GALAXY CORE AND ORION CONSTELLATION CALENDAR FOR NIGHTSCAPE PHOTOGRAPHY

Location: Perth (Lat: 31 57', Long: 115 51')
From: 2018-03-01 Day Calc 0 Day Offset 59

Legend: M = Moon Rising m = Moon Setting G = Galaxy Rising g = Galaxy Setting O = Orion Rising o = Orion Setting

WILLIAM ARBASSO STELLAR AUSTRALIS

Version: 0.4 Improved optimum moon illumination calculation.

EVENING

Date	Dark Sky	Core Rising		Core High		Core Setting		Orion Rising		Orion High		Orion Setting		Moon	Evening Chart
Evening of	No Moon Illum	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	Percentage Illumination	12 13 14 15 16 17 18 19 20 21 22 23
2018-01-01	0	0	0	0	0	0	0	0	0	0	0	0	0	97	O Mg
2018-01-02	0	0	0	0	0	0	0	0	0	0	0	0	0	100	O g M
2018-01-03	0	0	0	0	0	0	0	0	0	0	0	0	0	99	O g M
2018-01-04	12	0	0	0	0	0	0	0	0	12	0	0	0	96	O g M
2018-01-05	38	0	0	0	0	0	0	0	0	38	0	0	0	91	O g M
2018-01-06	61	0	0	0	0	0	0	0	0	61	0	0	0	83	gO M
2018-01-07	82	0	0	0	0	0	0	0	0	82	0	0	0	73	gO M
2018-01-08	100	0	0	0	0	0	0	0	0	100	0	0	0	63	gO M
2018-01-09	100	0	0	0	0	0	0	0	0	100	0	0	0	53	m gO M
2018-01-10	100	0	0	0	0	0	0	0	0	100	0	0	0	43	m gO M
2018-01-11	100	0	0	0	0	0	0	0	0	100	0	0	0	33	m gO M
2018-01-12	100	0	0	0	0	0	0	0	0	100	0	0	0	24	m gO M
2018-01-13	100	0	0	0	0	0	0	0	0	100	0	0	0	17	mO g M
2018-01-14	100	0	0	0	0	0	0	0	0	100	0	0	0	10	O mg M
2018-01-15	100	0	0	0	0	0	0	0	0	100	0	0	0	5	O mg M
2018-01-16	100	0	0	0	0	0	0	0	0	100	0	0	0	2	O g m M
2018-01-17	100	0	0	0	0	0	0	0	0	100	0	0	0	0	O g m M
2018-01-18	100	0	0	0	0	0	0	0	0	100	0	0	0	0	O g m M
2018-01-19	100	0	0	0	0	0	0	0	0	100	0	0	0	2	O g m M
2018-01-20	85	0	0	0	0	0	0	0	0	85	0	0	0	6	O g m M
2018-01-21	65	0	0	0	0	0	0	0	0	65	34	0	0	11	gO m M
2018-01-22	46	0	0	0	0	0	0	0	0	46	95	0	0	19	gO m M
2018-01-23	27	0	0	0	0	0	0	0	0	27	65	0	0	27	gO m M
2018-01-24	7	0	0	0	0	0	0	0	0	7	15	0	0	37	gO m M
2018-01-25	0	0	0	0	0	0	0	0	0	0	8	0	0	47	M gO m M
2018-01-26	0	0	0	0	0	0	0	0	0	0	5	0	0	58	M gO m M
2018-01-27	0	0	0	0	0	0	0	0	0	0	0	0	0	69	M gO m M
2018-01-28	0	0	0	0	0	0	0	0	0	0	0	0	0	79	O Mg M
2018-01-29	0	0	0	0	0	0	0	0	0	0	0	0	0	88	O g M M
2018-01-30	0	0	0	0	0	0	0	0	0	0	0	0	0	95	O g M M
2018-01-31	0	0	0	0	0	0	0	0	0	0	0	0	0	99	O g M M
2018-02-01	0	0	0	0	0	0	0	0	0	0	0	0	0	100	O g M M
2018-02-02	0	0	0	0	0	0	0	0	0	0	0	0	0	98	O g M M
2018-02-03	18	0	0	0	0	0	0	0	0	18	0	0	0	94	O g M M
2018-02-04	38	0	0	0	0	0	0	0	0	38	0	0	0	87	O g M M
2018-02-05	56	0	0	0	0	0	0	0	0	56	0	0	0	79	gO M M
2018-02-06	75	0	0	0	0	0	0	0	0	75	0	0	0	70	gO M M
2018-02-07	93	0	0	0	0	0	0	0	0	93	0	0	0	60	m gO M M
2018-02-08	100	0	0	0	0	0	0	0	0	100	0	0	0	50	m gO M M
2018-02-09	100	0	0	0	0	0	0	0	0	100	0	0	0	40	m gO M M
2018-02-10	100	0	0	0	0	0	0	0	0	100	0	0	0	31	mg M M
2018-02-11	100	0	0	0	0	0	0	0	0	100	0	0	0	23	mg M M
2018-02-12	100	0	0	0	0	0	0	0	0	100	0	0	0	15	O g m M
2018-02-13	100	0	0	0	0	0	0	0	0	100	0	0	0	9	O g m M
2018-02-14	100	0	0	0	0	0	0	0	0	99	0	0	0	5	O g m M
2018-02-15	100	0	0	0	0	0	0	0	0	98	0	0	0	1	O g m M
2018-02-16	100	0	0	0	0	0	0	0	0	96	0	0	0	0	O g m M
2018-02-17	100	0	0	0	0	0	0	0	0	95	0	0	0	1	O g m M
2018-02-18	96	0	0	0	0	0	0	0	0	91	14	0	0	3	O g m M
2018-02-19	80	0	0	0	0	0	0	0	0	74	37	0	0	8	O g m M
2018-02-20	63	0	0	0	0	0	0	0	0	57	64	0	0	14	gO m M
2018-02-21	44	0	0	0	0	0	0	0	0	40	82	0	0	22	gO m M
2018-02-22	25	0	0	0	0	0	0	0	0	23	36	0	0	32	gO m M
2018-02-23	4	0	0	0	0	0	0	0	0	3	3	0	0	43	M gO m M
2018-02-24	0	0	0	0	0	0	0	0	0	0	0	0	0	54	M gO m M
2018-02-25	0	0	0	0	0	0	0	0	0	0	0	0	0	65	Mg M M
2018-02-26	0	0	0	0	0	0	0	0	0	0	0	0	0	76	gO M M
2018-02-27	0	0	0	0	0	0	0	0	0	0	0	0	0	85	O g M M

MORNING

Morning Chart	Moon	Orion Setting		Orion High		Orion Rising		Core Setting		Core High		Core Rising		Dark Sky	Date
0 1 2 3 4 5 6 7 8 9 10 11	Percentage Illumination	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Morning of
G o m	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-01-02
G o m	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-01-03
G o m	96	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-01-04
G o m	91	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-01-05
G o m	83	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-01-06
G o m	73	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-01-07
Go m	63	0	0	1	0	0	0	0	0	0	0	0	0	1	2018-01-08
M Go	53	0	0	13	0	0	0	0	0	0	0	6	0	17	2018-01-09
M Go	43	0	0	23	0	0	0	0	0	0	0	13	0	32	2018-01-10
M Go	33	0	0	34	0	0	0	0	0	0	0	24	0	48	2018-01-11
M Go	24	0	0	45	0	0	0	0	0	0	0	38	0	64	2018-01-12
M Go	17	8	5	56	0	0	0	0	0	0	0	56	0	81	2018-01-13
G Mo	10	18	0	67	0	0	0	0	0	0	0	77	0	100	2018-01-14
G Mo	5	27	0	65	0	0	0	0	0	0	0	85	0	100	2018-01-15
G o M	2	35	0	63	0	0	0	0	0	0	0	93	0	100	2018-01-16
G o M	0	43	0	62	0	0	0	0	0	0	0	100	0	100	2018-01-17
G o M	0	52	0	60	0	0	0	0	0	0	0	100	0	100	2018-01-18
G o M	2	62	0	58	0	0	0	0	0	0	0	100	0	100	2018-01-19
G o M	6	70	0	57	0	0	0	0	0	0	0	100	0	100	2018-01-20
G o M	11	78	0	55	0	0	0	0	0	0	0	100	0	100	2018-01-21
G o M	19	87	0	53	0	0	0	0	0	0	0	100	0	100	2018-01-22
Go M	27	97	0	52	0	0	0	0	0	0	0	100	0	100	2018-01-23
Go M	37	100	0	50	0	0	0	0	0	0	0	100	0	100	2018-01-24
Go M	47	90	0	43	0	0	0	0	0	0	0	90	0	90	2018-01-25
m Go M	58	72	0	34	0	0	0	0	0	0	0	72	0	72	2018-01-26
m Go M	69	52	0	23	0	0	0	0	0	0	0	52	0	52	2018-01-27
m Go M	79	30	0	13	0	0	0	0	0	0	0	30	0	30	2018-01-28
G mo M	88	5	0	2	0	0	0	0	0	0	0	5	0	5	2018-01-29
G o m M	95	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-01-30
G o m M	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-01-31
G o m M	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-02-01
G o m M	98	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-02-02
G o m M	94	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-02-03
G o m M	87	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-02-04
G o m M	79	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-02-05
G o m M	70	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-02-06
Go m M	60	0	2	0	0	0	0	0	0	0	0	0	0	0	2018-02-07
Go m M	50	9	5	2	0	0	0	0	0	0	0	9	0	9	2018-02-08
Go m M	40	24	5	6	0	0	0	0	0	0	0	24	0	24	2018-02-09
MG m M	31	41	3	9	0	0	0	0	0	0	0	41	0	41	2018-02-10
MG m M	23	58	0	12	0	0	0	0	0	0	0	58	0	58	2018-02-11
Go m M	15	76	0	14	0	0	0	0	0	1	0	76	0	76	2018-02-12
G o m M	9	95	0	16	0	0	0	0	0	3	0	95	0	95	2018-02-13
G o m M	5	100	0	15	0	0	0	0	0	5	0	100	0	100	2018-02-14
G o m M	1	100	0	13	0	0	0	0	0	8	0	100	0	100	2018-02-15
G o m M	0	100	0	12	0	0	0	0	0	10	0	100	0	100	2018-02-16
G o m M	1	100	0	10	0	0	0	0	0	12	0	100	0	100	2018-02-17
G o m M	3	100	0	8	0	0	0	0	0	14	0	100	0	100	2018-02-18
G o m M	8	100	0	7	0	0	0	0	0	16	0	100	0	100	2018-02-19
G o m M	14	100	0	5	0	0	0	0	0	18	0	100	0	100	2018-02-20
G o m M	22	100	0	3	0	0	0	0	0	20	0	100	0	100	2018-02-21
Go m M	32	100	0	2	0	0	0	0	0	23	0	100	0	100	2018-02-22
Go m M	43	100	0	0	0	0	0	0	0	25	0	100	0	100	2018-02-23
Go m M	54	85	0	0	0	0	0	0	0	23	0	85	0	85	2018-02-24
mG m M	65	65	0	0	0	0	0	0	0	19	0	65	1	65	2018-02-25
Go m M	76	43	0	0	0	0	0	0	0	13	0	43	2	43	2018-02-26
Go m M	85	19	0	0	0	0	0	0	0	6	0	19	1	19	2018-02-27
o m M	92	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-02-28

REFERENCE TIMES

Sun		Astro Dark		Moon		Galaxy Core			Orion		
Rise	Set	Start	End	Rise	Set	Rise	Zenith	Set	Rise	Zenith	Set
05:15	19:26	21:05	03:35	18:32	05:13	03:46	11:00	18:19	17:45	23:28	04:21
05:15	19:26	21:05	03:36	19:36	06:18	03:42	10:56	18:15	17:41	23:24	04:17
05:16	19:26	21:05	03:37	20:34	07:26	03:38	10:52	18:11	17:37	23:20	04:13
05:17	19:26	21:05	03:38	21:26	08:34	03:34	10:48	18:07	17:33	23:16	04:09
05:18	19:27	21:05	03:39	22:11	09:40	03:30	10:44	18:03	17:29	23:12	04:05
05:19	19:27	21:05	03:40	22:51	10:42	03:26	10:40	17:59	17:25	23:08	04:01
05:19	19:27	21:05	03:41	23:28	11:42	03:22	10:36	17:55	17:21	23:04	03:57
05:20	19:27	21:05	03:42	00:03	----	03:18	10:32	17:51	17:17	23:00	03:53
05:21	19:27	21:05	03:43	00:37	12:40	03:14	10:28	17:47	17:13	22:56	03:49
05:22	19:27	21:04	03:44	01:11	13:36	03:10	10:24	17:43	17:09	22:52	03:45
05:23	19:27	21:04	03:45	01:47	14:31	03:06	10:20	17:39	17:05	22:48	03:41
05:24	19:26	21:04	03:47	02:25	15:25	03:02	10:16	17:35	17:01	22:44	03:37
05:25	19:26	21:03	03:48	03:05	16:18	02:58	10:12	17:31	16:57	22:40	03:33
05:25	19:26	21:03	03:49	03:49	17:09	02:54	10:08	17:27	16:53	22:36	03:29
05:26	19:26	21:02	03:50	04:36	17:59	02:50	10:04	17:23	16:49	22:32	03:25
05:27	19:26	21:02	03:51	05:26	18:47	02:46	10:00	17:19	16:45	22:28	03:21
05:28	19:26	21:01	03:52	06:18	19:31	02:42	09:56	17:15	16:41	22:24	03:17
05:29	19:25	21:01	03:54	07:12	20:12	02:38	09:52	17:11	16:37	22:20	03:13
05:30	19:25	21:00	03:55	08:06	20:51	02:34	09:48	17:07	16:33	22:16	03:09
05:31	19:25	21:00	03:56	09:02	21:27	02:30	09:44	17:03	16:29	22:12	03:05
05:32	19:24	20:59	03:57	09:58	22:02	02:26	09:40	16:59	16:25	22:08	03:01
05:33	19:24	20:58	03:59	10:55	22:36	02:22	09:36	16:55	16:21	22:04	02:57
05:34	19:23	20:57	04:00	11:54	23:10	02:18	09:32	16:51	16:17	22:00	02:53
05:35	19:23	20:57	04:01	----	23:46	02:14	09:28	16:47	16:13	21:56	02:49
05:36	19:23	20:56	04:02	12:55	00:25	02:10	09:24	16:43	16:09	21:52	02:45
05:37	19:22	20:55	04:04	13:58	01:08	02:06	09:20	16:39	16:05	21:48	02:41
05:38	19:21	20:54	04:05	15:03	01:57	02:02	09:16	16:35	16:01	21:44	02:37
05:39	19:21	20:53	04:06	16:09	02:52	01:58	09:12	16:31	15:57	21:40	02:33
05:39	19:20	20:53	04:07	17:14	03:54	01:54	09:08	16:27	15:53	21:36	02:29
05:40	19:20	20:52	04:09	18:14	05:00	01:50	09:04	16:23	15:49	21:32	02:25
05:41	19:19	20:51	04:10	19:10	06:09	01:46	09:00	16:19	15:45	21:28	02:21
05:42	19:18	20:50	04:11	19:59	07:17	01:42	08:56	16:15	15:41	21:24	02:17
05:43	19:18	20:49	04:12	20:43	08:23	01:38	08:52	16:11	15:37	21:20	02:13
05:44	19:17	20:48	04:14	21:23	09:26	01:34	08:48	16:07	15:33	21:16	02:09
05:45	19:16	20:47	04:15	22:00	10:27	01:30	08:44	16:03	15:29	21:12	02:05
05:46	19:16	20:46	04:16	22:35	11:26	01:26	08:40	15:59	15:25	21:08	02:01
05:47	19:15	20:45	04:17	23:10	----	01:22	08:36	15:55	15:21	21:04	01:57
05:48	19:14	20:43	04:18	23:46	12:22	01:18	08:32	15:51	15:17	21:00	01:53
05:49	19:13	20:42	04:20	00:23	13:17	01:14	08:28	15:47	15:13	20:56	01:49
05:50	19:12	20:41	04:21	01:03	14:11	01:10	08:24	15:43	15:09	20:52	01:45
05:51	19:11	20:40	04:22	01:46	15:04	01:06	08:20	15:39	15:05	20:48	01:41
05:51	19:11	20:39	04:23	02:31	15:54	01:02	08:16	15:35	15:01	20:44	01:37
05:52	19:10	20:38	04:24	03:20	16:43	00:58	08:12	15:31	14:57	20:40	01:33
05:53	19:09	20:36	04:25	04:12	17:28	00:54	08:08	15:27	14:53	20:36	01:29
05:54	19:08	20:35	04:27	05:05	18:11	00:50	08:04	15:23	14:49	20:32	01:25
05:55	19:07	20:34	04:28	06:00	18:50	00:46	08:00	15:19	14:45	20:28	01:21
05:56	19:06	20:33	04:29	06:56	19:28	00:42	07:56	15:15	14:41	20:24	01:17
05:57	19:05	20:32	04:30	07:53	20:03	00:38	07:52	15:11	14:37	20:20	01:13
05:58	19:04	20:30	04:31	08:50	20:38	00:34	07:48	15:07	14:33	20:16	01:09
05:58	19:03	20:29	04:32	09:49	21:12	00:30	07:44	15:03	14:29	20:12	01:05
05:59	19:02	20:28	04:33	10:49	21:47	00:26	07:40	14:59	14:25	20:08	01:01
06:00	19:01	20:26	04:34	11:50	22:25	00:22	07:36	14:55	14:21	20:04	00:57
06:01	19:00	20:25	04:35	----	23:05	00:18	07:32	14:51	14:17	20:00	00:53
06:02	18:59	20:24	04:36	12:53	23:51	00:14	07:28	14:47	14:13	19:56	00:49
06:02	18:58	20:22	04:38	13:56	00:41	00:10	07:24	14:43	14:09	19:52	00:45
06:03	18:56	20:21	04:39	14:59	01:38	00:06	07:20	14:39	14:05	19:48	00:41
06:04	18:55	20:20	04:40	15:59	02:40	00:02	07:16	14:35	14:01	19:44	00:37
06:05	18:54	20:18	04:41	16:55	03:46	----	07:12	14:31	13:57	19:40	00:33

