

Location:	Piazz Smyth Observatory	Beginning:	01/05/2018 12:00a
Latitude:	52°08'40" N	Ending:	31/05/2018 11:59p
Longitude:	00°27'48" W	LT/UT:	LT
Time Zone:	UTC	Days to Skip:	1
Objects:	Moon	Apply Horizon:	No

Moon
Tue 01/05 2018
Rise: 08:59p
Az: 125°.0
Set: 05:43a
Az: 248°.3
Transit: 12:51a
Alt: 24°.2

12:00a
RA: 15h23m52s
Alt: +22°.6
Ph: 98.8%
SA2000: 14
HB: B-8, C-63
Dist (Earth): 392978km
Decl: -14°21'32"
Az: 166°.8
Mag:
U2000: II, 289
U2000.2: II, 128
Dist (Sun):
Con: Lib
Size: 30'.60
MSA: II, 812
PSA: 57
Motion:
Phase angle: 12°.34
PA of N pole: +14°.24
PA of bright limb: 81°.57
Librations (Lat, Lng)
Optical: -6°.414, +4°.266
Physical: +0°.008, -0°.023
Total: -6°.41, +4°.24

Wed 02/05 2018
Rise: 10:03p
Az: 130°.2
Set: 06:14a
Az: 243°.3
Transit: 01:39a
Alt: 21°.1

12:00a
RA: 16h14m41s
Alt: +17°.3
Ph: 95.9%
SA2000: 15
HB: B-8, C-63
Dist (Earth): 396506km
Decl: -17°23'54"
Az: 155°.7
Mag:
U2000: II, 290
U2000.2: II, 127
Dist (Sun):
Con: Sco
Size: 30'.29
MSA: III, 1374
PSA: 57
Motion: 12°.53
Phase angle: 23°.33
PA of N pole: +9°.61
PA of bright limb: 89°.64
Librations (Lat, Lng)
Optical: -5°.972, +3°.687
Physical: +0°.008, -0°.023
Total: -5°.96, +3°.66

Thu 03/05 2018
Rise: 11:01p
Az: 133°.6
Set: 06:49a
Az: 239°.7
Transit: 02:28a
Alt: 18°.9

12:00a
RA: 17h05m55s
Alt: +11°.7
Ph: 91.2%
SA2000: 22
HB: B-8, C-62
Dist (Earth): 399658km
Decl: -19°37'05"
Az: 145°.5
Mag:
U2000: II, 337
U2000.2: II, 146
Dist (Sun):
Con: Oph
Size: 30'.00
MSA: III, 1371
PSA: 56
Motion: 12°.30
Phase angle: 34°.44
PA of N pole: +4°.54
PA of bright limb: 89°.63
Librations (Lat, Lng)
Optical: -5°.257, +2°.852
Physical: +0°.008, -0°.024
Total: -5°.25, +2°.83

Fri 04/05 2018
Rise: 11:53p
Az: 135°.2
Set: 07:30a
Az: 237°.8
Transit: 03:17a
Alt: 17°.6

12:00a
RA: 17h57m20s
Alt: +5°.8
Ph: 85.1%
Decl: -20°56'20"
Az: 135°.8
Mag:
Con: Sgr
Size: 29'.76

Location:	Piazz Smyth Observatory	Beginning:	01/05/2018 12:00a
Latitude:	52°08'40" N	Ending:	31/05/2018 11:59p
Longitude:	00°27'48" W	LT/UT:	LT
Time Zone:	UTC	Days to Skip:	1
Objects:	Moon	Apply Horizon:	No

SA2000: 22	U2000: II, 339	MSA: III, 1369
HB: B-8, C-62	U2000.2: II, 146	PSA: 56
Dist (Earth): 402185km	Dist (Sun):	Motion: 12°.11
Phase angle:	45°.45	
PA of N pole:	-0°.73	
PA of bright limb:	87°.21	
Librations (Lat, Lng)		
Optical:	-4°.313, +1°.786	
Physical:	+0°.008, -0°.025	
Total:	-4°.31, +1°.76	

