
(2005 at start)	(-2450000)		set	twi.end	twi.beg	rise
eve	morn	rise	set	%illum	RA	Dec

Fri	Jul 01/Sat	Jul 02	3553.8	18 15 13	19 40	21 16	3 45	5 21	15
31	22 01	2 08	.....	16	3 21.7	20 34			

Sat	Jul 02/Sun	Jul 03	3554.8	18 19 10	19 40	21 16	3 46	5 21	15
34	22 05	2 46	.....	9	4 13.2	24 04			
Sun	Jul 03/Mon	Jul 04	3555.8	18 23 06	19 40	21 16	3 46	5 22	15
38	22 10	3 30	17 45	5	5 06.2	26 23			
Mon	Jul 04/Tue	Jul 05	3556.8	18 27 03	19 40	21 15	3 47	5 22	15
42	22 15	4 20	18 43	1	6 00.1	27 23			
Tue	Jul 05/Wed	Jul 06	3557.8	18 30 59	19 40	21 15	3 48	5 23	15
46	22 19	5 14	19 35	0	6 53.8	27 04			
Wed	Jul 06/Thu	Jul 07	3558.8	18 34 56	19 40	21 15	3 48	5 23	15
49	22 24	6 12	20 21	1	7 46.2	25 28			
Thu	Jul 07/Fri	Jul 08	3559.8	18 38 52	19 40	21 14	3 49	5 24	15
53	22 28	.....	21 01	3	8 36.4	22 44			
Fri	Jul 08/Sat	Jul 09	3560.8	18 42 49	19 39	21 14	3 50	5 24	15
56	22 33	.....	21 35	7	9 24.1	19 02			
Sat	Jul 09/Sun	Jul 10	3561.8	18 46 45	19 39	21 13	3 50	5 25	16
00	22 38	.....	22 05	12	10 09.5	14 34			
Sun	Jul 10/Mon	Jul 11	3562.8	18 50 42	19 39	21 13	3 51	5 25	16
03	22 42	.....	22 32	19	10 53.3	9 31			
Mon	Jul 11/Tue	Jul 12	3563.8	18 54 39	19 39	21 12	3 52	5 26	16
07	22 47	.....	22 58	27	11 36.0	4 03			
Tue	Jul 12/Wed	Jul 13	3564.8	18 58 35	19 38	21 12	3 53	5 26	16
10	22 52	.....	23 23	36	12 18.9	- 1 42			
Wed	Jul 13/Thu	Jul 14	3565.8	19 02 32	19 38	21 11	3 53	5 27	16
13	22 57	.....	23 49	46	13 02.8	- 7 32			
Thu	Jul 14/Fri	Jul 15	3566.8	19 06 28	19 37	21 11	3 54	5 28	16
17	23 01	.....	0 17	56	13 49.2	-13 16			
Fri	Jul 15/Sat	Jul 16	3567.8	19 10 25	19 37	21 10	3 55	5 28	16
20	23 06	.....	0 49	67	14 39.2	-18 40			
Sat	Jul 16/Sun	Jul 17	3568.8	19 14 21	19 37	21 09	3 56	5 29	16
23	23 11	.....	1 28	76	15 34.2	-23 22			
Sun	Jul 17/Mon	Jul 18	3569.8	19 18 18	19 36	21 09	3 57	5 29	16
27	23 16	.....	2 15	85	16 34.7	-26 56			
Mon	Jul 18/Tue	Jul 19	3570.8	19 22 14	19 36	21 08	3 58	5 30	16
30	23 21	.....	3 13	93	17 40.4	-28 53			
Tue	Jul 19/Wed	Jul 20	3571.8	19 26 11	19 35	21 07	3 59	5 31	16
33	23 25	18 24	4 22	98	18 49.0	-28 50			
Wed	Jul 20/Thu	Jul 21	3572.8	19 30 08	19 35	21 07	3 59	5 31	16
36	23 30	19 24	5 37	100	19 57.5	-26 38			
Thu	Jul 21/Fri	Jul 22	3573.8	19 34 04	19 34	21 06	4 00	5 32	16
39	23 35	20 15	.....	99	21 02.8	-22 30			
Fri	Jul 22/Sat	Jul 23	3574.8	19 38 01	19 34	21 05	4 01	5 32	16
42	23 40	20 58	.....	95	22 03.5	-16 56			
Sat	Jul 23/Sun	Jul 24	3575.8	19 41 57	19 33	21 04	4 02	5 33	16
45	23 45	21 34	.....	88	22 59.5	-10 29			
Sun	Jul 24/Mon	Jul 25	3576.8	19 45 54	19 32	21 03	4 03	5 34	16
49	23 50	22 06	.....	79	23 51.9	- 3 40			
Mon	Jul 25/Tue	Jul 26	3577.8	19 49 50	19 32	21 02	4 04	5 34	16
52	23 55	22 36	.....	69	0 41.9	3 04			
Tue	Jul 26/Wed	Jul 27	3578.8	19 53 47	19 31	21 01	4 05	5 35	16
55	23 59	23 05	.....	59	1 31.0	9 24			
Wed	Jul 27/Thu	Jul 28	3579.8	19 57 43	19 30	21 00	4 06	5 36	16
58	0 04	23 36	.....	48	2 20.2	15 05			