INTERNAL CODING

Evening Day Code		Morning Day Code	
Weekend	Public Holiday	Weekend	Public Holiday
1	1	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	1	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0

GALAXY CORE AND ORION CONSTELLATION CALENDAR FOR NIGHTSCAPE PHOTOGRAPHY

Location: Perth (Lat: 31 57', Long: 115 51')
From: 2018-03-01 | Day Calc 0 | Day Offset 59

Legend: M = Moon Rising | G = Galaxy Rising | O = Orion Rising
m = Moon Setting | g = Galaxy Setting | o = Orion Setting

WILLIAM VRBASSO
STELLAR AUSTRALIS

Version: 0.4 Improved optimum moon illumination calculation.

EVENING

Date	Dark Sky	Core Rising		Core High		Core Setting		Orion Rising		Orion High		Orion Setting		Moon
Evening of	No Moon Illum	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	Percentage Illumination
2018-02-28	0	0	0	0	0	0	0	0	0	0	0	0	0	92
2018-03-01	0	0	0	0	0	0	0	0	0	0	0	0	0	97
2018-03-02	0	0	0	0	0	0	0	0	0	0	0	0	0	100
2018-03-03	0	0	0	0	0	0	0	0	0	0	0	0	0	99
2018-03-04	8	8	0	0	0	0	0	0	0	6	0	0	0	96
2018-03-05	24	24	0	0	0	0	0	0	0	19	0	0	0	91
2018-03-06	40	40	0	0	0	0	0	0	0	31	0	0	0	84
2018-03-07	57	57	0	0	0	0	0	0	0	43	0	0	0	76
2018-03-08	74	74	0	0	0	0	0	0	0	55	0	0	0	67
2018-03-09	92	92	0	0	0	0	0	0	0	67	0	92	0	58
2018-03-10	100	100	0	0	0	0	0	0	0	72	0	100	0	48
2018-03-11	100	100	0	0	0	0	0	0	0	71	0	100	0	39
2018-03-12	100	100	0	0	0	0	0	0	0	70	0	100	0	30
2018-03-13	100	100	0	0	0	0	0	0	0	69	0	100	0	22
2018-03-14	100	100	0	0	0	0	0	0	0	68	0	100	0	14
2018-03-15	100	100	0	0	0	0	0	0	0	66	0	100	0	8
2018-03-16	100	100	0	0	0	0	0	0	0	65	0	100	0	4
2018-03-17	100	100	0	0	0	0	0	0	0	64	0	100	0	1
2018-03-18	100	100	0	0	0	0	0	0	0	63	0	100	0	0
2018-03-19	100	100	0	0	0	0	0	0	0	62	0	100	0	2
2018-03-20	86	86	0	0	0	0	0	0	0	52	15	86	0	5
2018-03-21	69	69	0	0	0	0	0	0	0	42	33	69	0	11
2018-03-22	52	52	0	0	0	0	0	0	0	30	33	52	0	19
2018-03-23	32	32	6	0	0	0	0	0	0	19	0	32	0	28
2018-03-24	11	11	3	0	0	0	0	0	0	6	0	11	0	39
2018-03-25	0	0	7	0	0	0	0	0	0	0	0	0	0	50
2018-03-26	0	0	4	0	0	0	0	0	0	0	0	0	0	62
2018-03-27	0	0	2	0	0	0	0	0	0	0	0	0	1	72
2018-03-28	0	0	0	0	0	0	0	0	0	0	0	0	0	82
2018-03-29	0	0	0	0	0	0	0	0	0	0	0	0	0	90
2018-03-30	0	0	0	0	0	0	0	0	0	0	0	0	0	96
2018-03-31	0	0	0	0	0	0	0	0	0	0	0	0	0	99
2018-04-01	0	0	0	0	0	0	0	0	0	0	0	0	0	100
2018-04-02	1	1	0	0	0	0	0	0	0	1	0	1	0	98
2018-04-03	16	16	0	0	0	0	0	0	0	7	0	16	0	95
2018-04-04	31	31	0	0	0	0	0	0	0	14	0	31	0	89
2018-04-05	46	46	0	0	0	0	0	0	0	20	0	46	0	82
2018-04-06	63	63	0	0	0	0	0	0	0	26	0	63	0	74
2018-04-07	80	80	0	0	0	0	0	0	0	33	0	80	0	65
2018-04-08	98	98	0	0	0	0	0	0	0	39	0	98	0	56
2018-04-09	100	100	0	0	0	0	0	0	0	38	0	100	0	47
2018-04-10	100	100	0	0	0	0	0	0	0	37	0	100	0	37
2018-04-11	100	100	0	0	0	0	0	0	0	36	0	100	0	28
2018-04-12	100	100	0	0	0	0	0	0	0	35	0	100	0	20
2018-04-13	100	100	0	0	0	0	0	0	0	34	0	100	0	13
2018-04-14	100	100	0	0	0	0	0	0	0	33	0	100	0	7
2018-04-15	100	100	0	0	0	0	0	0	0	31	0	100	0	3
2018-04-16	100	100	0	0	0	0	0	0	0	30	0	100	0	0
2018-04-17	100	100	0	0	0	0	0	0	0	29	0	100	0	1
2018-04-18	89	89	0	1	0	0	0	0	0	25	0	89	0	3
2018-04-19	72	72	0	2	0	0	0	0	0	19	0	72	0	9
2018-04-20	53	53	35	3	0	0	0	0	0	13	0	53	0	16
2018-04-21	33	33	72	2	0	0	0	0	0	8	0	33	0	25
2018-04-22	11	11	20	1	0	0	0	0	0	3	0	11	0	36
2018-04-23	0	0	8	0	0	0	0	0	0	0	0	0	3	47
2018-04-24	0	0	5	0	0	0	0	0	0	0	0	0	4	59
2018-04-25	0	0	2	0	0	0	0	0	0	0	0	0	2	70
2018-04-26	0	0	0	0	0	0	0	0	0	0	0	0	0	79

Evening Chart / Morning Chart

Evening of	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6	7	8	9	10	11
2018-02-28		O	g			M						G	o				m							
2018-03-01		O	g				M					G	o						m					
2018-03-02		O	g					M				G	o							m				
2018-03-03		O	g					M				G	o								m			
2018-03-04		O	g						M			G	o									m		
2018-03-05		O	g							M		G	o										m	
2018-03-06		O	g							M		G	o											m
2018-03-07		gO									M	G	o											
2018-03-08	m	gO									M	G												
2018-03-09	m	gO										MG												
2018-03-10		mg										Go	M											
2018-03-11		gO	m									Go		M										
2018-03-12		gO		m								Go			M									
2018-03-13		gO			m							Go			M									
2018-03-14	O	g			m							Go				M								
2018-03-15	O	g				m					G	o					M							
2018-03-16	O	g					m				G	o						M						
2018-03-17	O	g					m				G	o							M					
2018-03-18	O	g						m			G	o								M				
2018-03-19	O	g						m			G	o									M			
2018-03-20	O	g							m		G	o										M		
2018-03-21	O	g								m	G	o											M	
2018-03-22	gO									m	G	o												M
2018-03-23	gO										mG	o												
2018-03-24	Mg										Go	m												
2018-03-25	gO	M									Go		m											
2018-03-26	gO		M								Go			m										
2018-03-27	gO			M							Go				m									
2018-03-28	gO				M						Go					m								
2018-03-29	g					M					Go						m							O
2018-03-30	g					M				G	o							m						O
2018-03-31	g						M			G	o								m					O
2018-04-01	g							M		G	o									m				O
2018-04-02	g							M		G	o										m			O
2018-04-03	g								M	G	o											m		O
2018-04-04	g								M	G	o												m	O
2018-04-05	g									MG	o													mO
2018-04-06										G	Mo													gO
2018-04-07	m									G	o	M												gO
2018-04-08		m								Go		M												gO
2018-04-09			m							Go			M											gO
2018-04-10			m							Go				M										gO
2018-04-11				m						Go					M									gO
2018-04-12				m						Go						M							O	g
2018-04-13					m					Go							M						O	g
2018-04-14						m			G	o								M					O	g
2018-04-15						m			G	o									M				O	g
2018-04-16							m		G	o										M			O	g
2018-04-17								m	G	o											M		O	g
2018-04-18								m	G	o												M	O	g
2018-04-19									mG	o													MO	g
2018-04-20									G	mo													gO	M
2018-04-21									G	o	m												gO	
2018-04-22	M								G	o		m											gO	
2018-04-23		M							Go				m										gO	
2018-04-24			M						Go					m									gO	
2018-04-25				M					Go						m								gO	
2018-04-26				M					Go							m							gO	

MORNING

Date	Moon	Orion Setting		Orion High		Orion Rising		Core Setting		Core High		Core Rising		Dark Sky
Morning of	Percentage Illumination	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum
2018-03-01	97	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-03-02	100	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-03-03	99	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-03-04	96	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-03-05	91	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-03-06	84	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-03-07	76	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-03-08	67	0	1	0	0	0	0	0	0	0	0	0	0	0
2018-03-09	58	0	2	0	0	0	0	0	0	0	0	0	0	0
2018-03-10	48	0	0	0	0	0	0	0	0	5	0	0	0	9
2018-03-11	39	0	0	0	0	0	0	0	0	15	0	0	0	25
2018-03-12	30	0	0	0	0	0	0	0	0	25	0	0	0	42
2018-03-13	22	0	0	0	0	0	0	0	0	37	0	0	0	60
2018-03-14	14	0	0	0	0	0	0	0	0	50	0	0	0	79
2018-03-15	8	0	0	0	0	0	0	0	0	64	0	0	0	98
2018-03-16	4	0	0	0	0	0	0	0	0	68	0	0	0	100
2018-03-17	1	0	0	0	0	0	0	0	0	70	0	0	0	100
2018-03-18	0	0	0	0	0	0	0	0	0	72	0	0	0	100
2018-03-19	2	0	0	0	0	0	0	0	0	74	0	0	0	100
2018-03-20	5	0	0	0	0	0	0	0	0	76	0	0	0	100
2018-03-21	11	0	0	0	0	0	0	0	0	78	0	0	0	100
2018-03-22	19	0	0	0	0	0	0	0	0	80	0	0	0	100
2018-03-23	28	0	0	0	0	0	0	0	0	82	0	0	0	100
2018-03-24	39	0	0	0	0	0	0	0	0	84	0	0	0	100
2018-03-25	50	0	0	0	0	0	0	0	0	77	0	0	0	90
2018-03-26	62	0	0	0	0	0	0	0	0	61	0	0	0	69
2018-03-27	72	0	0	0	0	0	0	0	0	43	0	0	0	48
2018-03-28	82	0	0	0	0	0	0	0	0	24	0	0	0	27
2018-03-29	90	0	0	0	0	0	0	0	0	5	0	0	0	6
2018-03-30	96	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-03-31	99	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-01	100	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-02	98	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-03	95	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-04	89	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-05	82	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-06	74	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-07	65	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-08	56	0	0	0	0	0	0	0	0	0	0	0	0	0
2018-04-09	47	0	0	0	0	0	0	0	0	15	0	0	0	15
2018-04-10	37	0	0	0	0	0	0	0	0	32	0	0	0	32
2018-04-11	28	0	0	0	0	0	0	0	0	50	0	0	0	50
2018-04-12	20	0	0	0	0	0	0	0	0	67	60	0	0	67
2018-04-13	13	0	0	0	0	0	0	0	0	86	100	0	0	86
2018-04-14	7	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-15	3	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-16	0	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-17	1	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-18	3	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-19	9	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-20	16	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-21	25	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-22	36	0	0	0	0	0	0	0	0	100	0	0	0	100
2018-04-23	47	0	0	0	0	0	0	0	0	91	0	0	0	91
2018-04-24	59	0	0	0	0	0	0	0	0	71	0	0	0	71
2018-04-25	70	0	0	0	0	0	0	0	0	51	0	0	0	51
2018-04-26	79	0	0	0	0	0	0	0	0	32	0	0	0	32
2018-04-27	87	0	0	0	0	0	0	0	0	13	0	0	0	13