Sat 05/05 2018	Rise: None Az: (null)	Set: 08:18a Az: 237°.7	Transit: 04:05a Alt: 17°.3
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12:00a	RA: 18h48m36s Alt: +0°.0 Ph: 77.7%	Decl: -21°19'40" Az: 126°.4 Mag:	Con: Sgr Size: 29'.59
	SA2000: 22 HB: B-6, C-61 Dist (Earth): 403852km	U2000: II, 340 U2000.2: II, 145 Dist (Sun):	MSA: III, 1366 PSA: 67 Motion: 11°.95
	Phase angle:	56°.34	
	PA of N pole:	-5°.96	
	PA of bright limb:	83°.78	
	Librations (Lat, Lng)		
	Optical:	-3°.191, +0°.537	
	Physical:	+0°.008, -0°.026	
	Total:	-3°.18, +0°.51	

Sun 06/05 2018	Rise: 12:38a Az: 124°.3	Set: 09:11a Az: 239°.3	Transit: 04:53a Alt: 18°.0
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12:00a	RA: 19h39m21s Alt: -5°.6 Ph: 69.4%	Decl: -20°47'37" Az: 117°.0 Mag:	Con: Sgr Size: 29'.50
	SA2000: 22 HB: B-6, C-60 Dist (Earth): 404459km	U2000: II, 342 U2000.2: II, 144 Dist (Sun):	MSA: III, 1364 PSA: 66 Motion: 11°.86
	Phase angle:	67°.16	
	PA of N pole:	-10°.90	
	PA of bright limb:	79°.97	
	Librations (Lat, Lng)		
	Optical:	-1°.939, -0°.829	
	Physical:	+0°.008, -0°.027	
	Total:	-1°.93, -0°.86	

Mon 07/05 2018	Rise: 01:15a Az: 121°.9	Set: 10:10a Az: 242°.7	Transit: 05:41a Alt: 19°.6
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12:00a	RA: 20h29m21s Alt: -11°.0 Ph: 60.4%	Decl: -19°22'52" Az: 107°.4 Mag:	Con: Cap Size: 29'.50
	SA2000: 23 HB: B-6, C-60 Dist (Earth): 403873km	U2000: II, 343 U2000.2: II, 144 Dist (Sun):	MSA: III, 1361 PSA: 66 Motion: 11°.85
	Phase angle:	77°.98	
	PA of N pole:	-15°.32	
	PA of bright limb:	76°.14	

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Time Zone:	UTC	Days to Skip:	1
Objects:	Moon	Apply Horizon:	No