Thu Jul 28/Fri Jul 29	3580.8	20 01 40	19 30	20 59	4 07	5 36	17
00 0 09 0 09	..... 38	3 10.3	19 54				
Fri Jul 29/Sat Jul 30	3581.8	20 05 37	19 29	20 58	4 08	5 37	17
03 0 14 0 46	..... 28	4 01.9	23 39				
Sat Jul 30/Sun Jul 31	3582.8	20 09 33	19 28	20 57	4 09	5 38	17
06 0 19 1 28	..... 20	4 54.9	26 12				
Sun Jul 31/Mon Aug 01	3583.8	20 13 30	19 27	20 56	4 10	5 38	17
09 0 24 2 16	..... 13	5 48.7	27 27				

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 AUGUST *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	Sun: -----			
LST twilight: -----	Moon: -----		set	twi.end	twi.beg	rise
(2005 at start)	(-2450000)		Dec			
eve morn rise	set %illum	RA				
Mon Aug 01/Tue Aug 02	3584.8	20 17 26	19 27	20 55	4 11	5 39 17
12 0 29 3 09	17 32 7	6 42.4	27 22			
Tue Aug 02/Wed Aug 03	3585.8	20 21 23	19 26	20 54	4 12	5 40 17
15 0 34 4 05	18 20 3	7 35.0	26 00			
Wed Aug 03/Thu Aug 04	3586.8	20 25 19	19 25	20 53	4 13	5 40 17
18 0 39 5 03	19 01 1	8 25.5	23 28			
Thu Aug 04/Fri Aug 05	3587.8	20 29 16	19 24	20 52	4 14	5 41 17
20 0 43 6 01	19 37 0	9 13.7	19 55			
Fri Aug 05/Sat Aug 06	3588.8	20 33 12	19 23	20 51	4 14	5 42 17
23 0 48	..... 20 08 1	9 59.5	15 35			
Sat Aug 06/Sun Aug 07	3589.8	20 37 09	19 22	20 49	4 15	5 42 17
26 0 53	..... 20 36 4	10 43.4	10 38			
Sun Aug 07/Mon Aug 08	3590.8	20 41 06	19 21	20 48	4 16	5 43 17
29 0 58	..... 21 01 9	11 26.1	5 14			
Mon Aug 08/Tue Aug 09	3591.8	20 45 02	19 21	20 47	4 17	5 44 17
31 1 03	..... 21 26 15	12 08.4	- 0 25			
Tue Aug 09/Wed Aug 10	3592.8	20 48 59	19 20	20 46	4 18	5 44 17
34 1 08	..... 21 51 22	12 51.3	- 6 11			
Wed Aug 10/Thu Aug 11	3593.8	20 52 55	19 19	20 45	4 19	5 45 17
37 1 13	..... 22 18 31	13 35.9	-11 51			
Thu Aug 11/Fri Aug 12	3594.8	20 56 52	19 18	20 43	4 20	5 46 17
40 1 18	..... 22 48 41	14 23.4	-17 13			
Fri Aug 12/Sat Aug 13	3595.8	21 00 48	19 17	20 42	4 21	5 46 17
42 1 23	..... 23 23 51	15 15.0	-22 01			
Sat Aug 13/Sun Aug 14	3596.8	21 04 45	19 16	20 41	4 22	5 47 17
45 1 27	..... 0 05 62	16 11.5	-25 52			