REFERENCE TIMES / INTERNAL CODING

Evening of	Sun		Astro Dark		Moon		Galaxy Core			Orion			Evening Day Code		Morning Day Code	
	Rise	Set	Start	End	Rise	Set	Rise	Zenith	Set	Rise	Zenith	Set	Weekend	Public Holiday	Weekend	Public Holiday
2018-02-28	06:06	18:53	20:17	04:42	17:46	04:53	23:58	07:08	14:27	13:53	19:36	00:29	3	0	4	0
2018-03-01	06:06	18:52	20:16	04:42	18:32	06:00	23:54	07:04	14:23	13:49	19:32	00:25	4	0	5	0
2018-03-02	06:07	18:51	20:14	04:43	19:14	07:06	23:50	07:00	14:19	13:45	19:28	00:21	5	0	6	0
2018-03-03	06:08	18:49	20:13	04:44	19:53	08:09	23:46	06:56	14:15	13:41	19:24	00:17	6	0	7	0
2018-03-04	06:09	18:48	20:12	04:45	20:30	09:10	23:42	06:52	14:11	13:37	19:20	00:13	7	0	1	1
2018-03-05	06:09	18:47	20:10	04:46	21:06	10:09	23:38	06:48	14:07	13:33	19:16	00:09	1	1	2	0
2018-03-06	06:10	18:46	20:09	04:47	21:42	11:06	23:34	06:44	14:03	13:29	19:12	00:05	2	0	3	0
2018-03-07	06:11	18:45	20:08	04:48	22:19	----	23:30	06:40	13:59	13:25	19:08	00:01	3	0	4	0
2018-03-08	06:12	18:43	20:06	04:49	22:59	12:02	23:26	06:36	13:55	13:21	19:04	----	4	0	5	0
2018-03-09	06:12	18:42	20:05	04:50	23:41	12:56	23:22	06:32	13:51	13:17	19:00	23:57	5	0	6	0
2018-03-10	06:13	18:41	20:03	04:51	00:25	13:48	23:18	06:28	13:47	13:13	18:56	23:53	6	0	7	0
2018-03-11	06:14	18:40	20:02	04:52	01:13	14:37	23:14	06:24	13:43	13:09	18:52	23:49	7	0	1	0
2018-03-12	06:15	18:38	20:01	04:52	02:04	15:23	23:10	06:20	13:39	13:05	18:48	23:45	1	0	2	0
2018-03-13	06:15	18:37	19:59	04:53	02:56	16:07	23:06	06:16	13:35	13:01	18:44	23:41	2	0	3	0
2018-03-14	06:16	18:36	19:58	04:54	03:51	16:48	23:02	06:12	13:31	12:57	18:40	23:37	3	0	4	0
2018-03-15	06:17	18:35	19:57	04:55	04:47	17:26	22:58	06:08	13:27	12:53	18:36	23:33	4	0	5	0
2018-03-16	06:17	18:33	19:55	04:56	05:44	18:02	22:54	06:04	13:23	12:49	18:32	23:29	5	0	6	0
2018-03-17	06:18	18:32	19:54	04:56	06:42	18:37	22:50	06:00	13:19	12:45	18:28	23:25	6	0	7	0
2018-03-18	06:19	18:31	19:52	04:57	07:41	19:12	22:46	05:56	13:15	12:41	18:24	23:21	7	0	1	0
2018-03-19	06:20	18:30	19:51	04:58	08:42	19:48	22:42	05:52	13:11	12:37	18:20	23:17	1	0	2	0
2018-03-20	06:20	18:28	19:50	04:59	09:44	20:25	22:38	05:48	13:07	12:33	18:16	23:13	2	0	3	0
2018-03-21	06:21	18:27	19:48	05:00	10:47	21:05	22:34	05:44	13:03	12:29	18:12	23:09	3	0	4	0
2018-03-22	06:22	18:26	19:47	05:00	11:50	21:49	22:30	05:40	12:59	12:25	18:08	23:05	4	0	5	0
2018-03-23	06:22	18:24	19:46	05:01	----	22:37	22:26	05:36	12:55	12:21	18:04	23:01	5	0	6	0
2018-03-24	06:23	18:23	19:44	05:02	12:53	23:31	22:22	05:32	12:51	12:17	18:00	22:57	6	0	7	0
2018-03-25	06:24	18:22	19:43	05:02	13:53	00:31	22:18	05:28	12:47	12:13	17:56	22:53	7	0	1	0
2018-03-26	06:24	18:21	19:42	05:03	14:48	01:33	22:14	05:24	12:43	12:09	17:52	22:49	1	0	2	0
2018-03-27	06:25	18:19	19:40	05:04	15:40	02:38	22:10	05:20	12:39	12:05	17:48	22:45	2	0	3	0
2018-03-28	06:26	18:18	19:39	05:05	16:26	03:43	22:06	05:16	12:35	12:01	17:44	22:41	3	0	4	0
2018-03-29	06:26	18:17	19:38	05:05	17:08	04:48	22:02	05:12	12:31	11:53	17:40	22:37	4	0	5	1
2018-03-30	06:27	18:15	19:36	05:06	17:47	05:51	21:58	05:08	12:27	11:49	17:36	22:33	5	1	6	0
2018-03-31	06:28	18:14	19:35	05:07	18:24	06:53	21:54	05:04	12:23	11:45	17:32	22:29	6	0	7	0
2018-04-01	06:28	18:13	19:34	05:07	19:00	07:53	21:50	05:00	12:19	11:41	17:28	22:25	7	0	1	1
2018-04-02	06:29	18:12	19:33	05:08	19:36	08:52	21:46	04:56	12:15	11:37	17:24	22:21	1	1	2	0
2018-04-03	06:30	18:10	19:31	05:09	20:14	09:49	21:42	04:52	12:11	11:33	17:20	22:17	2	0	3	0
2018-04-04	06:30	18:09	19:30	05:09	20:53	10:45	21:38	04:48	12:07	11:29	17:16	22:13	3	0	4	0
2018-04-05	06:31	18:08	19:29	05:10	21:34	11:39	21:34	04:44	12:03	11:25	17:12	22:09	4	0	5	0
2018-04-06	06:32	18:07	19:28	05:11	22:18	----	21:30	04:40	11:55	11:21	17:08	22:05	5	0	6	0
2018-04-07	06:32	18:05	19:26	05:11	23:05	12:30	21:26	04:36	11:51	11:17	17:04	22:01	6	0	7	0
2018-04-08	06:33	18:04	19:25	05:12	23:54	13:18	21:22	04:32	11:47	11:13	17:00	21:57	7	0	1	0
2018-04-09	06:34	18:03	19:24	05:13	00:46	14:02	21:18	04:28	11:43	11:09	16:56	21:53	1	0	2	0
2018-04-10	06:34	18:02	19:23	05:13	01:40	14:44	21:14	04:24	11:39	11:05	16:52	21:49	2	0	3	0
2018-04-11	06:35	18:01	19:22	05:14	02:35	15:23	21:10	04:20	11:35	11:01	16:48	21:45	3	0	4	0
2018-04-12	06:36	17:59	19:21	05:14	03:31	15:59	21:06	04:16	11:31	10:57	16:44	21:41	4	0	5	0
2018-04-13	06:36	17:58	19:19	05:15	04:29	16:35	21:02	04:12	11:27	10:53	16:40	21:37	5	0	6	0
2018-04-14	06:37	17:57	19:18	05:16	05:29	17:10	20:58	04:08	11:23	10:49	16:36	21:33	6	0	7	0
2018-04-15	06:38	17:56	19:17	05:16	06:30	17:45	20:54	04:04	11:19	10:45	16:32	21:29	7	0	1	0
2018-04-16	06:38	17:55	19:16	05:17	07:32	18:22	20:50	04:00	11:15	10:41	16:28	21:25	1	0	2	0
2018-04-17	06:39	17:54	19:15	05:17	08:37	19:01	20:46	03:56	11:11	10:37	16:24	21:21	2	0	3	0
2018-04-18	06:40	17:52	19:14	05:18	09:42	19:45	20:42	03:52	11:07	10:33	16:20	21:17	3	0	4	0
2018-04-19	06:41	17:51	19:13	05:19	10:46	20:33	20:38	03:48	11:03	10:29	16:16	21:13	4	0	5	0
2018-04-20	06:41	17:50	19:12	05:19	11:48	21:26	20:34	03:44	10:59	10:25	16:12	21:09	5	0	6	0
2018-04-21	06:42	17:49	19:11	05:20	----	22:25	20:30	03:40	10:55	10:21	16:08	21:05	6	0	7	0
2018-04-22	06:43	17:48	19:10	05:21	12:46	23:26	20:26	03:36	10:51	10:17	16:04	21:01	7	0	1	0
2018-04-23	06:43	17:47	19:09	05:21	13:38	00:30	20:22	03:32	10:47	10:13	16:00	20:57	1	0	2	0
2018-04-24	06:44	17:46	19:08	05:22	14:25	01:34	20:18	03:28	10:43	10:09	15:56	20:53	2	0	3	1
2018-04-25	06:45	17:45	19:07	05:22	15:07	02:38	20:14	03:24	10:39	10:05	15:52	20:49	3	1	4	0
2018-04-26	06:45	17:44	19:06	05:23	15:46	03:40	20:10	03:20	10:35	10:01	15:48	20:45	4	0	5	0

GALAXY CORE AND ORION CONSTELLATION CALENDAR FOR NIGHTSCAPE PHOTOGRAPHY

Location: Perth (Lat: 31 57', Long: 115 51')
From: 2018-03-01 Day Calc 0 Day Offset 59

Legend: M = Moon Rising | m = Moon Setting | G = Galaxy Rising | g = Galaxy Setting | O = Orion Rising | o = Orion Setting

WILLIAM ARBASSO STELLAR AUSTRALIS

Version: 0.4 Improved optimum moon illumination calculation.

EVENING

Date	Dark Sky	Core Rising		Core High		Core Setting		Orion Rising		Orion High		Orion Setting		Moon	Evening Chart
Evening of	No Moon Illum	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	Percentage Illumination	12 13 14 15 16 17 18 19 20 21 22 23
2018-04-27	0	0	0	0	0	0	0	0	0	0	0	0	0	87	M Go
2018-04-28	0	0	0	0	0	0	0	0	0	0	0	0	0	94	M Go
2018-04-29	0	0	0	0	0	0	0	0	0	0	0	0	0	98	M G o
2018-04-30	0	0	0	0	0	0	0	0	0	0	0	0	0	100	M G o
2018-05-01	0	0	0	0	0	0	0	0	0	0	0	0	0	99	M G o
2018-05-02	9	9	0	2	0	0	0	0	0	1	0	9	0	97	MG o
2018-05-03	24	24	0	6	0	0	0	0	0	2	0	24	0	93	G Mo
2018-05-04	39	39	0	11	0	0	0	0	0	3	0	39	0	87	G Mo
2018-05-05	56	56	0	17	0	0	0	0	0	3	0	56	0	80	G o M
2018-05-06	72	72	0	23	0	0	0	0	0	3	0	72	0	72	G o M
2018-05-07	90	90	0	30	0	0	0	0	0	3	0	90	0	63	m G o M
2018-05-08	100	100	0	35	0	0	0	0	0	1	0	100	0	54	m Go
2018-05-09	100	100	0	37	0	0	0	0	0	0	0	100	0	45	m Go
2018-05-10	100	100	0	38	0	0	0	0	0	0	0	100	0	35	m Go
2018-05-11	100	100	0	40	0	0	0	0	0	0	0	100	0	26	m Go
2018-05-12	100	100	0	42	0	0	0	0	0	0	0	100	0	17	m Go
2018-05-13	100	100	0	43	0	0	0	0	0	0	0	100	0	10	m Go
2018-05-14	100	100	0	45	0	0	0	0	0	0	0	100	0	5	m G o
2018-05-15	100	100	0	47	0	0	0	0	0	0	0	100	0	1	m G o
2018-05-16	100	97	0	48	0	0	0	0	0	0	0	100	0	0	mG o
2018-05-17	92	84	2	46	0	0	0	0	0	0	0	92	0	2	G mo
2018-05-18	73	62	23	38	0	0	0	0	0	0	0	73	0	7	G o m
2018-05-19	52	42	56	28	0	0	0	0	0	0	0	52	0	14	G o m
2018-05-20	31	23	62	17	0	0	0	0	0	0	0	31	10	23	G o m
2018-05-21	10	7	23	6	0	0	0	0	0	0	0	10	21	33	M G o m
2018-05-22	0	0	5	0	5	0	0	0	0	0	0	0	8	45	M G o
2018-05-23	0	0	1	0	3	0	0	0	0	0	0	0	6	56	M Go
2018-05-24	0	0	0	0	2	0	0	0	0	0	0	0	3	67	M Go
2018-05-25	0	0	0	0	0	0	0	0	0	0	0	0	1	76	M Go
2018-05-26	0	0	0	0	0	0	0	0	0	0	0	0	0	85	M Go
2018-05-27	0	0	0	0	0	0	0	0	0	0	0	0	0	91	M Go
2018-05-28	0	0	0	0	0	0	0	0	0	0	0	0	0	96	M Go
2018-05-29	0	0	0	0	0	0	0	0	0	0	0	0	0	99	MG o
2018-05-30	0	0	0	0	0	0	0	0	0	0	0	0	0	100	G Mo
2018-05-31	1	0	0	1	0	0	0	0	0	0	0	1	0	99	G Mo
2018-06-01	17	0	0	13	0	0	0	0	0	0	0	9	0	96	G o M
2018-06-02	33	0	0	25	0	0	0	0	0	0	0	17	0	91	G o M
2018-06-03	50	0	0	39	0	0	0	0	0	0	0	22	0	85	G o M
2018-06-04	66	0	0	53	0	0	0	0	0	0	0	25	0	78	G o M
2018-06-05	84	0	0	68	0	0	0	0	0	0	0	27	0	70	G o M
2018-06-06	100	0	0	83	0	0	0	0	0	0	0	25	0	61	m G o M
2018-06-07	100	0	0	85	0	0	0	0	0	0	0	18	0	51	m Go M
2018-06-08	100	0	0	87	0	0	0	0	0	0	0	12	0	41	m Go M
2018-06-09	100	0	0	88	0	0	0	0	0	0	0	5	0	31	m Go M
2018-06-10	100	0	0	90	0	0	0	0	0	0	0	0	0	22	m Go M
2018-06-11	100	0	0	92	0	0	0	0	0	0	0	0	0	14	m Go M
2018-06-12	100	0	0	93	0	0	0	0	0	0	0	0	0	7	m Go M
2018-06-13	100	0	0	95	0	0	0	0	0	0	0	0	0	2	G mo M
2018-06-14	100	0	0	97	0	0	0	0	0	0	0	0	0	0	G mo M
2018-06-15	95	0	0	94	0	0	0	0	0	0	0	0	0	1	G o m M
2018-06-16	74	0	0	74	0	0	0	0	0	0	0	0	0	5	G o m M
2018-06-17	53	0	0	53	0	0	0	0	0	0	0	0	0	12	G o m M
2018-06-18	31	0	0	31	73	0	0	0	0	0	0	0	0	20	G o m M
2018-06-19	11	0	0	11	45	0	0	0	0	0	0	0	0	31	G o m M
2018-06-20	0	0	0	0	9	0	0	0	0	0	0	0	0	41	M G o m
2018-06-21	0	0	0	0	7	0	0	0	0	0	0	0	0	52	M G o m
2018-06-22	0	0	0	0	0	0	0	0	0	0	0	0	0	63	M Go m
2018-06-23	0	0	0	0	0	0	0	0	0	0	0	0	0	73	M Go m

MORNING

Morning Chart	Moon	Orion Setting		Orion High		Orion Rising		Core Setting		Core High		Core Rising		Dark Sky	Date
0 1 2 3 4 5 6 7 8 9 10 11	Percentage Illumination	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Morning of
m O g	94	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-04-28
m O g	98	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-04-29
m O g	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-04-30
m O g	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-01
m O g	97	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-02
mO g	93	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-03
O mg	87	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-04
O g m	80	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-05
gO m	72	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-06
gO	63	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-07
gO	54	0	0	0	0	0	0	0	0	7	0	0	0	7	2018-05-08
M gO	45	0	0	0	0	0	0	0	0	24	4	0	0	24	2018-05-09
M gO	35	0	0	0	0	0	0	0	0	41	8	0	0	41	2018-05-10
M gO	26	0	0	0	0	0	0	0	0	58	25	0	0	58	2018-05-11
M gO	17	0	0	0	0	0	0	0	0	76	70	0	0	76	2018-05-12
M O g	10	0	0	0	0	0	0	0	0	95	26	0	0	95	2018-05-13
M O g	5	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-05-14
M O g	1	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-05-15
M O g	0	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-05-16
MO g	2	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-05-17
O Mg	7	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-05-18
O g M	14	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-05-19
O g M	23	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-05-20
gO	33	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-05-21
gO	45	0	0	0	0	0	0	0	0	91	0	0	0	91	2018-05-22
m gO	56	0	0	0	0	0	0	0	0	72	0	0	0	72	2018-05-23
m gO	67	0	0	0	0	0	0	0	0	54	0	0	0	54	2018-05-24
m gO	76	0	0	0	0	0	0	0	0	37	0	0	0	37	2018-05-25
m gO	85	0	0	0	0	0	0	0	0	20	0	0	0	20	2018-05-26
m gO	91	0	0	0	0	0	0	0	0	3	0	0	0	3	2018-05-27
m O g	96	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-28
m O g	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-29
mO g	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-30
O mg	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-05-31
O g m	96	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-01
O g m	91	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-02
O g m	85	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-03
O g m	78	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-04
gO m	70	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-05
gO	61	0	0	0	0	0	0	0	0	1	2	0	0	1	2018-06-06
gO	51	0	0	0	0	0	0	0	0	17	4	0	0	17	2018-06-07
gO	41	0	0	0	0	0	0	0	0	34	7	0	0	34	2018-06-08
gO	31	0	0	0	0	0	0	0	0	51	7	0	0	51	2018-06-09
gO	22	0	0	0	0	0	0	0	0	69	0	0	0	69	2018-06-10
gO	14	0	0	0	0	0	0	0	0	88	0	0	0	88	2018-06-11
O g	7	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-06-12
MO g	2	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-06-13
O Mg	0	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-06-14
O g M	1	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-06-15
O g M	5	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-06-16
O g M	12	0	0	0	0	0	0	0	0	100	0	0	0	100	2018-06-17
O g M	20	0	0	0	0	0	0	0	0	98	0	0	0	100	2018-06-18
O g M	31	0	0	0	0	0	0	0	0	97	0	0	0	100	2018-06-19
gO	41	0	0	0	0	0	0	0	0	87	0	0	0	92	2018-06-20
gO	52	0	0	0	0	0	0	0	0	70	0	0	0	75	2018-06-21
gO	63	0	0	0	0	0	0	0	0	53	0	0	0	58	2018-06-22
gO	73	0	0	0	0	0	0	0	0	38	0	0	0	42	2018-06-23
gO	81	0	0	0	0	0	0	0	0	23	0	0	0	26	2018-06-24