	Librations (Lat, Lng)		
	Optical:	-0°.605, -2°.232	
	Physical:	+0°.008, -0°.028	
	Total:	-0°.60, -2°.26	
Tue 08/05 2018	Rise: 01:47a Az: 118°.1	Set: 11:13a Az: 247°.4	Transit: 06:27a Alt: 22°.1
12:00a	RA: 21h18m27s Alt: -16°.1 Ph: 51.0% SA2000: 16 HB: B-6, C-59 Dist (Earth): 402037km	Decl: -17°09'38" Az: 97°.4 Mag: U2000: II, 300 U2000.2: II, 123 Dist (Sun):	Con: Cap Size: 29'.60 MSA: III, 1359 PSA: 77 Motion: 11°.91
	Phase angle:	88°.87	
	PA of N pole:	-19°.03	
	PA of bright limb:	72°.53	
	Librations (Lat, Lng)		
	Optical:	+0°.763, -3°.579	
	Physical:	+0°.009, -0°.029	
	Total:	+0°.77, -3°.61	
Wed 09/05 2018	Rise: 02:15a Az: 113°.1	Set: 12:19p Az: 253°.4	Transit: 07:13a Alt: 25°.3
12:00a	RA: 22h06m48s Alt: -20°.6 Ph: 41.4% SA2000: 17 HB: B-4, C-58 Dist (Earth): 398994km	Decl: -14°13'06" Az: 86°.8 Mag: U2000: II, 301 U2000.2: II, 123 Dist (Sun):	Con: Aqr Size: 29'.78 MSA: III, 1332 PSA: 77 Motion: 12°.05
	Phase angle:	99°.91	
	PA of N pole:	-21°.87	
	PA of bright limb:	69°.32	
	Librations (Lat, Lng)		
	Optical:	+2°.114, -4°.775	
	Physical:	+0°.009, -0°.029	
	Total:	+2°.12, -4°.80	
Thu 10/05 2018	Rise: 02:39a Az: 107°.1	Set: 01:27p Az: 260°.3	Transit: 07:58a Alt: 29°.2
12:00a	RA: 22h54m39s Alt: -24°.5 Ph: 31.9% SA2000: 17 HB: B-4, C-40 Dist (Earth): 394886km	Decl: -10°39'18" Az: 75°.3 Mag: U2000: II, 303 U2000.2: II, 122 Dist (Sun):	Con: Aqr Size: 30'.06 MSA: III, 1330 PSA: 76 Motion: 12°.28
	Phase angle:	111°.18	
	PA of N pole:	-23°.73	
	PA of bright limb:	66°.58	
	Librations (Lat, Lng)		
	Optical:	+3°.394, -5°.724	
	Physical:	+0°.010, -0°.030	
	Total:	+3°.40, -5°.75	
Fri 11/05 2018	Rise: 03:02a Az: 100°.5	Set: 02:38p Az: 268°.0	Transit: 08:44a Alt: 33°.6

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Objects:	Moon	Apply Horizon:	No

12:00a RA: 23h42m29s Decl: -06°35'10" Con: Aqr
 Alt: -27°.4 Az: 62°.8
 Ph: 22.9% Mag: Size: 30'.42
 SA2000: 17 U2000: II, 304 MSA: III, 1303
 HB: B-4, C-39 U2000.2: II, 121 PSA: 76
 Dist (Earth): 389957km Dist (Sun): Motion: 12°.58

Phase angle: 122°.76
 PA of N pole: -24°.51
 PA of bright limb: 64°.35
 Librations (Lat, Lng)
 Optical: +4°.544, -6°.341
 Physical: +0°.010, -0°.030
 Total: +4°.55, -6°.37

Sat 12/05 Rise: 03:24a Set: 03:50p Transit: 09:31a
 2018 Az: 93°.3 Az: 276°.4 Alt: 38°.3

12:00a RA: 00h30m54s Decl: -02°08'59" Con: Cet
 Alt: -29°.3 Az: 49°.4
 Ph: 14.8% Mag: Size: 30'.83
 SA2000: 17 U2000: I,II, 216 MSA: I, 269
 HB: B-4, C-39 U2000.2: I,II, 101 PSA: 7
 Dist (Earth): 384538km Dist (Sun): Motion: 12°.95

Phase angle: 134°.68
 PA of N pole: -24°.13
 PA of bright limb: 62°.51
 Librations (Lat, Lng)
 Optical: +5°.497, -6°.556
 Physical: +0°.011, -0°.030
 Total: +5°.51, -6°.59

Sun 13/05 Rise: 03:46a Set: 05:06p Transit: 10:19a
 2018 Az: 85°.9 Az: 285°.3 Alt: 43°.1

12:00a RA: 01h20m33s Decl: +02°28'52" Con: Psc
 Alt: -29°.8 Az: 35°.2
 Ph: 8.1% Mag: Size: 31'.27
 SA2000: 10 U2000: I,II, 217 MSA: I, 243
 HB: B-3, C-56 U2000.2: I,II, 120 PSA: 5
 Dist (Earth): 379034km Dist (Sun): Motion: 13°.35

Phase angle: 146°.97
 PA of N pole: -22°.55
 PA of bright limb: 60°.61
 Librations (Lat, Lng)
 Optical: +6°.183, -6°.335
 Physical: +0°.012, -0°.030
 Total: +6°.19, -6°.37

Mon 14/05 Rise: 04:11a Set: 06:24p Transit: 11:10a
 2018 Az: 78°.6 Az: 294°.2 Alt: 47°.9