Sun Aug 14/Mon Aug 15	3597.8	21 08 41	19 15	20 39	4 23	5 48	17
48 1 32	.....	0 56	73	17 13.1	-28 23		
Mon Aug 15/Tue Aug 16	3598.8	21 12 38	19 14	20 38	4 24	5 48	17
50 1 37	.....	1 58	82	18 18.8	-29 09		
Tue Aug 16/Wed Aug 17	3599.8	21 16 35	19 12	20 37	4 25	5 49	17
53 1 42	.....	3 09	91	19 26.1	-27 53		
Wed Aug 17/Thu Aug 18	3600.8	21 20 31	19 11	20 35	4 26	5 50	17
55 1 47	18 01	4 25	96	20 32.2	-24 36		
Thu Aug 18/Fri Aug 19	3601.8	21 24 28	19 10	20 34	4 27	5 50	17
58 1 52	18 48	5 41	99	21 35.0	-19 36		
Fri Aug 19/Sat Aug 20	3602.8	21 28 24	19 09	20 33	4 27	5 51	18
01 1 57	19 27	.....	99	22 33.8	-13 22		
Sat Aug 20/Sun Aug 21	3603.8	21 32 21	19 08	20 31	4 28	5 52	18
03 2 01	20 02	.....	96	23 28.9	- 6 28		
Sun Aug 21/Mon Aug 22	3604.8	21 36 17	19 07	20 30	4 29	5 52	18
06 2 06	20 33	.....	91	0 21.4	0 37		
Mon Aug 22/Tue Aug 23	3605.8	21 40 14	19 06	20 29	4 30	5 53	18
08 2 11	21 03	.....	83	1 12.5	7 25		
Tue Aug 23/Wed Aug 24	3606.8	21 44 10	19 05	20 27	4 31	5 54	18
11 2 16	21 34	.....	73	2 03.3	13 35		
Wed Aug 24/Thu Aug 25	3607.8	21 48 07	19 03	20 26	4 32	5 54	18
13 2 21	22 07	.....	63	2 54.9	18 52		
Thu Aug 25/Fri Aug 26	3608.8	21 52 04	19 02	20 24	4 33	5 55	18
16 2 25	22 44	.....	53	3 47.5	23 03		
Fri Aug 26/Sat Aug 27	3609.8	21 56 00	19 01	20 23	4 33	5 55	18
18 2 30	23 25	.....	43	4 41.4	25 59		
Sat Aug 27/Sun Aug 28	3610.8	21 59 57	19 00	20 21	4 34	5 56	18
21 2 35	0 12	.....	33	5 35.9	27 34		
Sun Aug 28/Mon Aug 29	3611.8	22 03 53	18 59	20 20	4 35	5 57	18
23 2 40	1 03	.....	25	6 30.2	27 46		
Mon Aug 29/Tue Aug 30	3612.8	22 07 50	18 57	20 19	4 36	5 57	18
26 2 45	1 59	.....	17	7 23.4	26 39		
Tue Aug 30/Wed Aug 31	3613.8	22 11 46	18 56	20 17	4 37	5 58	18
28 2 49	2 57	17 01	10	8 14.5	24 20		
Wed Aug 31/Thu Sep 01	3614.8	22 15 43	18 55	20 16	4 38	5 59	18
31 2 54	3 55	17 39	5	9 03.3	20 58		

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 SEPTEMBER *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	-----	Sun: -----
LST twilight:	-----	Moon: -----		
(2005 at start)	(-2450000)		set	twi.end twi.beg rise
eve morn	rise set %illum	RA	Dec	