REFERENCE TIMES

Sun		Astro Dark		Moon		Galaxy Core			Orion		
Rise	Set	Start	End	Rise	Set	Rise	Zenith	Set	Rise	Zenith	Set
06:46	17:43	19:05	05:23	16:23	04:41	20:06	03:16	10:31	09:57	15:44	20:41
06:47	17:42	19:04	05:24	16:58	05:41	20:02	03:12	10:27	09:53	15:40	20:37
06:47	17:41	19:04	05:25	17:33	06:39	19:58	03:08	10:23	09:49	15:36	20:33
06:48	17:40	19:03	05:25	18:09	07:38	19:54	03:04	10:19	09:45	15:32	20:29
06:49	17:39	19:02	05:26	18:47	08:34	19:50	03:00	10:15	09:41	15:28	20:25
06:49	17:38	19:01	05:26	19:28	09:29	19:46	02:56	10:11	09:37	15:24	20:21
06:50	17:37	19:00	05:27	20:11	10:22	19:42	02:52	10:07	09:33	15:20	20:17
06:51	17:36	18:59	05:28	20:57	11:12	19:38	02:48	10:03	09:29	15:16	20:13
06:52	17:35	18:59	05:28	21:46	11:58	19:34	02:44	09:59	09:25	15:12	20:09
06:52	17:35	18:58	05:29	22:36	----	19:30	02:40	09:55	09:21	15:08	20:05
06:53	17:34	18:57	05:29	23:29	12:41	19:26	02:36	09:51	09:17	15:04	20:01
06:54	17:33	18:57	05:30	00:23	13:20	19:22	02:32	09:47	09:13	15:00	19:57
06:54	17:32	18:56	05:30	01:18	13:57	19:18	02:28	09:43	09:09	14:56	19:53
06:55	17:31	18:55	05:31	02:15	14:32	19:14	02:24	09:39	09:05	14:52	19:49
06:56	17:31	18:55	05:32	03:13	15:06	19:10	02:20	09:35	09:01	14:48	19:45
06:56	17:30	18:54	05:32	04:13	15:41	19:06	02:16	09:31	08:57	14:44	19:41
06:57	17:29	18:54	05:33	05:15	16:17	19:02	02:12	09:27	08:53	14:40	19:37
06:58	17:29	18:53	05:33	06:19	16:55	18:58	02:08	09:23	08:49	14:36	19:33
06:58	17:28	18:52	05:34	07:26	17:37	18:54	02:04	09:19	08:45	14:32	19:29
06:59	17:27	18:52	05:34	08:33	18:24	18:50	02:00	09:15	08:41	14:28	19:25
07:00	17:27	18:51	05:35	09:38	19:16	18:46	01:56	09:11	08:37	14:24	19:21
07:00	17:26	18:51	05:35	10:40	20:15	18:42	01:52	09:07	08:33	14:20	19:17
07:01	17:25	18:50	05:36	11:35	21:17	18:38	01:48	09:03	08:29	14:16	19:13
07:02	17:25	18:50	05:36	----	22:22	18:34	01:44	08:59	08:25	14:12	19:09
07:02	17:24	18:50	05:37	12:25	23:27	18:30	01:40	08:55	08:21	14:08	19:05
07:03	17:24	18:49	05:38	13:09	00:31	18:26	01:36	08:51	08:17	14:04	19:01
07:04	17:23	18:49	05:38	13:48	01:34	18:22	01:32	08:47	08:13	14:00	18:57
07:04	17:23	18:49	05:39	14:25	02:34	18:18	01:28	08:43	08:09	13:56	18:53
07:05	17:23	18:48	05:39	15:00	03:33	18:14	01:24	08:39	08:05	13:52	18:49
07:06	17:22	18:48	05:40	15:34	04:31	18:10	01:20	08:35	08:01	13:48	18:45
07:06	17:22	18:48	05:40	16:09	05:29	18:06	01:16	08:31	07:57	13:44	18:41
07:07	17:21	18:47	05:41	16:46	06:26	18:02	01:12	08:27	07:53	13:40	18:37
07:07	17:21	18:47	05:41	17:24	07:21	17:58	01:08	08:23	07:49	13:36	18:33
07:08	17:21	18:47	05:42	18:06	08:15	17:54	01:04	08:19	07:45	13:32	18:29
07:08	17:20	18:47	05:42	18:51	09:06	17:50	01:00	08:15	07:41	13:28	18:25
07:09	17:20	18:47	05:42	19:39	09:54	17:46	00:56	08:11	07:37	13:24	18:21
07:09	17:20	18:46	05:43	20:29	10:38	17:42	00:52	08:07	07:33	13:20	18:17
07:10	17:20	18:46	05:43	21:21	11:18	17:38	00:48	08:03	07:29	13:16	18:13
07:11	17:20	18:46	05:44	22:14	11:56	17:34	00:44	07:59	07:25	13:12	18:09
07:11	17:19	18:46	05:44	23:08	----	17:30	00:40	07:55	07:21	13:08	18:05
07:12	17:19	18:46	05:45	00:03	12:31	17:26	00:36	07:51	07:17	13:04	18:01
07:12	17:19	18:46	05:45	00:59	13:05	17:22	00:32	07:47	07:13	13:00	17:57
07:12	17:19	18:46	05:45	01:57	13:38	17:18	00:28	07:43	07:09	12:56	17:53
07:13	17:19	18:46	05:46	02:57	14:12	17:14	00:24	07:39	07:05	12:52	17:49
07:13	17:19	18:46	05:46	03:59	14:48	17:10	00:20	07:35	07:01	12:48	17:45
07:14	17:19	18:46	05:47	05:04	15:28	17:06	00:16	07:31	06:57	12:44	17:41
07:14	17:19	18:46	05:47	06:12	16:12	17:02	00:12	07:27	06:53	12:40	17:37
07:15	17:19	18:46	05:47	07:20	17:02	16:58	00:08	07:23	06:49	12:36	17:33
07:15	17:19	18:46	05:48	08:25	17:58	16:54	00:04	07:19	06:45	12:32	17:29
07:15	17:19	18:46	05:48	09:25	19:01	16:50	00:00	07:15	06:41	12:28	17:25
07:16	17:19	18:47	05:48	10:19	20:07	16:46	----	07:11	06:37	12:24	17:21
07:16	17:19	18:47	05:48	11:07	21:15	16:42	23:56	07:07	06:33	12:20	17:17
07:16	17:19	18:47	05:49	11:49	22:22	16:38	23:52	07:03	06:29	12:16	17:13
07:16	17:20	18:47	05:49	----	23:26	16:34	23:48	06:59	06:25	12:12	17:09
07:17	17:20	18:47	05:49	12:27	00:28	16:30	23:44	06:55	06:21	12:08	17:05
07:17	17:20	18:47	05:49	13:03	01:28	16:26	23:40	06:51	06:17	12:04	17:01
07:17	17:20	18:48	05:50	13:37	02:26	16:22	23:36	06:47	06:13	12:00	16:57
07:17	17:20	18:48	05:50	14:11	03:24	16:18	23:32	06:43	06:09	11:52	16:53

INTERNAL CODING

Evening Day Code		Morning Day Code	
Weekend	Public Holiday	Weekend	Public Holiday
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	1	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0

GALAXY CORE AND ORION CONSTELLATION CALENDAR FOR NIGHTSCAPE PHOTOGRAPHY

Location: Perth (Lat: 31 57', Long: 115 51')
From: 2018-03-01 Day Calc 0 Day Offset 59

Legend: M = Moon Rising; m = Moon Setting; G = Galaxy Rising; g = Galaxy Setting; O = Orion Rising; o = Orion Setting

WILLIAM ARBASSO STELLAR AUSTRALIS

Version: 0.4 Improved optimum moon illumination calculation.

EVENING

Date	Dark Sky	Core Rising		Core High		Core Setting		Orion Rising		Orion High		Orion Setting		Moon	Evening Chart
Evening of	No Moon Illum	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	Percentage Illumination	12 13 14 15 16 17 18 19 20 21 22 23
2018-06-24	0	0	0	0	0	0	0	0	0	0	0	0	0	81	M Go
2018-06-25	0	0	0	0	0	0	0	0	0	0	0	0	0	88	M Go
2018-06-26	0	0	0	0	0	0	0	0	0	0	0	0	0	94	MG
2018-06-27	0	0	0	0	0	0	0	0	0	0	0	0	0	98	MG
2018-06-28	0	0	0	0	0	0	0	0	0	0	0	0	0	100	G o M
2018-06-29	0	0	0	0	0	0	0	0	0	0	0	0	0	100	G o M
2018-06-30	8	0	0	8	0	0	0	0	0	0	0	0	0	98	G o M
2018-07-01	25	0	0	25	0	0	0	0	0	0	0	0	0	95	G o M
2018-07-02	43	0	0	43	0	0	0	0	0	0	0	0	0	90	G o M
2018-07-03	60	0	0	60	0	0	0	0	0	0	0	0	0	83	G o M
2018-07-04	78	0	0	78	0	0	0	0	0	0	0	0	0	75	G o M
2018-07-05	96	0	0	96	0	0	0	0	0	0	0	0	0	67	G o M
2018-07-06	100	0	0	100	0	0	0	0	0	0	0	0	0	57	m G o
2018-07-07	100	0	0	100	0	0	0	0	0	0	0	0	0	47	m Go
2018-07-08	100	0	0	100	0	0	0	0	0	0	0	0	0	36	m Go
2018-07-09	100	0	0	100	0	0	0	0	0	0	0	0	0	26	m Go
2018-07-10	100	0	0	100	0	0	0	0	0	0	0	0	0	17	m Go
2018-07-11	100	0	0	100	0	0	0	0	0	0	0	0	0	9	mG
2018-07-12	100	0	0	100	0	0	0	0	0	0	0	0	0	3	Go m
2018-07-13	100	0	0	100	0	0	0	0	0	0	0	0	0	0	G o m
2018-07-14	100	0	0	100	0	0	0	0	0	0	0	0	0	0	G o m
2018-07-15	78	0	0	78	5	0	0	0	0	0	0	0	0	4	G o m
2018-07-16	55	0	0	55	50	0	0	0	0	0	0	0	0	10	G o m
2018-07-17	34	0	0	34	90	0	0	0	0	0	0	0	0	18	G o m
2018-07-18	13	0	0	13	65	0	0	0	0	0	0	0	0	27	G o m
2018-07-19	0	0	0	0	3	0	0	0	0	0	0	0	0	38	G o m
2018-07-20	0	0	0	0	0	0	0	0	0	0	0	0	0	48	M G o m
2018-07-21	0	0	0	0	0	0	0	0	0	0	0	0	0	59	M G o m
2018-07-22	0	0	0	0	0	0	0	0	0	0	0	0	0	69	M Go m
2018-07-23	0	0	0	0	0	0	0	0	0	0	0	0	0	77	MG m
2018-07-24	0	0	0	0	0	0	0	0	0	0	0	0	0	85	MG m
2018-07-25	0	0	0	0	0	0	0	0	0	0	0	0	0	91	Go M m
2018-07-26	0	0	0	0	0	0	0	0	0	0	0	0	0	96	Go M m
2018-07-27	0	0	0	0	0	0	0	0	0	0	0	0	0	99	Go M m
2018-07-28	0	0	0	0	0	0	0	0	0	0	0	0	0	100	G o M m
2018-07-29	0	0	0	0	0	0	0	0	0	0	0	0	0	99	G o M m
2018-07-30	16	0	0	16	0	0	0	0	0	0	0	0	0	97	G o M m
2018-07-31	34	0	0	34	0	0	0	0	0	0	0	0	0	93	G o M m
2018-08-01	53	0	0	53	0	0	0	0	0	0	0	0	0	87	G o M m
2018-08-02	72	0	0	72	0	0	0	0	0	0	0	0	0	80	G o M m
2018-08-03	91	0	0	91	0	0	0	0	0	0	0	0	0	71	G o M m
2018-08-04	100	0	0	100	0	0	0	0	0	0	0	0	0	62	G o M m
2018-08-05	100	0	0	100	0	0	0	0	0	0	0	0	0	51	G o M m
2018-08-06	100	0	0	100	0	0	0	0	0	0	0	0	0	40	m Go M m
2018-08-07	100	0	0	100	0	0	0	0	0	0	0	0	0	30	mG M m
2018-08-08	100	0	0	100	0	0	0	0	0	0	0	0	0	20	Go m M m
2018-08-09	100	0	0	100	0	0	0	0	0	0	0	0	0	11	Go m M m
2018-08-10	100	0	0	100	0	0	0	0	0	0	0	0	0	5	Go m M m
2018-08-11	100	0	0	100	0	0	0	0	0	0	0	0	0	1	Go m M m
2018-08-12	100	0	0	100	0	0	0	0	0	0	0	0	0	0	G o m M m
2018-08-13	84	0	0	84	10	0	0	0	0	0	0	0	0	2	G o m M m
2018-08-14	61	0	0	61	35	0	0	0	0	0	0	0	0	7	G o m M m
2018-08-15	39	0	0	39	49	0	0	0	0	0	0	0	0	15	G o m M m
2018-08-16	18	0	0	18	0	0	0	0	0	0	0	0	0	23	G o m M m
2018-08-17	0	0	0	0	0	0	0	0	0	0	0	0	0	33	G o m M m
2018-08-18	0	0	0	0	0	0	0	0	0	0	0	0	0	43	G o m M m
2018-08-19	0	0	0	0	0	0	0	0	0	0	0	0	0	54	MG o m M m
2018-08-20	0	0	0	0	0	0	0	0	0	0	0	0	0	63	MG o m M m