12:00a RA: 02h12m08s Decl: +07°05'16" Con: Cet
 Alt: -28°.8 Az: 20°.7
 Ph: 3.2% Mag: Size: 31'.70
 SA2000: 10 U2000: I, 174 MSA: I, 240
 HB: B-13, C-55 U2000.2: I, 99 PSA: 4
 Dist (Earth): 373881km Dist (Sun): Motion: 13°.75

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Objects:	Moon	Apply Horizon:	No

	Phase angle:	159°.53	
	PA of N pole:	-19°.74	
	PA of bright limb:	56°.80	
	Librations (Lat, Lng)		
	Optical:	+6°.535, -5°.680	
	Physical:	+0°.012, -0°.029	
	Total:	+6°.55, -5°.71	
Tue 15/05 2018	Rise: 04:39a Az: 71°.7	Set: 07:43p Az: 302°.8	Transit: 12:04p Alt: 52°.1
12:00a	RA: 03h06m13s Alt: -26°.3 Ph: 0.5% SA2000: 10 HB: B-13, C-37 Dist (Earth): 369498km	Decl: +11°24'01" Az: 6°.2 Mag: U2000: I, 176 U2000.2: I, 98 Dist (Sun):	Con: Ari Size: 32'.10 MSA: I, 213 PSA: 15 Motion: 14°.12
	Phase angle:	171°.72	
	PA of N pole:	-15°.72	
	PA of bright limb:	37°.26	
	Librations (Lat, Lng)		
	Optical:	+6°.501, -4°.640	
	Physical:	+0°.013, -0°.028	
	Total:	+6°.51, -4°.67	
Wed 16/05 2018	Rise: 05:13a Az: 65°.8	Set: 09:01p Az: 310°.0	Transit: 01:01p Alt: 55°.5
12:00a	RA: 04h03m07s Alt: -22°.4 Ph: 0.5% SA2000: 11 HB: B-13, C-36 Dist (Earth): 366232km	Decl: +15°06'24" Az: 352°.1 Mag: U2000: I, 178 U2000.2: I, 98 Dist (Sun):	Con: Tau Size: 32'.41 MSA: I, 186 PSA: 15 Motion: 14°.43
	Phase angle:	171°.68	
	PA of N pole:	-10°.61	
	PA of bright limb:	292°.49	
	Librations (Lat, Lng)		
	Optical:	+6°.053, -3°.310	
	Physical:	+0°.014, -0°.027	
	Total:	+6°.07, -3°.34	
Thu 17/05 2018	Rise: 05:55a Az: 61°.6	Set: 10:13p Az: 315°.0	Transit: 02:01p Alt: 57°.7
12:00a	RA: 05h02m43s Alt: -17°.5 Ph: 3.3% SA2000: 5 HB: B-13, C-35 Dist (Earth): 364305km	Decl: +17°53'08" Az: 338°.5 Mag: U2000: I, 134 U2000.2: I, 77 Dist (Sun):	Con: Tau Size: 32'.63 MSA: I, 183 PSA: 14 Motion: 14°.63
	Phase angle:	159°.00	
	PA of N pole:	-4°.65	
	PA of bright limb:	274°.89	
	Librations (Lat, Lng)		
	Optical:	+5°.205, -1°.812	
	Physical:	+0°.014, -0°.025	

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Time Zone:	UTC	Days to Skip:	1
Objects:	Moon	Apply Horizon:	No