Thu Sep 01/Fri Sep 02	3615.8	22 19 39	18 54	20 14	4 38	5 59	18
33 2 59 4 52 18 11	2	9 49.6	16 45				
Fri Sep 02/Sat Sep 03	3616.8	22 23 36	18 52	20 13	4 39	6 00	18
36 3 04 5 49 18 39	0	10 33.9	11 52				
Sat Sep 03/Sun Sep 04	3617.8	22 27 33	18 51	20 11	4 40	6 00	18
38 3 08 6 44 19 06	0	11 16.9	6 31				
Sun Sep 04/Mon Sep 05	3618.8	22 31 29	18 50	20 10	4 41	6 01	18
41 3 13	19 31	2	11 59.3	0 52			
Mon Sep 05/Tue Sep 06	3619.8	22 35 26	18 48	20 09	4 42	6 02	18
43 3 18	19 56	6	12 42.0	- 4 55			
Tue Sep 06/Wed Sep 07	3620.8	22 39 22	18 47	20 07	4 42	6 02	18
46 3 22	20 22	11	13 26.0	-10 37			
Wed Sep 07/Thu Sep 08	3621.8	22 43 19	18 46	20 06	4 43	6 03	18
48 3 27	20 50	18	14 12.3	-16 03			
Thu Sep 08/Fri Sep 09	3622.8	22 47 15	18 45	20 04	4 44	6 03	18
51 3 32	21 23	27	15 02.0	-20 55			
Fri Sep 09/Sat Sep 10	3623.8	22 51 12	18 43	20 03	4 45	6 04	18
53 3 37	22 02	37	15 55.9	-24 58			
Sat Sep 10/Sun Sep 11	3624.8	22 55 08	18 42	20 01	4 45	6 05	18
56 3 41	22 48	47	16 54.2	-27 48			
Sun Sep 11/Mon Sep 12	3625.8	22 59 05	18 41	20 00	4 46	6 05	18
58 3 46	23 44	58	17 56.5	-29 05			
Mon Sep 12/Tue Sep 13	3626.8	23 03 02	18 39	19 58	4 47	6 06	19
01 3 51	0 50	69	19 01.0	-28 33			
Tue Sep 13/Wed Sep 14	3627.8	23 06 58	18 38	19 57	4 48	6 07	19
03 3 55	2 01	80	20 05.4	-26 06			
Wed Sep 14/Thu Sep 15	3628.8	23 10 55	18 37	19 55	4 48	6 07	19
06 4 00	3 15	88	21 07.8	-21 53			
Thu Sep 15/Fri Sep 16	3629.8	23 14 51	18 35	19 54	4 49	6 08	19
08 4 05 17 20 4 29 95			22 06.9	-16 14			
Fri Sep 16/Sat Sep 17	3630.8	23 18 48	18 34	19 53	4 50	6 08	19
11 4 09 17 56 5 40 99			23 03.0	- 9 36			
Sat Sep 17/Sun Sep 18	3631.8	23 22 44	18 33	19 51	4 50	6 09	19
13 4 14 18 29 6 50 100			23 56.6	- 2 30			
Sun Sep 18/Mon Sep 19	3632.8	23 26 41	18 31	19 50	4 51	6 10	19
16 4 19 19 00	98		0 48.9	4 36			
Mon Sep 19/Tue Sep 20	3633.8	23 30 37	18 30	19 48	4 52	6 10	19
18 4 23 19 31	93		1 41.0	11 16			
Tue Sep 20/Wed Sep 21	3634.8	23 34 34	18 29	19 47	4 53	6 11	19
21 4 28 20 03	86		2 33.8	17 08			
Wed Sep 21/Thu Sep 22	3635.8	23 38 31	18 27	19 46	4 53	6 11	19
23 4 33 20 39	78		3 27.7	21 56			
Thu Sep 22/Fri Sep 23	3636.8	23 42 27	18 26	19 44	4 54	6 12	19
26 4 37 21 19	69		4 23.0	25 26			
Fri Sep 23/Sat Sep 24	3637.8	23 46 24	18 25	19 43	4 55	6 13	19
28 4 42 22 05	59		5 18.9	27 30			
Sat Sep 24/Sun Sep 25	3638.8	23 50 20	18 23	19 41	4 55	6 13	19
31 4 46 22 55	49		6 14.7	28 08			
Sun Sep 25/Mon Sep 26	3639.8	23 54 17	18 22	19 40	4 56	6 14	19
34 4 51 23 50	40		7 09.1	27 21			
Mon Sep 26/Tue Sep 27	3640.8	23 58 13	18 21	19 39	4 57	6 15	19
36 4 56 0 48	31		8 01.4	25 18			

Tue Sep 27/Wed Sep 28	3641.8	0 02 10	18 20	19 37	4 57	6 15	19
39 5 00	1 46	.....	22	8 51.1	22 10		
Wed Sep 28/Thu Sep 29	3642.8	0 06 06	18 18	19 36	4 58	6 16	19
41 5 05	2 44	.....	15	9 38.1	18 07		
Thu Sep 29/Fri Sep 30	3643.8	0 10 03	18 17	19 35	4 59	6 16	19
44 5 10	3 41	16 42	9	10 23.0	13 22		
Fri Sep 30/Sat Oct 01	3644.8	0 14 00	18 16	19 33	4 59	6 17	19
47 5 14	4 37	17 09	4	11 06.4	8 05		

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 OCTOBER *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down.

Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	----- Sun: -----				
LST twilight: -----	Moon: -----						
(2005 at start)	(-2450000)		set	twi.end	twi.beg	rise	
eve morn rise	set %illum	RA	Dec				
Sat Oct 01/Sun Oct 02	3645.8	0 17 56	18 14	19 32	5 00	6 18	19
49 5 19	5 33	17 35	1	11 49.1	2 26		
Sun Oct 02/Mon Oct 03	3646.8	0 21 53	18 13	19 31	5 01	6 18	19
52 5 23	6 29	18 00	0	12 31.9	- 3 23		
Mon Oct 03/Tue Oct 04	3647.8	0 25 49	18 12	19 29	5 01	6 19	19
54 5 28	7 28	18 25	1	13 15.9	- 9 11		
Tue Oct 04/Wed Oct 05	3648.8	0 29 46	18 11	19 28	5 02	6 20	19
57 5 33	.....	18 53	3	14 02.0	-14 45		
Wed Oct 05/Thu Oct 06	3649.8	0 33 42	18 09	19 27	5 03	6 20	20
00 5 37	.....	19 25	8	14 51.1	-19 48		
Thu Oct 06/Fri Oct 07	3650.8	0 37 39	18 08	19 26	5 03	6 21	20
03 5 42	.....	20 02	15	15 44.1	-24 03		
Fri Oct 07/Sat Oct 08	3651.8	0 41 35	18 07	19 24	5 04	6 22	20
05 5 46	.....	20 46	23	16 41.1	-27 09		
Sat Oct 08/Sun Oct 09	3652.8	0 45 32	18 06	19 23	5 05	6 22	20
08 5 51	.....	21 38	33	17 41.5	-28 48		
Sun Oct 09/Mon Oct 10	3653.8	0 49 29	18 04	19 22	5 05	6 23	20
11 5 56	.....	22 40	44	18 44.1	-28 43		
Mon Oct 10/Tue Oct 11	3654.8	0 53 25	18 03	19 21	5 06	6 24	20
13 6 00	.....	23 48	55	19 46.7	-26 51		
Tue Oct 11/Wed Oct 12	3655.8	0 57 22	18 02	19 20	5 07	6 25	20
16 6 05	.....	0 59	66	20 47.5	-23 17		
Wed Oct 12/Thu Oct 13	3656.8	1 01 18	18 01	19 18	5 07	6 25	20
19 6 10	.....	2 10	77	21 45.5	-18 16		
Thu Oct 13/Fri Oct 14	3657.8	1 05 15	18 00	19 17	5 08	6 26	20
22 6 14	.....	3 20	86	22 40.6	-12 10		

Fri Oct 14/Sat	Oct 15	3658.8	1 09 11	17 58	19 16	5 09	6 27	20
25	6 19	16 26	4 28	93	23 33.6	- 5 24		
Sat Oct 15/Sun	Oct 16	3659.8	1 13 08	17 57	19 15	5 09	6 27	20
27	6 23	16 56	5 36	98	0 25.4	1 38		
Sun Oct 16/Mon	Oct 17	3660.8	1 17 04	17 56	19 14	5 10	6 28	20
30	6 28	17 27	6 43	100	1 17.1	8 30		
Mon Oct 17/Tue	Oct 18	3661.8	1 21 01	17 55	19 13	5 11	6 29	20
33	6 33	17 58	.....	99	2 09.7	14 48		
Tue Oct 18/Wed	Oct 19	3662.8	1 24 58	17 54	19 12	5 11	6 30	20
36	6 37	18 33	.....	96	3 03.9	20 10		
Wed Oct 19/Thu	Oct 20	3663.8	1 28 54	17 53	19 11	5 12	6 30	20
39	6 42	19 11	.....	90	3 59.9	24 19		
Thu Oct 20/Fri	Oct 21	3664.8	1 32 51	17 52	19 10	5 13	6 31	20
42	6 47	19 55	.....	83	4 57.1	27 03		
Fri Oct 21/Sat	Oct 22	3665.8	1 36 47	17 51	19 09	5 14	6 32	20
45	6 51	20 45	.....	75	5 54.5	28 14		
Sat Oct 22/Sun	Oct 23	3666.8	1 40 44	17 50	19 08	5 14	6 33	20
48	6 56	21 39	.....	66	6 50.9	27 55		
Sun Oct 23/Mon	Oct 24	3667.8	1 44 40	17 48	19 07	5 15	6 33	20
51	7 00	22 37	.....	57	7 44.9	26 14		
Mon Oct 24/Tue	Oct 25	3668.8	1 48 37	17 47	19 06	5 16	6 34	20
54	7 05	23 36	.....	47	8 36.0	23 23		
Tue Oct 25/Wed	Oct 26	3669.8	1 52 33	17 46	19 05	5 16	6 35	20
57	7 10	0 34	.....	38	9 24.2	19 35		
Wed Oct 26/Thu	Oct 27	3670.8	1 56 30	17 45	19 04	5 17	6 36	21
00	7 14	1 31	.....	29	10 09.8	15 00		
Thu Oct 27/Fri	Oct 28	3671.8	2 00 27	17 44	19 03	5 18	6 37	21
03	7 19	2 27	.....	21	10 53.6	9 52		
Fri Oct 28/Sat	Oct 29	3672.8	2 04 23	17 44	19 02	5 18	6 37	21
06	7 24	3 23	.....	13	11 36.4	4 18		
Sat Oct 29/Sun	Oct 30	3673.8	2 08 20	17 43	19 01	5 19	6 38	21
09	7 28	4 19	.....	8	12 19.2	- 1 29		
Sun Oct 30/Mon	Oct 31	3674.8	2 12 16	17 42	19 01	5 20	6 39	21
12	7 33	5 17	16 27	3	13 03.1	- 7 21		
Mon Oct 31/Tue	Nov 01	3675.8	2 16 13	17 41	19 00	5 21	6 40	21
15	7 38	6 17	16 54	1	13 48.9	-13 03		