MORNING

Morning Chart	Moon	Orion Setting		Orion High		Orion Rising		Core Setting		Core High		Core Rising		Dark Sky	Date
0 1 2 3 4 5 6 7 8 9 10 11	Percentage Illumination	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Morning of
m gO	88	0	0	0	0	0	0	0	0	8	0	0	0	10	2018-06-25
m gO	94	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-26
O mg	98	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-27
O g m	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-28
O g m	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-29
O g m	98	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-06-30
O g m	95	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-01
O g m	90	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-02
O g m	83	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-03
O g m	75	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-04
gO m	67	0	0	0	0	0	0	0	0	0	1	0	0	0	2018-07-05
gO	57	0	0	0	0	5	1	0	0	8	2	0	0	12	2018-07-06
M gO	47	0	0	0	0	14	0	0	0	20	0	0	0	29	2018-07-07
M gO	36	0	0	0	0	26	0	0	0	31	0	0	0	47	2018-07-08
M gO	26	0	0	0	0	41	0	3	1	42	0	0	0	66	2018-07-09
M gO	17	0	0	0	0	58	0	10	7	52	0	0	0	85	2018-07-10
M gO	9	0	0	0	0	75	0	18	0	60	0	0	0	100	2018-07-11
O g M	3	0	0	0	0	82	0	25	0	58	0	0	0	100	2018-07-12
O g M	0	0	0	0	0	88	0	32	0	57	0	0	0	100	2018-07-13
O g M	0	0	0	0	0	93	0	37	0	55	0	0	0	100	2018-07-14
O g M	4	0	0	0	0	100	0	43	0	53	0	0	0	100	2018-07-15
O g M	10	0	0	0	0	100	0	50	0	52	0	0	0	100	2018-07-16
O g M	18	0	0	0	0	100	0	57	0	50	0	0	0	100	2018-07-17
O g M	27	0	0	0	0	100	0	62	0	48	0	0	0	100	2018-07-18
O g M	38	0	0	0	0	95	0	65	0	44	0	0	0	95	2018-07-19
m gO	48	0	0	0	0	78	0	58	0	35	0	0	0	78	2018-07-20
m gO	59	0	0	0	0	61	0	49	0	26	0	0	0	61	2018-07-21
m gO	69	0	0	0	0	45	0	39	0	19	0	0	0	45	2018-07-22
m gO	77	0	0	0	0	29	0	27	0	12	0	0	0	29	2018-07-23
mg	85	0	0	0	0	14	0	14	0	5	0	0	0	14	2018-07-24
mg	91	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-25
gO m	96	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-26
O g m	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-27
O g m	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-28
O g m	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-29
O g m	97	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-30
O g m	93	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-07-31
O g m	87	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-01
O g m	80	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-02
O g m	71	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-03
gO m	62	0	0	1	0	10	0	10	2	2	0	0	0	10	2018-08-04
gO m	51	0	0	4	0	28	0	28	4	5	0	0	0	28	2018-08-05
gO	40	0	0	7	0	47	0	47	7	8	0	0	0	47	2018-08-06
gO	30	0	0	10	0	66	0	66	5	10	0	0	0	66	2018-08-07
Mg	20	0	0	15	0	85	0	85	0	11	0	0	0	85	2018-08-08
gO M	11	0	0	18	0	100	0	100	0	12	0	0	0	100	2018-08-09
gO M	5	0	0	20	0	100	0	100	0	10	0	0	0	100	2018-08-10
O g M	1	0	0	21	0	100	0	100	0	8	0	0	0	100	2018-08-11
O g M	0	0	0	22	0	100	0	100	0	7	0	0	0	100	2018-08-12
O g M	2	0	0	24	0	100	0	100	0	5	0	0	0	100	2018-08-13
O g M	7	0	0	25	0	100	0	100	0	3	0	0	0	100	2018-08-14
O g M	15	0	0	26	0	100	0	100	0	2	0	0	0	100	2018-08-15
O g M	23	0	0	28	0	100	0	100	0	0	0	0	0	100	2018-08-16
O g M	33	0	0	28	0	98	0	98	0	0	0	0	0	98	2018-08-17
O g M	43	0	0	24	0	80	0	80	0	0	0	0	0	80	2018-08-18
gO	54	0	0	20	0	63	0	63	0	0	0	0	0	63	2018-08-19
mg	63	0	0	15	0	47	0	47	0	0	0	0	0	47	2018-08-20
mg	72	0	0	10	0	31	1	31	0	0	0	0	0	31	2018-08-21

REFERENCE TIMES

Date	Sun		Astro Dark		Moon		Galaxy Core			Orion		
	Rise	Set	Start	End	Rise	Set	Rise	Zenith	Set	Rise	Zenith	Set
2018-06-25	07:17	17:21	18:48	05:50	14:47	04:20	16:14	23:28	06:39	06:05	11:48	16:49
2018-06-26	07:17	17:21	18:48	05:50	15:24	05:16	16:10	23:24	06:35	06:01	11:44	16:45
2018-06-27	07:18	17:21	18:49	05:50	16:04	06:10	16:06	23:20	06:31	05:57	11:40	16:41
2018-06-28	07:18	17:22	18:49	05:50	16:48	07:02	16:02	23:16	06:27	05:53	11:36	16:37
2018-06-29	07:18	17:22	18:49	05:50	17:34	07:50	15:58	23:12	06:23	05:49	11:32	16:33
2018-06-30	07:18	17:22	18:50	05:51	18:24	08:36	15:54	23:08	06:19	05:45	11:28	16:29
2018-07-01	07:18	17:23	18:50	05:51	19:15	09:18	15:50	23:04	06:15	05:41	11:24	16:25
2018-07-02	07:18	17:23	18:50	05:51	20:08	09:56	15:46	23:00	06:11	05:37	11:20	16:21
2018-07-03	07:18	17:24	18:51	05:51	21:02	10:32	15:42	22:56	06:07	05:33	11:16	16:17
2018-07-04	07:18	17:24	18:51	05:51	21:56	11:06	15:38	22:52	06:03	05:29	11:12	16:13
2018-07-05	07:18	17:24	18:51	05:51	22:51	11:39	15:34	22:48	05:59	05:25	11:08	16:09
2018-07-06	07:17	17:25	18:52	05:51	23:46	----	15:30	22:44	05:55	05:21	11:04	16:05
2018-07-07	07:17	17:25	18:52	05:50	00:43	12:11	15:26	22:40	05:51	05:17	11:00	16:01
2018-07-08	07:17	17:26	18:53	05:50	01:43	12:45	15:22	22:36	05:47	05:13	10:56	15:57
2018-07-09	07:17	17:26	18:53	05:50	02:45	13:22	15:18	22:32	05:43	05:09	10:52	15:53
2018-07-10	07:17	17:27	18:53	05:50	03:50	14:02	15:14	22:28	05:39	05:05	10:48	15:49
2018-07-11	07:16	17:27	18:54	05:50	04:57	14:48	15:10	22:24	05:35	05:01	10:44	15:45
2018-07-12	07:16	17:28	18:54	05:50	06:03	15:40	15:06	22:20	05:31	04:57	10:40	15:41
2018-07-13	07:16	17:28	18:55	05:50	07:07	16:40	15:02	22:16	05:27	04:53	10:36	15:37
2018-07-14	07:16	17:29	18:55	05:49	08:06	17:45	14:58	22:12	05:23	04:49	10:32	15:33
2018-07-15	07:15	17:29	18:56	05:49	08:58	18:54	14:54	22:08	05:19	04:45	10:28	15:29
2018-07-16	07:15	17:30	18:56	05:49	09:44	20:04	14:50	22:04	05:15	04:41	10:24	15:25
2018-07-17	07:15	17:31	18:57	05:49	10:25	21:12	14:46	22:00	05:11	04:37	10:20	15:21
2018-07-18	07:14	17:31	18:57	05:48	11:03	22:17	14:42	21:56	05:07	04:33	10:16	15:17
2018-07-19	07:14	17:32	18:58	05:48	11:38	23:19	14:38	21:52	05:03	04:29	10:12	15:13
2018-07-20	07:13	17:32	18:58	05:48	----	00:19	14:34	21:48	04:59	04:25	10:08	15:09
2018-07-21	07:13	17:33	18:59	05:47	12:13	01:18	14:30	21:44	04:55	04:21	10:04	15:05
2018-07-22	07:12	17:34	18:59	05:47	12:48	02:15	14:26	21:40	04:51	04:17	10:00	15:01
2018-07-23	07:12	17:34	19:00	05:46	13:25	03:11	14:22	21:36	04:47	04:13	09:56	14:57
2018-07-24	07:11	17:35	19:00	05:46	14:04	04:05	14:18	21:32	04:43	04:09	09:52	14:53
2018-07-25	07:11	17:35	19:01	05:46	14:46	04:58	14:14	21:28	04:39	04:05	09:48	14:49
2018-07-26	07:10	17:36	19:01	05:45	15:32	05:47	14:10	21:24	04:35	04:01	09:44	14:45
2018-07-27	07:09	17:37	19:02	05:45	16:20	06:34	14:06	21:20	04:31	03:57	09:40	14:41
2018-07-28	07:09	17:37	19:02	05:44	17:11	07:17	14:02	21:16	04:27	03:53	09:36	14:37
2018-07-29	07:08	17:38	19:03	05:43	18:03	07:57	13:58	21:12	04:23	03:49	09:32	14:33
2018-07-30	07:07	17:39	19:03	05:43	18:57	08:33	13:54	21:08	04:19	03:45	09:28	14:29
2018-07-31	07:07	17:39	19:04	05:42	19:51	09:08	13:50	21:04	04:15	03:41	09:24	14:25
2018-08-01	07:06	17:40	19:04	05:42	20:45	09:41	13:46	21:00	04:11	03:37	09:20	14:21
2018-08-02	07:05	17:40	19:05	05:41	21:40	10:13	13:42	20:56	04:07	03:33	09:16	14:17
2018-08-03	07:04	17:41	19:05	05:40	22:36	10:46	13:38	20:52	04:03	03:29	09:12	14:13
2018-08-04	07:03	17:42	19:06	05:40	23:33	11:20	13:34	20:48	03:59	03:25	09:08	14:09
2018-08-05	07:03	17:42	19:06	05:39	00:33	11:57	13:30	20:44	03:55	03:21	09:04	14:05
2018-08-06	07:02	17:43	19:07	05:38	01:34	----	13:26	20:40	03:51	03:17	09:00	14:01
2018-08-07	07:01	17:44	19:07	05:38	02:38	12:39	13:22	20:36	03:47	03:13	08:56	13:57
2018-08-08	07:00	17:44	19:08	05:37	03:43	13:27	13:18	20:32	03:43	03:09	08:52	13:53
2018-08-09	06:59	17:45	19:08	05:36	04:47	14:21	13:14	20:28	03:39	03:05	08:48	13:49
2018-08-10	06:58	17:46	19:09	05:35	05:48	15:23	13:10	20:24	03:35	03:01	08:44	13:45
2018-08-11	06:57	17:46	19:09	05:34	06:43	16:30	13:06	20:20	03:31	02:57	08:40	13:41
2018-08-12	06:56	17:47	19:10	05:33	07:33	17:39	13:02	20:16	03:27	02:53	08:36	13:37
2018-08-13	06:55	17:47	19:10	05:33	08:17	18:50	12:58	20:12	03:23	02:49	08:32	13:33
2018-08-14	06:54	17:48	19:11	05:32	08:57	19:58	12:54	20:08	03:19	02:45	08:28	13:29
2018-08-15	06:53	17:49	19:11	05:31	09:35	21:04	12:50	20:04	03:15	02:41	08:24	13:25
2018-08-16	06:52	17:49	19:12	05:30	10:11	22:07	12:46	20:00	03:11	02:37	08:20	13:21
2018-08-17	06:51	17:50	19:12	05:29	10:47	23:08	12:42	19:56	03:07	02:33	08:16	13:17
2018-08-18	06:50	17:51	19:13	05:28	11:24	00:07	12:38	19:52	03:03	02:29	08:12	13:13
2018-08-19	06:49	17:51	19:14	05:27	----	01:04	12:34	19:48	02:59	02:25	08:08	13:09
2018-08-20	06:48	17:52	19:14	05:26	12:03	02:00	12:30	19:44	02:55	02:21	08:04	13:05
2018-08-21	06:47	17:53	19:15	05:25	12:44	02:53	12:26	19:40	02:51	02:17	08:00	13:01

INTERNAL CODING

Date	Evening Day Code		Morning Day Code	
	Weekend	Public Holiday	Weekend	Public Holiday
2018-06-25	7	0	1	0
2018-06-26	1	0	2	0
2018-06-27	2	0	3	0
2018-06-28	3	0	4	0
2018-06-29	4	0	5	0
2018-06-30	5	0	6	0
2018-07-01	6	0	7	0
2018-07-02	7	0	1	0
2018-07-03	1	0	2	0
2018-07-04	2	0	3	0
2018-07-05	3	0	4	0
2018-07-06	4	0	5	0
2018-07-07	5	0	6	0
2018-07-08	6	0	7	0
2018-07-09	7	0	1	0
2018-07-10	1	0	2	0
2018-07-11	2	0	3	0
2018-07-12	3	0	4	0
2018-07-13	4	0	5	0
2018-07-14	5	0	6	0
2018-07-15	6	0	7	0
2018-07-16	7	0	1	0
2018-07-17	1	0	2	0
2018-07-18	2	0	3	0
2018-07-19	3	0	4	0
2018-07-20	4	0	5	0
2018-07-21	5	0	6	0
2018-07-22	6	0	7	0
2018-07-23	7	0	1	0
2018-07-24	1	0	2	0
2018-07-25	2	0	3	0
2018-07-26	3	0	4	0
2018-07-27	4	0	5	0
2018-07-28	5	0	6	0
2018-07-29	6	0	7	0
2018-07-30	7	0	1	0
2018-07-31	1	0	2	0
2018-08-01	2	0	3	0
2018-08-02	3	0	4	0
2018-08-03	4	0	5	0
2018-08-04	5	0	6	0
2018-08-05	6	0	7	0
2018-08-06	7	0	1	0
2018-08-07	1	0	2	0
2018-08-08	2	0	3	0
2018-08-09	3	0	4	0
2018-08-10	4	0	5	0
2018-08-11	5	0	6	0
2018-08-12	6	0	7	0
2018-08-13	7	0	1	0
2018-08-14	1	0	2	0
2018-08-15	2	0	3	0
2018-08-16	3	0	4	0
2018-08-17	4	0	5	0
2018-08-18	5	0	6	0
2018-08-19	6	0	7	0
2018-08-20	7	0	1	0
2018-08-21	1	0	2	0

GALAXY CORE AND ORION CONSTELLATION CALENDAR FOR NIGHTSCAPE PHOTOGRAPHY

Location: Perth (Lat: 31 57', Long: 115 51')
From: 2018-03-01 Day Calc 0 Day Offset 59

Legend: M = Moon Rising | G = Galaxy Rising | O = Orion Rising
m = Moon Setting | g = Galaxy Setting | o = Orion Setting

WILLIAM ARBASSO STELLAR AUSTRALIS

Version: 0.4 Improved optimum moon illumination calculation.