	Total:	+5°.22, -1°.84	
Fri 18/05 2018	Rise: 06:48a Az: 59°.7	Set: 11:16p Az: 316°.9	Transit: 03:02p Alt: 58°.5
12:00a	RA: 06h04m16s Alt: -11°.9 Ph: 8.8% SA2000: 5 HB: B-11, C-34 Dist (Earth): 363782km	Decl: +19°27'50" Az: 325°.6 Mag: U2000: I, 136 U2000.2: I, 76 Dist (Sun):	Con: Ori Size: 32'.73 MSA: I, 180 PSA: 25 Motion: 14°.71
	Phase angle: PA of N pole: PA of bright limb: Librations (Lat, Lng) Optical: Physical: Total:	145°.47 +1°.77 275°.04 +4°.008, -0°.279 +0°.014, -0°.024 +4°.02, -0°.30	
Sat 19/05 2018	Rise: 07:50a Az: 60°.5	Set: None Az: (null)	Transit: 04:03p Alt: 57°.8
12:00a	RA: 07h06m27s Alt: -5°.8 Ph: 16.6% SA2000: 5 HB: B-11, C-34 Dist (Earth): 364581km	Decl: +19°40'53" Az: 313°.1 Mag: U2000: I, 138 U2000.2: I, 76 Dist (Sun):	Con: Gem Size: 32'.72 MSA: I, 177 PSA: 25 Motion: 14°.68
	Phase angle: PA of N pole: PA of bright limb: Librations (Lat, Lng) Optical: Physical: Total:	131°.85 +8°.12 278°.47 +2°.551, +1°.173 +0°.014, -0°.021 +2°.56, +1°.15	
Sun 20/05 2018	Rise: 09:02a Az: 63°.9	Set: 12:08a Az: 302°.5	Transit: 05:01p Alt: 55°.6
12:00a	RA: 08h07m50s Alt: +0°.2 Ph: 26.3% SA2000: 6 HB: B-11, C-33 Dist (Earth): 366496km	Decl: +18°31'56" Az: 300°.9 Mag: U2000: I, 140 U2000.2: I, 75 Dist (Sun):	Con: Cnc Size: 32'.61 MSA: II, 714 PSA: 24 Motion: 14°.54
	Phase angle: PA of N pole: PA of bright limb: Librations (Lat, Lng) Optical: Physical: Total:	118°.33 +13°.86 282°.73 +0°.940, +2°.456 +0°.013, -0°.019 +0°.95, +2°.44	
Mon 21/05 2018	Rise: 10:17a Az: 69°.2	Set: 12:50a Az: 298°.5	Transit: 05:57p Alt: 52°.3
12:00a	RA: 09h07m11s Alt: +6°.0	Decl: +16°09'30" Az: 288°.8	Con: Cnc

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Objects:	Moon	Apply Horizon:	No

	Ph: 37.1%	Mag:	Size: 32'.42
	SA2000: 12	U2000: I, 187	MSA: II, 711
	HB: B-11, C-32	U2000.2: I, 93	PSA: 35
	Dist (Earth): 369256km	Dist (Sun):	Motion: 14°.34
	Phase angle:	105°.00	
	PA of N pole:	+18°.54	
	PA of bright limb:	286°.88	
	Librations (Lat, Lng)		
	Optical:	-0°.708, +3°.521	
	Physical:	+0°.013, -0°.018	
	Total:	-0°.70, +3°.50	
Tue 22/05 2018	Rise: 11:34a Az: 75°.9	Set: 01:23a Az: 292°.7	Transit: 06:49p Alt: 48°.3
12:00a	RA: 10h03m55s Alt: +11°.2 Ph: 48.3%	Decl: +12°47'57" Az: 276°.5 Mag:	Con: Leo Size: 32'.18
	SA2000: 13 HB: B-9, C-31 Dist (Earth): 372576km	U2000: I, 189 U2000.2: I, 93 Dist (Sun):	MSA: II, 732 PSA: 35 Motion: 14°.09
	Phase angle:	91°.91	
	PA of N pole:	+21°.92	
	PA of bright limb:	290°.42	
	Librations (Lat, Lng)		
	Optical:	-2°.287, +4°.349	
	Physical:	+0°.012, -0°.016	
	Total:	-2°.28, +4°.33	
Wed 23/05 2018	Rise: 12:50p Az: 83°.5	Set: 01:51a Az: 285°.8	Transit: 07:39p Alt: 43°.7
12:00a	RA: 10h57m59s Alt: +15°.7 Ph: 59.5%	Decl: +08°44'04" Az: 264°.0 Mag:	Con: Leo Size: 31'.91
	SA2000: 13 HB: B-9, C-49 Dist (Earth): 376204km	U2000: I, 191 U2000.2: I, 92 Dist (Sun):	MSA: II, 729 PSA: 34 Motion: 13°.82
	Phase angle:	79°.10	
	PA of N pole:	+23°.88	
	PA of bright limb:	293°.17	
	Librations (Lat, Lng)		
	Optical:	-3°.705, +4°.943	
	Physical:	+0°.012, -0°.014	
	Total:	-3°.69, +4°.93	
Thu 24/05 2018	Rise: 02:04p Az: 91°.5	Set: 02:15a Az: 278°.4	Transit: 08:27p Alt: 38°.9
12:00a	RA: 11h49m49s Alt: +19°.3 Ph: 69.9%	Decl: +04°14'25" Az: 251°.2 Mag:	Con: Vir Size: 31'.63
	SA2000: 13 HB: B-9, C-48 Dist (Earth): 379945km	U2000: I,II, 237 U2000.2: I,II, 111 Dist (Sun):	MSA: II, 751 PSA: 34 Motion: 13°.56
	Phase angle:	66°.55	
	PA of N pole:	+24°.47	