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 NOVEMBER *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn) JDmid LMSTmidn ----- Sun: -----
LST twilight: Moon: -----

(2005 at start)		(-2450000)			set	twi.end	twi.beg	rise		
eve	morn	rise	set	%illum	RA	Dec				
Tue Nov 01	/Wed Nov 02	3676.8	2 20 09	17 40	18 59	5 21	6 41	21		
18 7 42	7 21 17 25	0	14 37.8	-18 20						
Wed Nov 02	/Thu Nov 03	3677.8	2 24 06	17 39	18 58	5 22	6 41	21		
22 7 47	..... 18 00	2	15 30.6	-22 53						
Thu Nov 03	/Fri Nov 04	3678.8	2 28 02	17 38	18 58	5 23	6 42	21		
25 7 52	..... 18 43	6	16 27.4	-26 20						
Fri Nov 04	/Sat Nov 05	3679.8	2 31 59	17 37	18 57	5 23	6 43	21		
28 7 56	..... 19 34	12	17 27.8	-28 20						
Sat Nov 05	/Sun Nov 06	3680.8	2 35 56	17 37	18 56	5 24	6 44	21		
31 8 01	..... 20 33	20	18 30.3	-28 39						
Sun Nov 06	/Mon Nov 07	3681.8	2 39 52	17 36	18 56	5 25	6 45	21		
35 8 06	..... 21 40	29	19 32.8	-27 10						
Mon Nov 07	/Tue Nov 08	3682.8	2 43 49	17 35	18 55	5 26	6 46	21		
38 8 10	..... 22 50	40	20 33.3	-24 00						
Tue Nov 08	/Wed Nov 09	3683.8	2 47 45	17 35	18 54	5 26	6 47	21		
41 8 15	..... 0 00	52	21 30.7	-19 24						
Wed Nov 09	/Thu Nov 10	3684.8	2 51 42	17 34	18 54	5 27	6 47	21		
45 8 20	..... 1 09	63	22 25.0	-13 44						
Thu Nov 10	/Fri Nov 11	3685.8	2 55 38	17 33	18 53	5 28	6 48	21		
48 8 24	..... 2 16	74	23 16.8	- 7 21						
Fri Nov 11	/Sat Nov 12	3686.8	2 59 35	17 33	18 53	5 29	6 49	21		
52 8 29	..... 3 21	83	0 07.1	- 0 36						
Sat Nov 12	/Sun Nov 13	3687.8	3 03 31	17 32	18 52	5 29	6 50	21		
55 8 34	..... 4 26	91	0 57.2	6 09						
Sun Nov 13	/Mon Nov 14	3688.8	3 07 28	17 31	18 52	5 30	6 51	21		
59 8 39	15 56 5 32	96	1 48.3	12 32						
Mon Nov 14	/Tue Nov 15	3689.8	3 11 25	17 31	18 51	5 31	6 52	22		
02 8 43	16 29 6 39	99	2 41.1	18 13						
Tue Nov 15	/Wed Nov 16	3690.8	3 15 21	17 30	18 51	5 32	6 53	22		
06 8 48	17 05 7 46	100	3 36.1	22 52						
Wed Nov 16	/Thu Nov 17	3691.8	3 19 18	17 30	18 51	5 32	6 53	22		
09 8 53	17 46	98	4 33.3	26 11						
Thu Nov 17	/Fri Nov 18	3692.8	3 23 14	17 29	18 50	5 33	6 54	22		
13 8 57	18 34	94	5 31.5	27 59						
Fri Nov 18	/Sat Nov 19	3693.8	3 27 11	17 29	18 50	5 34	6 55	22		
16 9 02	19 27	88	6 29.4	28 14						
Sat Nov 19	/Sun Nov 20	3694.8	3 31 07	17 28	18 50	5 35	6 56	22		
20 9 07	20 24	81	7 25.3	27 00						
Sun Nov 20	/Mon Nov 21	3695.8	3 35 04	17 28	18 49	5 35	6 57	22		
24 9 11	21 23	73	8 18.3	24 30						
Mon Nov 21	/Tue Nov 22	3696.8	3 39 00	17 28	18 49	5 36	6 58	22		
27 9 16	22 22	64	9 08.0	20 57						
Tue Nov 22	/Wed Nov 23	3697.8	3 42 57	17 27	18 49	5 37	6 59	22		
31 9 21	23 20	55	9 54.7	16 35						
Wed Nov 23	/Thu Nov 24	3698.8	3 46 54	17 27	18 49	5 38	7 00	22		
35 9 26	0 16	46	10 39.1	11 37						
Thu Nov 24	/Fri Nov 25	3699.8	3 50 50	17 27	18 49	5 38	7 00	22		
39 9 30	1 11	36	11 22.0	6 12						
Fri Nov 25	/Sat Nov 26	3700.8	3 54 47	17 26	18 49	5 39	7 01	22		
42 9 35	2 06	28	12 04.5	0 31						