EVENING

Date	Dark Sky	Core Rising		Core High		Core Setting		Orion Rising		Orion High		Orion Setting		Moon	Evening Chart
Evening of	No Moon Illum	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	Percentage Illumination	12 13 14 15 16 17 18 19 20 21 22 23
2018-08-21	0	0	0	0	0	0	0	0	0	0	0	0	0	72	Go M
2018-08-22	0	0	0	0	0	0	0	0	0	0	0	0	0	80	Go M
2018-08-23	0	0	0	0	0	0	0	0	0	0	0	0	0	87	Go M
2018-08-24	0	0	0	0	0	0	0	0	0	0	0	0	0	93	Go M
2018-08-25	0	0	0	0	0	0	0	0	0	0	0	0	0	97	Go M
2018-08-26	0	0	0	0	0	0	0	0	0	0	0	0	0	99	Go M
2018-08-27	0	0	0	0	0	0	0	0	0	0	0	0	0	100	o M
2018-08-28	6	0	0	6	0	0	0	0	0	0	0	0	0	99	o M
2018-08-29	25	0	0	24	0	0	0	0	0	0	0	0	0	95	o M
2018-08-30	46	0	0	42	0	0	0	0	0	0	0	0	0	90	o M
2018-08-31	67	0	0	60	0	0	0	0	0	0	0	0	0	84	o M
2018-09-01	88	0	0	77	0	0	0	0	0	0	0	0	0	75	o M
2018-09-02	100	0	0	86	0	0	0	0	0	0	0	0	0	66	o M
2018-09-03	100	0	0	84	0	0	0	0	0	0	0	0	0	55	o M
2018-09-04	100	0	0	82	0	0	0	0	0	0	0	0	0	44	mo M
2018-09-05	100	0	0	80	0	0	0	0	0	0	0	0	0	33	m M
2018-09-06	100	0	0	78	0	0	0	0	0	0	0	0	0	22	m M
2018-09-07	100	0	0	76	0	0	0	0	0	0	0	0	0	13	m M
2018-09-08	100	0	0	75	0	0	0	0	0	0	0	0	0	6	m M
2018-09-09	100	0	0	73	0	0	0	0	0	0	0	0	0	2	m M
2018-09-10	100	0	0	71	0	0	0	0	0	0	0	0	0	0	m M
2018-09-11	92	0	0	63	0	0	0	0	0	0	0	0	0	1	m M
2018-09-12	69	0	0	46	0	0	0	0	0	0	0	0	0	5	m M
2018-09-13	46	0	0	30	0	0	0	0	0	0	0	0	0	11	m M
2018-09-14	24	0	0	15	0	0	0	0	0	0	0	0	0	19	m M
2018-09-15	3	0	0	2	0	0	0	0	0	0	0	0	0	28	m M
2018-09-16	0	0	0	0	0	0	0	0	0	0	0	0	0	37	m M
2018-09-17	0	0	0	0	0	0	0	0	0	0	0	0	0	47	m M
2018-09-18	0	0	0	0	0	0	0	0	0	0	0	0	0	57	M m M
2018-09-19	0	0	0	0	0	0	0	0	0	0	0	0	0	66	M m M
2018-09-20	0	0	0	0	0	0	0	0	0	0	0	0	0	75	m M
2018-09-21	0	0	0	0	0	0	0	0	0	0	0	0	0	82	m M
2018-09-22	0	0	0	0	0	0	0	0	0	0	0	0	0	89	m M
2018-09-23	0	0	0	0	0	0	0	0	0	0	0	0	0	94	m M
2018-09-24	0	0	0	0	0	0	0	0	0	0	0	0	0	98	m M
2018-09-25	0	0	0	0	0	0	0	0	0	0	0	0	0	100	m M
2018-09-26	0	0	0	0	0	0	0	0	0	0	0	0	0	100	m M
2018-09-27	16	0	0	6	0	0	0	16	0	0	0	0	0	97	m M
2018-09-28	39	0	0	14	0	0	0	39	0	0	0	0	0	93	m M
2018-09-29	63	0	0	21	0	0	0	63	0	0	0	0	0	87	m M
2018-09-30	86	0	0	27	0	0	0	86	0	0	0	0	0	79	m M
2018-10-01	100	0	0	30	0	0	0	100	0	0	0	0	0	69	m M
2018-10-02	100	0	0	28	0	0	0	100	0	0	0	0	0	58	m M
2018-10-03	100	0	0	26	0	100	0	100	0	0	0	0	0	47	m M
2018-10-04	100	0	0	24	0	100	0	100	0	0	0	0	0	36	m M
2018-10-05	100	0	0	22	0	100	0	100	0	0	0	0	0	25	m M
2018-10-06	100	0	0	20	0	100	0	100	0	0	0	0	0	16	m M
2018-10-07	100	0	0	18	0	100	0	100	0	0	0	0	0	8	m M
2018-10-08	100	0	0	16	0	100	0	100	0	0	0	0	0	3	m M
2018-10-09	100	0	0	14	0	100	0	100	0	0	0	0	0	0	m M
2018-10-10	100	0	0	12	0	100	0	100	0	0	0	0	0	1	m M
2018-10-11	81	0	0	8	0	81	0	81	0	0	0	0	0	3	m M
2018-10-12	57	0	0	4	0	57	0	57	0	0	0	0	0	8	m M
2018-10-13	34	0	0	2	0	34	0	34	0	0	0	0	0	14	m M
2018-10-14	12	0	0	0	0	12	0	12	37	0	0	0	0	22	m M
2018-10-15	0	0	0	0	0	0	0	0	39	0	0	0	0	31	m M
2018-10-16	0	0	0	0	0	0	0	0	9	0	0	0	0	40	m M
2018-10-17	0	0	0	0	0	0	0	0	7	0	0	0	0	49	m M

MORNING

Date	Moon	Orion Setting		Orion High		Orion Rising		Core Setting		Core High		Core Rising		Dark Sky	Date
Morning of	Percentage Illumination	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Morning of
2018-08-22	80	0	0	6	0	16	1	16	0	0	0	0	0	16	2018-08-22
2018-08-23	87	0	0	1	0	2	0	2	0	0	0	0	0	2	2018-08-23
2018-08-24	93	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-24
2018-08-25	97	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-25
2018-08-26	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-26
2018-08-27	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-27
2018-08-28	99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-28
2018-08-29	95	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-29
2018-08-30	90	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-30
2018-08-31	84	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-08-31
2018-09-01	75	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-01
2018-09-02	66	0	0	4	0	9	0	9	1	0	0	0	0	9	2018-09-02
2018-09-03	55	0	0	14	0	29	0	29	2	0	0	0	0	29	2018-09-03
2018-09-04	44	0	0	25	0	50	0	50	1	0	0	0	0	50	2018-09-04
2018-09-05	33	0	0	36	0	69	0	69	0	0	0	0	0	69	2018-09-05
2018-09-06	22	0	0	46	19	88	0	88	0	0	0	0	0	88	2018-09-06
2018-09-07	13	0	0	54	0	100	0	100	0	0	0	0	0	100	2018-09-07
2018-09-08	6	0	0	55	0	100	0	100	0	0	0	0	0	100	2018-09-08
2018-09-09	2	0	0	56	0	100	0	100	0	0	0	0	0	100	2018-09-09
2018-09-10	0	0	0	58	0	100	0	100	0	0	0	0	0	100	2018-09-10
2018-09-11	1	0	0	58	0	100	0	100	0	0	0	0	0	100	2018-09-11
2018-09-12	5	0	0	60	0	100	0	100	0	0	0	0	0	100	2018-09-12
2018-09-13	11	0	0	61	0	100	0	100	0	0	0	0	0	100	2018-09-13
2018-09-14	19	0	0	62	0	100	0	100	0	0	0	0	0	100	2018-09-14
2018-09-15	28	0	0	63	0	100	0	100	0	0	0	0	0	100	2018-09-15
2018-09-16	37	0	0	54	0	84	9	84	0	0	0	0	0	84	2018-09-16
2018-09-17	47	0	0	43	0	66	2	66	0	0	0	0	0	66	2018-09-17
2018-09-18	57	0	0	33	0	49	5	49	0	0	0	0	0	49	2018-09-18
2018-09-19	66	0	0	23	0	33	5	33	0	0	0	0	0	33	2018-09-19
2018-09-20	75	0	0	13	0	18	3	18	0	0	0	0	0	18	2018-09-20
2018-09-21	82	0	0	3	0	5	1	5	0	0	0	0	0	5	2018-09-21
2018-09-22	89	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-22
2018-09-23	94	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-23
2018-09-24	98	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-24
2018-09-25	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-25
2018-09-26	100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-26
2018-09-27	97	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-27
2018-09-28	93	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-28
2018-09-29	87	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-29
2018-09-30	79	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-09-30
2018-10-01	69	0	0	8	0	0	0	10	0	0	0	0	0	10	2018-10-01
2018-10-02	58	0	0	26	1	0	0	32	0	0	0	0	0	32	2018-10-02
2018-10-03	47	0	0	43	4	0	0	53	0	0	0	0	0	53	2018-10-03
2018-10-04	36	0	0	60	7	0	0	0	0	0	0	0	0	72	2018-10-04
2018-10-05	25	0	0	76	17	0	0	0	0	0	0	0	0	90	2018-10-05
2018-10-06	16	0	0	86	0	0	0	0	0	0	0	0	0	100	2018-10-06
2018-10-07	8	0	0	87	0	0	0	0	0	0	0	0	0	100	2018-10-07
2018-10-08	3	0	0	88	0	0	0	0	0	0	0	0	0	100	2018-10-08
2018-10-09	0	0	0	89	0	0	0	0	0	0	0	0	0	100	2018-10-09
2018-10-10	1	0	0	90	0	0	0	0	0	0	0	0	0	100	2018-10-10
2018-10-11	3	0	0	91	0	0	0	0	0	0	0	0	0	100	2018-10-11
2018-10-12	8	0	0	92	0	0	0	0	0	0	0	0	0	100	2018-10-12
2018-10-13	14	0	0	93	0	0	0	0	0	0	0	0	0	100	2018-10-13
2018-10-14	22	0	0	94	0	0	0	0	0	0	0	0	0	100	2018-10-14
2018-10-15	31	0	0	87	0	0	0	0	0	0	0	0	0	92	2018-10-15
2018-10-16	40	0	0	71	0	0	0	0	0	0	0	0	0	73	2018-10-16
2018-10-17	49	0	0	54	0	0	0	0	0	0	0	0	0	55	2018-10-17
2018-10-18	59	0	0	39	0	0	0	0	0	0	0	0	0	39	2018-10-18

REFERENCE TIMES

	Sun		Astro Dark		Moon		Galaxy Core			Orion		
	Rise	Set	Start	End	Rise	Set	Rise	Zenith	Set	Rise	Zenith	Set
2018-08-22	06:46	17:53	19:15	05:24	13:29	03:44	12:22	19:36	02:47	02:13	07:56	12:57
2018-08-23	06:45	17:54	19:16	05:23	14:16	04:31	12:18	19:32	02:43	02:09	07:52	12:53
2018-08-24	06:44	17:54	19:16	05:22	15:06	05:16	12:14	19:28	02:39	02:05	07:48	12:49
2018-08-25	06:42	17:55	19:17	05:21	15:58	05:56	12:10	19:24	02:35	02:01	07:44	12:45
2018-08-26	06:41	17:56	19:17	05:20	16:51	06:34	12:06	19:20	02:31	01:57	07:40	12:41
2018-08-27	06:40	17:56	19:18	05:19	17:46	07:09	12:02	19:16	02:27	01:53	07:36	12:37
2018-08-28	06:39	17:57	19:18	05:17	18:40	07:43	11:54	19:12	02:23	01:49	07:32	12:33
2018-08-29	06:38	17:57	19:19	05:16	19:36	08:15	11:50	19:08	02:19	01:45	07:28	12:29
2018-08-30	06:36	17:58	19:20	05:15	20:31	08:48	11:46	19:04	02:15	01:41	07:24	12:25
2018-08-31	06:35	17:59	19:20	05:14	21:28	09:21	11:42	19:00	02:11	01:37	07:20	12:21
2018-09-01	06:34	17:59	19:21	05:13	22:26	09:57	11:38	18:56	02:07	01:33	07:16	12:17
2018-09-02	06:33	18:00	19:21	05:12	23:26	10:37	11:34	18:52	02:03	01:29	07:12	12:13
2018-09-03	06:31	18:01	19:22	05:10	00:28	11:21	11:30	18:48	01:59	01:25	07:08	12:09
2018-09-04	06:30	18:01	19:22	05:09	01:31	----	11:26	18:44	01:55	01:21	07:04	12:05
2018-09-05	06:29	18:02	19:23	05:08	02:33	12:11	11:22	18:40	01:51	01:17	07:00	12:01
2018-09-06	06:28	18:02	19:23	05:07	03:33	13:07	11:18	18:36	01:47	01:13	06:56	11:53
2018-09-07	06:26	18:03	19:24	05:05	04:29	14:10	11:14	18:32	01:43	01:09	06:52	11:49
2018-09-08	06:25	18:04	19:25	05:04	05:20	15:17	11:10	18:28	01:39	01:05	06:48	11:45
2018-09-09	06:24	18:04	19:25	05:03	06:07	16:26	11:06	18:24	01:35	01:01	06:44	11:41
2018-09-10	06:23	18:05	19:26	05:02	06:49	17:35	11:02	18:20	01:31	00:57	06:40	11:37
2018-09-11	06:21	18:05	19:26	05:00	07:28	18:42	10:58	18:16	01:27	00:53	06:36	11:33
2018-09-12	06:20	18:06	19:27	04:59	08:05	19:48	10:54	18:12	01:23	00:49	06:32	11:29
2018-09-13	06:19	18:07	19:28	04:58	08:42	20:51	10:50	18:08	01:19	00:45	06:28	11:25
2018-09-14	06:17	18:07	19:28	04:56	09:20	21:53	10:46	18:04	01:15	00:41	06:24	11:21
2018-09-15	06:16	18:08	19:29	04:55	09:59	22:53	10:42	18:00	01:11	00:37	06:20	11:17
2018-09-16	06:15	18:08	19:30	04:54	10:40	23:50	10:38	17:56	01:07	00:33	06:16	11:13
2018-09-17	06:13	18:09	19:30	04:52	11:24	00:46	10:34	17:52	01:03	00:29	06:12	11:09
2018-09-18	06:12	18:10	19:31	04:51	----	01:38	10:30	17:48	00:59	00:25	06:08	11:05
2018-09-19	06:11	18:10	19:31	04:50	12:10	02:27	10:26	17:44	00:55	00:21	06:04	11:01
2018-09-20	06:09	18:11	19:32	04:48	12:59	03:13	10:22	17:40	00:51	00:17	06:00	10:57
2018-09-21	06:08	18:11	19:33	04:47	13:51	03:55	10:18	17:36	00:47	00:13	05:56	10:53
2018-09-22	06:07	18:12	19:33	04:45	14:44	04:33	10:14	17:32	00:43	00:09	05:52	10:49
2018-09-23	06:05	18:13	19:34	04:44	15:38	05:09	10:10	17:28	00:39	00:05	05:48	10:45
2018-09-24	06:04	18:13	19:35	04:43	16:33	05:43	10:06	17:24	00:35	00:01	05:44	10:41
2018-09-25	06:03	18:14	19:36	04:41	17:29	06:16	10:02	17:20	00:31	----	05:40	10:37
2018-09-26	06:01	18:14	19:36	04:40	18:25	06:49	09:58	17:16	00:27	23:57	05:36	10:33
2018-09-27	06:00	18:15	19:37	04:38	19:22	07:23	09:54	17:12	00:23	23:53	05:32	10:29
2018-09-28	05:59	18:16	19:38	04:37	20:21	07:58	09:50	17:08	00:19	23:49	05:28	10:25
2018-09-29	05:58	18:16	19:38	04:36	21:21	08:36	09:46	17:04	00:15	23:45	05:24	10:21
2018-09-30	05:56	18:17	19:39	04:34	22:22	09:19	09:42	17:00	00:11	23:41	05:20	10:17
2018-10-01	05:55	18:18	19:40	04:33	23:24	10:06	09:38	16:56	00:07	23:37	05:16	10:13
2018-10-02	05:54	18:18	19:41	04:31	00:26	11:00	09:34	16:52	00:03	23:33	05:12	10:09
2018-10-03	05:52	18:19	19:41	04:30	01:26	11:59	09:30	16:48	----	23:29	05:08	10:05
2018-10-04	05:51	18:20	19:42	04:29	02:22	----	09:26	16:44	23:59	23:25	05:04	10:01
2018-10-05	05:50	18:20	19:43	04:27	03:13	13:02	09:22	16:40	23:55	23:21	05:00	09:57
2018-10-06	05:49	18:21	19:44	04:26	03:59	14:09	09:18	16:36	23:51	23:17	04:56	09:53
2018-10-07	05:47	18:22	19:45	04:24	04:42	15:16	09:14	16:32	23:47	23:13	04:52	09:49
2018-10-08	05:46	18:22	19:46	04:23	05:21	16:22	09:10	16:28	23:43	23:09	04:48	09:45
2018-10-09	05:45	18:23	19:46	04:21	05:59	17:28	09:06	16:24	23:39	23:05	04:44	09:41
2018-10-10	05:44	18:24	19:47	04:20	06:36	18:32	09:02	16:20	23:35	23:01	04:40	09:37
2018-10-11	05:42	18:24	19:48	04:19	07:13	19:35	08:58	16:16	23:31	22:57	04:36	09:33
2018-10-12	05:41	18:25	19:49	04:17	07:52	20:37	08:54	16:12	23:27	22:53	04:32	09:29
2018-10-13	05:40	18:26	19:50	04:16	08:33	21:37	08:50	16:08	23:23	22:49	04:28	09:25
2018-10-14	05:39	18:27	19:51	04:14	09:16	22:35	08:46	16:04	23:19	22:45	04:24	09:21
2018-10-15	05:37	18:27	19:52	04:13	10:02	23:30	08:42	16:00	23:15	22:41	04:20	09:17
2018-10-16	05:36	18:28	19:53	04:12	10:51	00:21	08:38	15:56	23:11	22:37	04:16	09:13
2018-10-17	05:35	18:29	19:54	04:10	11:42	01:08	08:34	15:52	23:07	22:33	04:12	09:09
2018-10-18	05:34	18:29	19:55	04:09	----	01:52	08:30	15:48	23:03	22:29	04:08	09:05