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Objects:	Moon	Apply Horizon:	No

	PA of bright limb:	295°.10	
	Librations (Lat, Lng)		
	Optical:	-4°.889, +5°.319	
	Physical:	+0°.011, -0°.013	
	Total:	-4°.88, +5°.31	
Fri 25/05 2018	Rise: 03:17p Az: 99°.7	Set: 02:37a Az: 270°.8	Transit: 09:14p Alt: 34°.1
12:00a	RA: 12h40m05s Alt: +21°.8 Ph: 79.2% SA2000: 14 HB: B-9, C-47 Dist (Earth): 383667km	Decl: -00°25'45" Az: 238°.1 Mag: U2000: I,II, 239 U2000.2: I,II, 110 Dist (Sun):	Con: Vir Size: 31'.34 MSA: II, 772 PSA: 45 Motion: 13°.32
	Phase angle:	54°.26	
	PA of N pole:	+23°.79	
	PA of bright limb:	296°.29	
	Librations (Lat, Lng)		
	Optical:	-5°.784, +5°.488	
	Physical:	+0°.011, -0°.013	
	Total:	-5°.77, +5°.48	
Sat 26/05 2018	Rise: 04:28p Az: 107°.8	Set: 02:59a Az: 263°.3	Transit: 10:00p Alt: 29°.6
12:00a	RA: 13h29m29s Alt: +23°.2 Ph: 87.0% SA2000: 14 HB: B-10, C-47 Dist (Earth): 387291km	Decl: -05°02'44" Az: 225°.0 Mag: U2000: I,II, 240 U2000.2: I,II, 110 Dist (Sun):	Con: Vir Size: 31'.06 MSA: II, 794 PSA: 46 Motion: 13°.09
	Phase angle:	42°.22	
	PA of N pole:	+21°.96	
	PA of bright limb:	296°.98	
	Librations (Lat, Lng)		
	Optical:	-6°.359, +5°.460	
	Physical:	+0°.010, -0°.012	
	Total:	-6°.35, +5°.45	
Sun 27/05 2018	Rise: 05:38p Az: 115°.4	Set: 03:21a Az: 256°.2	Transit: 10:47p Alt: 25°.6
12:00a	RA: 14h18m40s Alt: +23°.5 Ph: 93.1% SA2000: 14 HB: B-8, C-46 Dist (Earth): 390772km	Decl: -09°24'08" Az: 211°.8 Mag: U2000: II, 287 U2000.2: II, 129 Dist (Sun):	Con: Vir Size: 30'.78 MSA: II, 792 PSA: 46 Motion: 12°.87
	Phase angle:	30°.44	
	PA of N pole:	+19°.13	
	PA of bright limb:	297°.74	
	Librations (Lat, Lng)		
	Optical:	-6°.597, +5°.237	
	Physical:	+0°.010, -0°.012	
	Total:	-6°.59, +5°.22	
Mon 28/05	Rise: 06:47p	Set: 03:46a	Transit: 11:34p