Sat Nov 26/Sun Nov 27	3701.8	3 58 43	17 26	18 48	5 40	7 02	22
46 9 40	3 03	.....	19	12 47.6	- 5 18		
Sun Nov 27/Mon Nov 28	3702.8	4 02 40	17 26	18 48	5 41	7 03	22
50 9 44	4 02	.....	12	13 32.6	-11 02		
Mon Nov 28/Tue Nov 29	3703.8	4 06 36	17 26	18 48	5 41	7 04	22
54 9 49	5 04	.....	6	14 20.5	-16 29		
Tue Nov 29/Wed Nov 30	3704.8	4 10 33	17 26	18 48	5 42	7 05	22
58 9 54	6 10 15 56		2	15 12.3	-21 19		
Wed Nov 30/Thu Dec 01	3705.8	4 14 29	17 26	18 48	5 43	7 06	23
02 9 58	7 19 16 36		0	16 08.6	-25 12		

[Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

***** 2005 DECEMBER *****

Calendar for Kitt Peak, west longitude (h.m.s) = 7 26 28, latitude (d.m) = 31 57.2

Note that each line lists events of one night, spanning two calendar dates. Rise/set times are given in Mountain time (7 hr W), for 500 m above surroundings, in standard time all year.

Moon coords. and illum. are for local midnight, even if moon is down. Program: John Thorstensen, Dartmouth College.

Date (eve/morn)	JDmid	LMSTmidn	Sun: -----
LST twilight: -----	Moon: -----		
(2005 at start)	(-2450000)	set twi.end twi.beg rise	
eve morn rise set %illum RA Dec			
Thu Dec 01/Fri Dec 02	3706.8	4 18 26	17 26 18 48 5 44 7 06 23
06 10 03	.....	17 24 1	17 09.1 -27 42
Fri Dec 02/Sat Dec 03	3707.8	4 22 23	17 26 18 48 5 44 7 07 23
10 10 08	.....	18 22 4	18 12.6 -28 30
Sat Dec 03/Sun Dec 04	3708.8	4 26 19	17 26 18 48 5 45 7 08 23
14 10 12	.....	19 28 9	19 16.6 -27 27
Sun Dec 04/Mon Dec 05	3709.8	4 30 16	17 26 18 49 5 46 7 09 23
18 10 17	.....	20 40 17	20 18.8 -24 37
Mon Dec 05/Tue Dec 06	3710.8	4 34 12	17 26 18 49 5 46 7 09 23
22 10 22	.....	21 51 26	21 17.6 -20 16
Tue Dec 06/Wed Dec 07	3711.8	4 38 09	17 26 18 49 5 47 7 10 23
26 10 26	.....	23 01 37	22 12.6 -14 47
Wed Dec 07/Thu Dec 08	3712.8	4 42 05	17 26 18 49 5 48 7 11 23
30 10 31	.....	0 09 48	23 04.5 - 8 34
Thu Dec 08/Fri Dec 09	3713.8	4 46 02	17 26 18 49 5 48 7 12 23
34 10 35	.....	1 14 59	23 54.3 - 2 00
Fri Dec 09/Sat Dec 10	3714.8	4 49 58	17 26 18 49 5 49 7 12 23
39 10 40	.....	2 17 70	0 43.3 4 36
Sat Dec 10/Sun Dec 11	3715.8	4 53 55	17 26 18 50 5 50 7 13 23
43 10 45	.....	3 21 79	1 32.7 10 56
Sun Dec 11/Mon Dec 12	3716.8	4 57 52	17 27 18 50 5 50 7 14 23
47 10 49	.....	4 26 88	2 23.6 16 40
Mon Dec 12/Tue Dec 13	3717.8	5 01 48	17 27 18 50 5 51 7 15 23
51 10 54	.....	5 32 94	3 16.8 21 32