INTERNAL CODING

	Evening Day Code		Morning Day Code	
	Weekend	Public Holiday	Weekend	Public Holiday
2018-08-22	2	0	3	0
2018-08-23	3	0	4	0
2018-08-24	4	0	5	0
2018-08-25	5	0	6	0
2018-08-26	6	0	7	0
2018-08-27	7	0	1	0
2018-08-28	1	0	2	0
2018-08-29	2	0	3	0
2018-08-30	3	0	4	0
2018-08-31	4	0	5	0
2018-09-01	5	0	6	0
2018-09-02	6	0	7	0
2018-09-03	7	0	1	0
2018-09-04	1	0	2	0
2018-09-05	2	0	3	0
2018-09-06	3	0	4	0
2018-09-07	4	0	5	0
2018-09-08	5	0	6	0
2018-09-09	6	0	7	0
2018-09-10	7	0	1	0
2018-09-11	1	0	2	0
2018-09-12	2	0	3	0
2018-09-13	3	0	4	0
2018-09-14	4	0	5	0
2018-09-15	5	0	6	0
2018-09-16	6	0	7	0
2018-09-17	7	0	1	0
2018-09-18	1	0	2	0
2018-09-19	2	0	3	0
2018-09-20	3	0	4	0
2018-09-21	4	0	5	0
2018-09-22	5	0	6	0
2018-09-23	6	0	7	0
2018-09-24	7	0	1	1
2018-09-25	1	1	2	0
2018-09-26	2	0	3	0
2018-09-27	3	0	4	0
2018-09-28	4	0	5	0
2018-09-29	5	0	6	0
2018-09-30	6	0	7	0
2018-10-01	7	0	1	0
2018-10-02	1	0	2	0
2018-10-03	2	0	3	0
2018-10-04	3	0	4	0
2018-10-05	4	0	5	0
2018-10-06	5	0	6	0
2018-10-07	6	0	7	0
2018-10-08	7	0	1	0
2018-10-09	1	0	2	0
2018-10-10	2	0	3	0
2018-10-11	3	0	4	0
2018-10-12	4	0	5	0
2018-10-13	5	0	6	0
2018-10-14	6	0	7	0
2018-10-15	7	0	1	0
2018-10-16	1	0	2	0
2018-10-17	2	0	3	0
2018-10-18	3	0	4	0

GALAXY CORE AND ORION CONSTELLATION CALENDAR FOR NIGHTSCAPE PHOTOGRAPHY

Location:	Perth (Lat: 31 57', Long: 115 51')		Legend:	M = Moon Rising	G = Galaxy Rising	O = Orion Rising
From:	2018-03-01	Day Calc 0	Day Offset 59	m = Moon Setting	g = Galaxy Setting	o = Orion Setting

WILLIAM VRBASSO
STELLAR AUSTRALIS

Version: 0.4 Improved optimum moon illumination calculation.

EVENING

Date (Evening of)	Dark Sky: No Moon Illum	Core Rising: No Moon Illum	Core Rising: Optimum Moon	Core High: No Moon Illum	Core High: Optimum Moon	Core Setting: No Moon Illum	Core Setting: Optimum Moon	Orion Rising: No Moon Illum	Orion Rising: Optimum Moon	Orion High: No Moon Illum	Orion High: Optimum Moon	Orion Setting: No Moon Illum	Orion Setting: Optimum Moon	Moon: Percentage Illumination
2018-10-18	0	0	0	0	0	0	0	0	5	0	0	0	0	59
2018-10-19	0	0	0	0	0	0	0	0	3	0	0	0	0	68
2018-10-20	0	0	0	0	0	0	0	0	1	0	0	0	0	76
2018-10-21	0	0	0	0	0	0	0	0	0	0	0	0	0	84
2018-10-22	0	0	0	0	0	0	0	0	0	0	0	0	0	90
2018-10-23	0	0	0	0	0	0	0	0	0	0	0	0	0	95
2018-10-24	0	0	0	0	0	0	0	0	0	0	0	0	0	99
2018-10-25	0	0	0	0	0	0	0	0	0	0	0	0	0	100
2018-10-26	4	0	0	0	0	4	0	4	0	0	0	0	0	99
2018-10-27	31	0	0	0	0	31	0	31	0	4	0	0	0	95
2018-10-28	58	0	0	0	0	58	0	58	0	8	0	0	0	90
2018-10-29	84	0	0	0	0	84	0	84	0	13	0	0	0	82
2018-10-30	100	0	0	0	0	100	0	100	0	17	0	0	0	72
2018-10-31	100	0	0	0	0	100	0	100	0	18	0	0	0	62
2018-11-01	100	0	0	0	0	100	0	100	0	20	0	0	0	50
2018-11-02	100	0	0	0	0	100	0	100	0	22	0	0	0	39
2018-11-03	100	0	0	0	0	100	0	100	0	23	0	0	0	28
2018-11-04	100	0	0	0	0	100	0	100	0	25	0	0	0	19
2018-11-05	100	0	0	0	0	100	0	100	0	27	0	0	0	11
2018-11-06	100	0	0	0	0	100	0	100	0	28	0	0	0	5
2018-11-07	100	0	0	0	0	100	0	100	0	30	0	0	0	1
2018-11-08	100	0	0	0	0	100	0	100	0	32	0	0	0	0
2018-11-09	100	0	0	0	0	100	0	100	0	33	0	0	0	1
2018-11-10	74	0	0	0	0	74	0	74	4	26	0	0	0	4
2018-11-11	49	0	0	0	0	49	0	49	31	18	0	0	0	9
2018-11-12	26	0	0	0	0	26	0	26	80	10	0	0	0	16
2018-11-13	6	0	0	0	0	6	0	6	80	2	0	0	0	24
2018-11-14	0	0	0	0	0	0	0	0	40	0	0	0	0	32
2018-11-15	0	0	0	0	0	0	0	0	9	0	0	0	0	41
2018-11-16	0	0	0	0	0	0	0	0	7	0	1	0	0	51
2018-11-17	0	0	0	0	0	0	0	0	4	0	2	0	0	60
2018-11-18	0	0	0	0	0	0	1	0	2	0	1	0	0	69
2018-11-19	0	0	0	0	0	0	0	0	0	0	0	0	0	78
2018-11-20	0	0	0	0	0	0	0	0	0	0	0	0	0	86
2018-11-21	0	0	0	0	0	0	0	0	0	0	0	0	0	92
2018-11-22	0	0	0	0	0	0	0	0	0	0	0	0	0	97
2018-11-23	0	0	0	0	0	0	0	0	0	0	0	0	0	99
2018-11-24	0	0	0	0	0	0	0	0	0	0	0	0	0	100
2018-11-25	17	0	0	0	0	14	0	4	0	10	0	0	0	97
2018-11-26	47	0	0	0	0	34	0	7	0	29	0	0	0	92
2018-11-27	75	0	0	0	0	47	0	5	0	47	0	0	0	85
2018-11-28	99	0	0	0	0	55	0	0	0	65	0	0	0	76
2018-11-29	100	0	0	0	0	47	0	0	0	67	0	0	0	65
2018-11-30	100	0	0	0	0	38	0	0	0	68	0	0	0	54
2018-12-01	100	0	0	0	0	30	0	0	0	70	0	0	0	43
2018-12-02	100	0	0	0	0	20	0	0	0	72	0	0	0	32
2018-12-03	100	0	0	0	0	12	0	0	0	73	0	0	0	22
2018-12-04	100	0	0	0	0	3	0	0	0	75	0	0	0	14
2018-12-05	100	0	0	0	0	0	0	0	0	77	0	0	0	7
2018-12-06	100	0	0	0	0	0	0	0	0	78	0	0	0	3
2018-12-07	100	0	0	0	0	0	0	0	0	80	0	0	0	1
2018-12-08	100	0	0	0	0	0	0	0	0	82	0	0	0	0
2018-12-09	99	0	0	0	0	0	0	0	0	82	0	0	0	2
2018-12-10	74	0	0	0	0	0	0	0	0	63	0	0	0	5
2018-12-11	51	0	0	0	0	0	0	0	0	44	0	0	0	10
2018-12-12	30	0	0	0	0	0	0	0	0	26	0	0	0	17
2018-12-13	10	0	0	0	0	0	0	0	0	9	0	0	0	25
2018-12-14	0	0	0	0	0	0	0	0	0	0	19	0	0	33

Evening Chart

Evening of	12	13	14	15	16	17	18	19	20	21	22	23
2018-10-18	M										gO	
2018-10-19		M									gO	
2018-10-20			M								gO	
2018-10-21				M							gO	
2018-10-22					M						gO	
2018-10-23						M					gO	
2018-10-24							M				gO	
2018-10-25								M		O	g	
2018-10-26									M	O	g	
2018-10-27										MO	g	
2018-10-28										O	Mg	
2018-10-29										O	g	M
2018-10-30										O	g	
2018-10-31										O	g	
2018-11-01										O	g	
2018-11-02		m								gO		
2018-11-03			m							gO		
2018-11-04				m						gO		
2018-11-05					m					gO		
2018-11-06						m				gO		
2018-11-07							m			gO		
2018-11-08								m		gO		
2018-11-09									mO	g		
2018-11-10									O	mg		
2018-11-11									O	g	m	
2018-11-12									O	g		m
2018-11-13									O	g		m
2018-11-14									O	g		
2018-11-15									O	g		
2018-11-16	M								O	g		
2018-11-17		M							gO			
2018-11-18			M						gO			
2018-11-19			M						gO			
2018-11-20				M					gO			
2018-11-21					M				gO			
2018-11-22						M			gO			
2018-11-23								M	gO			
2018-11-24								O	Mg			
2018-11-25								O	g	M		
2018-11-26								O	g		M	
2018-11-27								O	g			M
2018-11-28								O	g			M
2018-11-29								O	g			
2018-11-30	m							O	g			
2018-12-01		m						O	g			
2018-12-02			m					gO				
2018-12-03				m				gO				
2018-12-04					m			gO				
2018-12-05						m		gO				
2018-12-06							m	gO				
2018-12-07								mg				
2018-12-08								gO	m			
2018-12-09							O	g	m			
2018-12-10							O	g		m		
2018-12-11							O	g			m	
2018-12-12							O	g				m
2018-12-13							O	g				m
2018-12-14							O	g				

MORNING

Morning Chart

Morning of	0	1	2	3	4	5	6	7	8	9	10	11
2018-10-19			m						G	o		
2018-10-20				m					Go			
2018-10-21				m					Go			
2018-10-22					m				Go			
2018-10-23					m				Go			
2018-10-24						m			Go			
2018-10-25						m			Go			
2018-10-26							m	G	o			
2018-10-27								mG	o			
2018-10-28								G	mo			
2018-10-29								G	mo			
2018-10-30								G	o	m		
2018-10-31	M							G	o		m	
2018-11-01		M						G	o			m
2018-11-02		M						G	o			
2018-11-03			M					G	o			
2018-11-04				M				Go				
2018-11-05				M				Go				
2018-11-06					M			Go				
2018-11-07						M		Go				
2018-11-08						M		Go				
2018-11-09							M	Go				
2018-11-10							G	Mo				
2018-11-11							G	Mo				
2018-11-12							G	o	M			
2018-11-13							G	o		M		
2018-11-14							G	o			M	
2018-11-15	m						G	o				M
2018-11-16		m					G	o				
2018-11-17		m					G	o				
2018-11-18			m				G	o				
2018-11-19			m				Go					
2018-11-20				m			Go					
2018-11-21				m			Go					
2018-11-22					m		Go					
2018-11-23						m	Go					
2018-11-24						m	Go					
2018-11-25						G	mo					
2018-11-26						G	o	m				
2018-11-27						G	o		m			
2018-11-28						G	o			m		
2018-11-29						G	o				m	
2018-11-30	M					G	o					
2018-12-01		M				G	o					
2018-12-02		M				G	o					
2018-12-03			M			G	o					
2018-12-04				M		Go						
2018-12-05				M		Go						
2018-12-06					M	Go						
2018-12-07						MG						
2018-12-08						MG						
2018-12-09						Go	M					
2018-12-10					G	o		M				
2018-12-11					G	o			M			
2018-12-12					G	o				M		
2018-12-13					G	o					M	
2018-12-14					G	o					M	
2018-12-15	m				G	o						M

Moon: Percentage Illumination	Orion Setting: No Moon Illum	Orion Setting: Optimum Moon	Orion High: No Moon Illum	Orion High: Optimum Moon	Orion Rising: No Moon Illum	Orion Rising: Optimum Moon	Core Setting: No Moon Illum	Core Setting: Optimum Moon	Core High: No Moon Illum	Core High: Optimum Moon	Core Rising: No Moon Illum	Core Rising: Optimum Moon	Dark Sky: No Moon Illum	Date (Morning of)
68	0	0	24	0	0	0	0	0	0	0	0	0	24	2018-10-19
76	0	0	9	0	0	0	0	0	0	0	0	0	9	2018-10-20
84	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-21
90	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-22
95	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-23
99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-24
100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-25
99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-26
95	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-27
90	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-28
82	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-10-29
72	0	0	8	0	0	0	0	0	0	0	0	0	8	2018-10-30
62	0	0	31	2	0	0	0	0	0	0	0	0	31	2018-10-31
50	0	0	51	4	0	0	0	0	0	0	0	0	51	2018-11-01
39	0	0	70	7	0	0	0	0	0	0	0	0	70	2018-11-02
28	0	0	87	2	0	0	0	0	0	0	0	0	87	2018-11-03
19	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-04
11	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-05
5	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-06
1	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-07
0	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-08
1	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-09
4	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-10
9	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-11
16	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-12
24	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-11-13
32	0	0	87	0	0	0	0	0	0	0	0	0	87	2018-11-14
41	0	0	69	0	0	0	0	0	0	0	0	0	69	2018-11-15
51	0	0	53	0	0	0	0	0	0	0	0	0	53	2018-11-16
60	0	0	38	0	0	0	0	0	0	0	0	0	38	2018-11-17
69	0	0	22	0	0	0	0	0	0	0	0	0	22	2018-11-18
78	0	0	7	0	0	0	0	0	0	0	0	0	7	2018-11-19
86	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-20
92	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-21
97	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-22
99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-23
100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-24
97	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-25
92	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-26
85	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-27
76	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-11-28
65	0	0	20	1	0	0	0	0	0	0	0	0	20	2018-11-29
54	0	0	39	2	0	0	0	0	0	0	0	0	39	2018-11-30
43	0	0	57	0	0	0	0	0	0	0	0	0	57	2018-12-01
32	0	0	74	0	0	0	0	0	0	0	0	0	74	2018-12-02
22	0	0	92	0	0	0	0	0	0	0	0	0	92	2018-12-03
14	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-04
7	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-05
3	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-06
1	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-07
0	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-08
2	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-09
5	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-10
10	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-11
17	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-12
25	0	0	100	0	0	0	0	0	0	0	0	0	100	2018-12-13
33	0	0	93	0	0	0	0	0	0	0	0	0	93	2018-12-14
42	0	0	78	0	0	0	0	0	0	0	0	0	78	2018-12-15