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Latitude:	52°08'40" N		Ending:	31/05/2018 11:59p
Longitude:	00°27'48" W		LT/UT:	LT
Time Zone:	UTC		Days to Skip:	1
Objects:	Moon		Apply Horizon:	No
2018	Az: 122°.3	Az: 249°.8	Alt: 22°.2	
12:00a	RA: 15h08m10s Alt: +22°.7 Ph: 97.3% SA2000: 14 HB: B-8, C-64 Dist (Earth): 394073km	Decl: -13°18'38" Az: 199°.0 Mag: U2000: II, 288 U2000.2: II, 128 Dist (Sun):	Con: Lib Size: 30'.52 MSA: II, 813 PSA: 57 Motion: 12°.67	
	Phase angle: PA of N pole: PA of bright limb: Librations (Lat, Lng)	18°.96 +15°.42 300°.38		
	Optical: Physical: Total:	-6°.503, +4°.815 +0°.010, -0°.012 -6°.49, +4°.80		
Tue 29/05 2018	Rise: 07:52p Az: 128°.0	Set: 04:14a Az: 244°.3	Transit: None Alt: (null)	
12:00a	RA: 15h58m20s Alt: +21°.0 Ph: 99.5% SA2000: 15 HB: B-8, C-63 Dist (Earth): 397143km	Decl: -16°36'08" Az: 186°.6 Mag: U2000: II, 290 U2000.2: II, 128 Dist (Sun):	Con: Lib Size: 30'.27 MSA: II, 835 PSA: 57 Motion: 12°.48	
	Phase angle: PA of N pole: PA of bright limb: Librations (Lat, Lng)	8°.22 +11°.01 315°.87		
	Optical: Physical: Total:	-6°.095, +4°.190 +0°.010, -0°.013 -6°.09, +4°.18		
Wed 30/05 2018	Rise: 08:53p Az: 132°.2	Set: 04:47a Az: 240°.1	Transit: 12:22a Alt: 19°.5	
12:00a	RA: 16h49m12s Alt: +18°.6 Ph: 99.7% SA2000: 15 HB: B-8, C-62 Dist (Earth): 399905km	Decl: -19°08'00" Az: 174°.7 Mag: U2000: II, 337 U2000.2: II, 146 Dist (Sun):	Con: Oph Size: 30'.04 MSA: III, 1372 PSA: 56 Motion: 12°.31	
	Phase angle: PA of N pole: PA of bright limb: Librations (Lat, Lng)	6°.14 +6°.09 54°.89		
	Optical: Physical: Total:	-5°.406, +3°.362 +0°.010, -0°.014 -5°.40, +3°.35		
Thu 31/05 2018	Rise: 09:48p Az: 134°.6	Set: 05:25a Az: 237°.4	Transit: 01:10a Alt: 17°.9	
12:00a	RA: 17h40m37s Alt: +15°.5 Ph: 98.0% SA2000: 22 HB: B-8, C-62	Decl: -20°47'45" Az: 163°.3 Mag: U2000: II, 338 U2000.2: II, 146	Con: Oph Size: 29'.84 MSA: III, 1370 PSA: 56	

Location:	Piazz Smyth Observatory	Beginning:	01/05/2018 12:00a
Latitude:	52°08'40" N	Ending:	31/05/2018 11:59p
Longitude:	00°27'48" W	LT/UT:	LT
Time Zone:	UTC	Days to Skip:	1
Objects:	Moon	Apply Horizon:	No

Dist (Earth): 402247km Dist (Sun): Motion: 12°.14

Phase angle: 16°.07
PA of N pole: +0°.86
PA of bright limb: 80°.07
Librations (Lat, Lng)
Optical: -4°.479, +2°.340
Physical: +0°.010, -0°.015
Total: -4°.47, +2°.33

31 times calculated for each of 1 objects