Tue	Dec 13/Wed	Dec 14	3718.8	5 05 45	17 27	18 51	5 52	7 15	23
55	10 58	15 41	6 36 98	4 12.4	25 14				
Wed	Dec 14/Thu	Dec 15	3719.8	5 09 41	17 27	18 51	5 52	7 16	24
00	11 03	16 26	7 38 100	5 09.9	27 32				
Thu	Dec 15/Fri	Dec 16	3720.8	5 13 38	17 28	18 51	5 53	7 16	0
04	11 07	17 16	..... 99	6 07.9	28 19				
Fri	Dec 16/Sat	Dec 17	3721.8	5 17 34	17 28	18 52	5 53	7 17	0
08	11 12	18 12	..... 97	7 04.9	27 34				
Sat	Dec 17/Sun	Dec 18	3722.8	5 21 31	17 29	18 52	5 54	7 18	0
13	11 16	19 11	..... 93	7 59.5	25 26				
Sun	Dec 18/Mon	Dec 19	3723.8	5 25 27	17 29	18 53	5 55	7 18	0
17	11 21	20 11	..... 87	8 50.8	22 10				
Mon	Dec 19/Tue	Dec 20	3724.8	5 29 24	17 29	18 53	5 55	7 19	0
22	11 25	21 09	..... 80	9 38.8	18 00				
Tue	Dec 20/Wed	Dec 21	3725.8	5 33 21	17 30	18 53	5 56	7 19	0
26	11 30	22 06	..... 72	10 24.1	13 10				
Wed	Dec 21/Thu	Dec 22	3726.8	5 37 17	17 30	18 54	5 56	7 20	0
30	11 34	23 01	..... 64	11 07.3	7 53				
Thu	Dec 22/Fri	Dec 23	3727.8	5 41 14	17 31	18 55	5 57	7 20	0
35	11 39	23 55	..... 54	11 49.6	2 18				
Fri	Dec 23/Sat	Dec 24	3728.8	5 45 10	17 31	18 55	5 57	7 21	0
39	11 43	0 50	..... 45	12 32.0	- 3 25				
Sat	Dec 24/Sun	Dec 25	3729.8	5 49 07	17 32	18 56	5 57	7 21	0
44	11 48	1 47	..... 35	13 15.6	- 9 07				
Sun	Dec 25/Mon	Dec 26	3730.8	5 53 03	17 33	18 56	5 58	7 21	0
48	11 52	2 46	..... 26	14 01.7	-14 36				
Mon	Dec 26/Tue	Dec 27	3731.8	5 57 00	17 33	18 57	5 58	7 22	0
53	11 56	3 49	..... 17	14 51.4	-19 37				
Tue	Dec 27/Wed	Dec 28	3732.8	6 00 56	17 34	18 57	5 59	7 22	0
57	12 01	4 56	..... 10	15 45.6	-23 51				
Wed	Dec 28/Thu	Dec 29	3733.8	6 04 53	17 34	18 58	5 59	7 22	1
02	12 05	6 06	..... 5	16 44.6	-26 54				
Thu	Dec 29/Fri	Dec 30	3734.8	6 08 50	17 35	18 59	5 59	7 23	1
07	12 09	7 13	16 04 1	17 47.8	-28 22				
Fri	Dec 30/Sat	Dec 31	3735.8	6 12 46	17 36	18 59	6 00	7 23	1
11	12 13	8 14	17 08 0	18 53.0	-27 57				
Sat	Dec 31/Sun	Jan 01	3736.8	6 16 43	17 36	19 00	6 00	7 23	1
16	12 18	.....	18 20 2	19 57.5	-25 37				