REFERENCE TIMES

Evening of	Sun: Rise	Sun: Set	Astro Dark: Start	Astro Dark: End	Moon: Rise	Moon: Set	Galaxy Core: Rise	Galaxy Core: Zenith	Galaxy Core: Set	Orion: Rise	Orion: Zenith	Orion: Set
2018-10-18	05:33	18:30	19:55	04:08	12:35	02:31	08:26	15:44	22:59	22:25	04:04	09:01
2018-10-19	05:32	18:31	19:56	04:06	13:28	03:08	08:22	15:40	22:55	22:21	04:00	08:57
2018-10-20	05:31	18:32	19:57	04:05	14:23	03:43	08:18	15:36	22:51	22:17	03:56	08:53
2018-10-21	05:30	18:32	19:58	04:04	15:18	04:16	08:14	15:32	22:47	22:13	03:52	08:49
2018-10-22	05:28	18:33	19:59	04:02	16:14	04:48	08:10	15:28	22:43	22:09	03:48	08:45
2018-10-23	05:27	18:34	20:00	04:01	17:12	05:22	08:06	15:24	22:39	22:05	03:44	08:41
2018-10-24	05:26	18:35	20:02	04:00	18:11	05:57	08:02	15:20	22:35	22:01	03:40	08:37
2018-10-25	05:25	18:36	20:03	03:58	19:11	06:34	07:58	15:16	22:31	21:57	03:36	08:33
2018-10-26	05:24	18:36	20:04	03:57	20:14	07:16	07:54	15:12	22:27	21:53	03:32	08:29
2018-10-27	05:23	18:37	20:05	03:56	21:17	08:03	07:50	15:08	22:23	21:49	03:28	08:25
2018-10-28	05:22	18:38	20:06	03:55	22:21	08:55	07:46	15:04	22:19	21:45	03:24	08:21
2018-10-29	05:21	18:39	20:07	03:53	23:22	09:53	07:42	15:00	22:15	21:41	03:20	08:17
2018-10-30	05:20	18:40	20:08	03:52	00:19	10:55	07:38	14:56	22:11	21:37	03:16	08:13
2018-10-31	05:19	18:41	20:09	03:51	01:11	11:59	07:34	14:52	22:07	21:33	03:12	08:09
2018-11-01	05:19	18:41	20:10	03:50	01:58	----	07:30	14:48	22:03	21:29	03:08	08:05
2018-11-02	05:18	18:42	20:11	03:49	02:40	13:05	07:26	14:44	21:59	21:25	03:04	08:01
2018-11-03	05:17	18:43	20:12	03:47	03:19	14:10	07:22	14:40	21:55	21:21	03:00	07:57
2018-11-04	05:16	18:44	20:14	03:46	03:56	15:14	07:18	14:36	21:51	21:17	02:56	07:53
2018-11-05	05:15	18:45	20:15	03:45	04:32	16:17	07:14	14:32	21:47	21:13	02:52	07:49
2018-11-06	05:14	18:46	20:16	03:44	05:08	17:20	07:10	14:28	21:43	21:09	02:48	07:45
2018-11-07	05:14	18:47	20:17	03:43	05:46	18:21	07:06	14:24	21:39	21:05	02:44	07:41
2018-11-08	05:13	18:47	20:18	03:42	06:25	19:22	07:02	14:20	21:35	21:01	02:40	07:37
2018-11-09	05:12	18:48	20:20	03:41	07:08	20:21	06:58	14:16	21:31	20:57	02:36	07:33
2018-11-10	05:12	18:49	20:21	03:40	07:53	21:18	06:54	14:12	21:27	20:53	02:32	07:29
2018-11-11	05:11	18:50	20:22	03:39	08:42	22:12	06:50	14:08	21:23	20:49	02:28	07:25
2018-11-12	05:10	18:51	20:23	03:38	09:32	23:02	06:46	14:04	21:19	20:45	02:24	07:21
2018-11-13	05:10	18:52	20:24	03:37	10:24	23:47	06:42	14:00	21:15	20:41	02:20	07:17
2018-11-14	05:09	18:53	20:26	03:36	11:18	00:29	06:38	13:56	21:11	20:37	02:16	07:13
2018-11-15	05:08	18:54	20:27	03:35	----	01:06	06:34	13:52	21:07	20:33	02:12	07:09
2018-11-16	05:08	18:55	20:28	03:35	12:12	01:41	06:30	13:48	21:03	20:29	02:08	07:05
2018-11-17	05:07	18:55	20:29	03:34	13:06	02:14	06:26	13:44	20:59	20:25	02:04	07:01
2018-11-18	05:07	18:56	20:30	03:33	14:01	02:47	06:22	13:40	20:55	20:21	02:00	06:57
2018-11-19	05:06	18:57	20:32	03:32	14:57	03:19	06:18	13:36	20:51	20:17	01:56	06:53
2018-11-20	05:06	18:58	20:33	03:31	15:55	03:53	06:14	13:32	20:47	20:13	01:52	06:49
2018-11-21	05:06	18:59	20:34	03:31	16:56	04:29	06:10	13:28	20:43	20:09	01:48	06:45
2018-11-22	05:05	19:00	20:35	03:30	17:58	05:09	06:06	13:24	20:39	20:05	01:44	06:41
2018-11-23	05:05	19:01	20:36	03:29	19:03	05:55	06:02	13:20	20:35	20:01	01:40	06:37
2018-11-24	05:05	19:02	20:38	03:29	20:09	06:46	05:58	13:16	20:31	19:57	01:36	06:33
2018-11-25	05:04	19:03	20:39	03:28	21:13	07:44	05:54	13:12	20:27	19:53	01:32	06:29
2018-11-26	05:04	19:04	20:40	03:28	22:14	08:46	05:50	13:08	20:23	19:49	01:28	06:25
2018-11-27	05:04	19:04	20:41	03:27	23:09	09:52	05:46	13:04	20:19	19:45	01:24	06:21
2018-11-28	05:04	19:05	20:42	03:27	23:58	10:58	05:42	13:00	20:15	19:41	01:20	06:17
2018-11-29	05:04	19:06	20:43	03:26	00:42	----	05:38	12:56	20:11	19:37	01:16	06:13
2018-11-30	05:03	19:07	20:44	03:26	01:21	12:03	05:34	12:52	20:07	19:33	01:12	06:09
2018-12-01	05:03	19:08	20:45	03:26	01:58	13:07	05:30	12:48	20:03	19:29	01:08	06:05
2018-12-02	05:03	19:09	20:47	03:25	02:33	14:09	05:26	12:44	19:59	19:25	01:04	06:01
2018-12-03	05:03	19:09	20:48	03:25	03:08	15:10	05:22	12:40	19:55	19:21	01:00	05:57
2018-12-04	05:03	19:10	20:49	03:25	03:44	16:11	05:18	12:36	19:51	19:17	00:56	05:53
2018-12-05	05:03	19:11	20:50	03:25	04:22	17:11	05:14	12:32	19:47	19:13	00:52	05:49
2018-12-06	05:03	19:12	20:51	03:25	05:02	18:10	05:10	12:28	19:43	19:09	00:48	05:45
2018-12-07	05:03	19:13	20:52	03:24	05:46	19:08	05:06	12:24	19:39	19:05	00:44	05:41
2018-12-08	05:03	19:13	20:53	03:24	06:33	20:03	05:02	12:20	19:35	19:01	00:40	05:37
2018-12-09	05:04	19:14	20:53	03:24	07:23	20:55	04:58	12:16	19:31	18:57	00:36	05:33
2018-12-10	05:04	19:15	20:54	03:24	08:15	21:42	04:54	12:12	19:27	18:53	00:32	05:29
2018-12-11	05:04	19:16	20:55	03:24	09:08	22:25	04:50	12:08	19:23	18:49	00:28	05:25
2018-12-12	05:04	19:16	20:56	03:25	10:02	23:05	04:46	12:04	19:19	18:45	00:24	05:21
2018-12-13	05:05	19:17	20:57	03:25	10:56	23:40	04:42	12:00	19:15	18:41	00:20	05:17
2018-12-14	05:05	19:18	20:58	03:25	11:50	00:14	04:38	11:52	19:11	18:37	00:16	05:13

INTERNAL CODING

Evening of	Evening Day Code: Weekend	Evening Day Code: Public Holiday	Morning Day Code: Weekend	Morning Day Code: Public Holiday
2018-10-18	4	0	5	0
2018-10-19	5	0	6	0
2018-10-20	6	0	7	0
2018-10-21	7	0	1	0
2018-10-22	1	0	2	0
2018-10-23	2	0	3	0
2018-10-24	3	0	4	0
2018-10-25	4	0	5	0
2018-10-26	5	0	6	0
2018-10-27	6	0	7	0
2018-10-28	7	0	1	0
2018-10-29	1	0	2	0
2018-10-30	2	0	3	0
2018-10-31	3	0	4	0
2018-11-01	4	0	5	0
2018-11-02	5	0	6	0
2018-11-03	6	0	7	0
2018-11-04	7	0	1	0
2018-11-05	1	0	2	0
2018-11-06	2	0	3	0
2018-11-07	3	0	4	0
2018-11-08	4	0	5	0
2018-11-09	5	0	6	0
2018-11-10	6	0	7	0
2018-11-11	7	0	1	0
2018-11-12	1	0	2	0
2018-11-13	2	0	3	0
2018-11-14	3	0	4	0
2018-11-15	4	0	5	0
2018-11-16	5	0	6	0
2018-11-17	6	0	7	0
2018-11-18	7	0	1	0
2018-11-19	1	0	2	0
2018-11-20	2	0	3	0
2018-11-21	3	0	4	0
2018-11-22	4	0	5	0
2018-11-23	5	0	6	0
2018-11-24	6	0	7	0
2018-11-25	7	0	1	0
2018-11-26	1	0	2	0
2018-11-27	2	0	3	0
2018-11-28	3	0	4	0
2018-11-29	4	0	5	0
2018-11-30	5	0	6	0
2018-12-01	6	0	7	0
2018-12-02	7	0	1	0
2018-12-03	1	0	2	0
2018-12-04	2	0	3	0
2018-12-05	3	0	4	0
2018-12-06	4	0	5	0
2018-12-07	5	0	6	0
2018-12-08	6	0	7	0
2018-12-09	7	0	1	0
2018-12-10	1	0	2	0
2018-12-11	2	0	3	0
2018-12-12	3	0	4	0
2018-12-13	4	0	5	0
2018-12-14	5	0	6	0

GALAXY CORE AND ORION CONSTELLATION CALENDAR FOR NIGHTSCAPE PHOTOGRAPHY

Location: Perth (Lat: 31 57', Long: 115 51')
From: 2018-03-01 Day Calc 0 Day Offset 59

Legend: M = Moon Rising m = Moon Setting G = Galaxy Rising g = Galaxy Setting O = Orion Rising o = Orion Setting

WILLIAM VRBASSO STELLAR AUSTRALIS

Version: 0.4 Improved optimum moon illumination calculation.

EVENING

Date	Dark Sky	Core Rising		Core High		Core Setting		Orion Rising		Orion High		Orion Setting		Moon	Evening Chart
Evening of	No Moon Illum	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	Percentage Illumination	12 13 14 15 16 17 18 19 20 21 22 23
2018-12-15	0	0	0	0	0	0	0	0	0	0	8	0	0	42	O g
2018-12-16	0	0	0	0	0	0	0	0	0	0	6	0	0	52	M O g
2018-12-17	0	0	0	0	0	0	0	0	0	0	4	0	0	62	M gO
2018-12-18	0	0	0	0	0	0	0	0	0	0	2	0	0	71	M gO
2018-12-19	0	0	0	0	0	0	0	0	0	0	0	0	0	80	M gO
2018-12-20	0	0	0	0	0	0	0	0	0	0	0	0	0	88	M gO
2018-12-21	0	0	0	0	0	0	0	0	0	0	0	0	0	94	M gO
2018-12-22	0	0	0	0	0	0	0	0	0	0	0	0	0	98	Mg
2018-12-23	0	0	0	0	0	0	0	0	0	0	0	0	0	100	gO M
2018-12-24	0	0	0	0	0	0	0	0	0	0	0	0	0	99	O g M
2018-12-25	27	0	0	0	0	0	0	0	0	27	0	0	0	95	O g M
2018-12-26	55	0	0	0	0	0	0	0	0	55	0	0	0	88	O g M
2018-12-27	79	0	0	0	0	0	0	0	0	79	0	0	0	79	O g M
2018-12-28	100	0	0	0	0	0	0	0	0	100	0	0	0	69	O g
2018-12-29	100	0	0	0	0	0	0	0	0	100	0	0	0	58	m O g
2018-12-30	100	0	0	0	0	0	0	0	0	100	0	0	0	47	m O g
2018-12-31	100	0	0	0	0	0	0	0	0	100	0	0	0	36	m O g
2019-01-01	100	0	0	0	0	0	0	0	0	100	0	0	0	27	m gO

MORNING

Morning Chart												Moon	Orion Setting		Orion High		Orion Rising		Core Setting		Core High		Core Rising		Dark Sky	Date
0	1	2	3	4	5	6	7	8	9	10	11	Percentage Illumination	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Optimum Moon	No Moon Illum	Morning of
m			G	o								52	0	0	62	0	0	0	0	0	0	0	0	0	62	2018-12-16
	m		G	o								62	0	0	47	0	0	0	0	0	0	0	0	0	47	2018-12-17
	m		G	o								71	0	0	31	0	0	0	0	0	0	0	0	0	31	2018-12-18
		m	G	o								80	0	0	12	0	0	0	0	0	0	0	0	0	12	2018-12-19
			m	Go								88	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-20
			m	Go								94	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-21
				mG								98	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-22
				Go	m							100	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-23
				Go		m						99	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-24
			G	o			m					95	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-25
			G	o				m				88	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-26
			G	o					m			79	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-27
			G	o						m		69	0	0	0	0	0	0	0	0	0	0	0	0	0	2018-12-28
M			G	o								58	0	0	14	0	0	0	0	0	0	0	0	0	17	2018-12-29
M			G	o								47	0	0	28	0	0	0	0	0	0	0	0	0	33	2018-12-30
	M		G	o								36	0	0	41	0	0	0	0	0	0	0	0	0	50	2018-12-31
	M		G	o								27	0	0	53	0	0	0	0	0	0	0	0	0	66	2019-01-01
		M	G	o								18	0	0	66	0	0	0	0	0	0	0	7	0	84	2019-01-02

REFERENCE TIMES

Sun		Astro Dark		Moon		Galaxy Core			Orion		
Rise	Set	Start	End	Rise	Set	Rise	Zenith	Set	Rise	Zenith	Set
05:05	19:18	20:58	03:25	----	00:46	04:34	11:48	19:07	18:33	00:12	05:09
05:05	19:19	20:59	03:25	12:44	01:17	04:30	11:44	19:03	18:29	00:08	05:05
05:06	19:20	21:00	03:26	13:40	01:49	04:26	11:40	18:59	18:25	00:04	05:01
05:06	19:20	21:00	03:26	14:38	02:23	04:22	11:36	18:55	18:21	00:00	04:57
05:07	19:21	21:01	03:26	15:38	03:01	04:18	11:32	18:51	18:17	----	04:53
05:07	19:21	21:02	03:27	16:42	03:43	04:14	11:28	18:47	18:13	23:56	04:49
05:08	19:22	21:02	03:27	17:47	04:32	04:10	11:24	18:43	18:09	23:52	04:45
05:08	19:22	21:03	03:28	18:54	05:27	04:06	11:20	18:39	18:05	23:48	04:41
05:09	19:23	21:03	03:28	19:58	06:29	04:02	11:16	18:35	18:01	23:44	04:37
05:09	19:23	21:03	03:29	20:58	07:36	03:58	11:12	18:31	17:57	23:40	04:33
05:10	19:24	21:04	03:30	21:52	08:45	03:54	11:08	18:27	17:53	23:36	04:29
05:10	19:24	21:04	03:30	22:40	09:53	03:50	11:04	18:23	17:49	23:32	04:25
05:11	19:24	21:04	03:31	23:22	10:59	03:46	11:00	18:19	17:45	23:28	04:21
05:12	19:25	21:05	03:32	00:00	----	03:42	10:56	18:15	17:41	23:24	04:17
05:12	19:25	21:05	03:33	00:36	12:03	03:38	10:52	18:11	17:37	23:20	04:13
05:13	19:25	21:05	03:33	01:11	13:05	03:34	10:48	18:07	17:33	23:16	04:09
05:14	19:26	21:05	03:34	01:46	14:05	03:30	10:44	18:03	17:29	23:12	04:05
05:14	19:26	21:05	03:35	02:22	15:04	03:26	10:40	17:59	17:25	23:08	04:01

INTERNAL CODING

Evening Day Code		Morning Day Code	
Weekend	Public Holiday	Weekend	Public Holiday
6	0	7	0
7	0	1	0
1	0	2	0
2	0	3	0
3	0	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	1
2	1	3	1
3	1	4	0
4	0	5	0
5	0	6	0
6	0	7	0
7	0	1	0
1	0	2	1
2	1	3	0

Notes:
1. Time and dates sourced from United States Naval Observatory.
2. Calculations for optimum illuminations are approximate and should be confirmed with planetarium software.
3. You may share this sheet freely, provided you acknowledge and reference the author and do not alter this sheet in any way.
4. The author makes no guarantee on the accuracy of this table. Use at your own risk.
5. The author, however, wishes you all the best with your night photography and hopes you find this useful.

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