

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-07-15T19:13:24.750
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4078863783122957184
 2Mass ID (if available) : 18481904-2227420

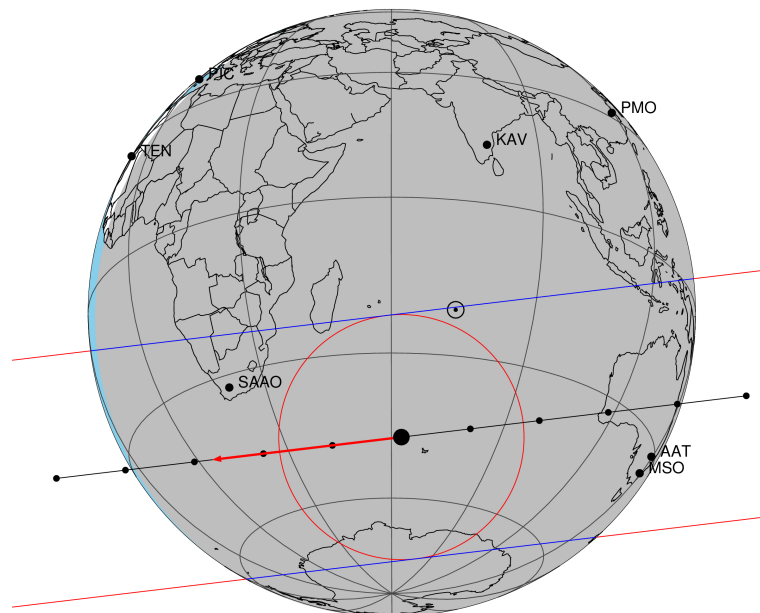
ICRS Star Coord at Epoch: 18h 48m 19.02973s -22:27:42.14997s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.332
 G magnitude : 16.588
 RP magnitude : 15.871
 BP magnitude : 17.182
 DUPflag : 0
 Distance (au) : 9.034
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -24.31
 Sun-Target sep (deg) : 167.84
 Sun-Moon sep (deg) : 114.61
 B (ring opening deg) : 25.36
 PA of pole (deg) : 6.46
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.400
 C/A sky separation (km) : 2621.7
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events	Interval	OEcode
PIC	Pic du Midi	42.9	0.1				Pnn
PAL	Palomar Mt (200")	33.4	243.1				Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8				Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4				Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0				Pnn
TEN	Teide Obs./Tenerife	28.3	343.5				Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5				Pnn
KAV	Kavalur Observatory	12.6	78.8				Pnn
RIO	Rio de Janeiro	-22.9	316.8				Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3				Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUL 15 19:08 - JUL 15 19:11		Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 15 19:14 - JUL 15 19:17		Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 15 19:08 - JUL 15 19:11		Pie

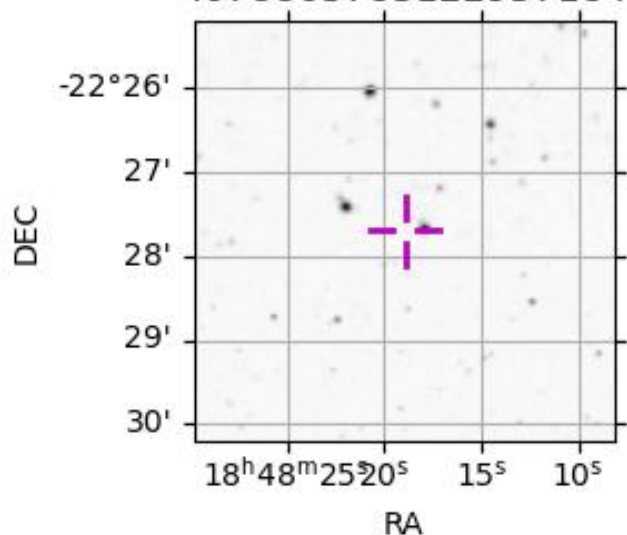
Titan 2048-07-15T19:13:24 K14.33 G16.59 dots 60.0 sec
 Pt



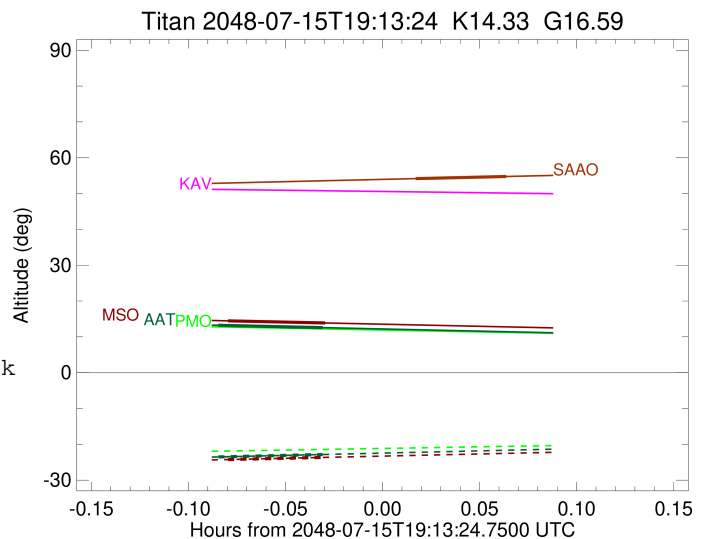
2048-07-15T19:13:24.7500 cc: 18 48 19.0297 & -22 27 42.150 C/A 0.399" PA 173.17 deg v_sky -24.31 km/s D 09.03 AU

Credit: Styled after SORA/Lucky Star

4078863783122957184



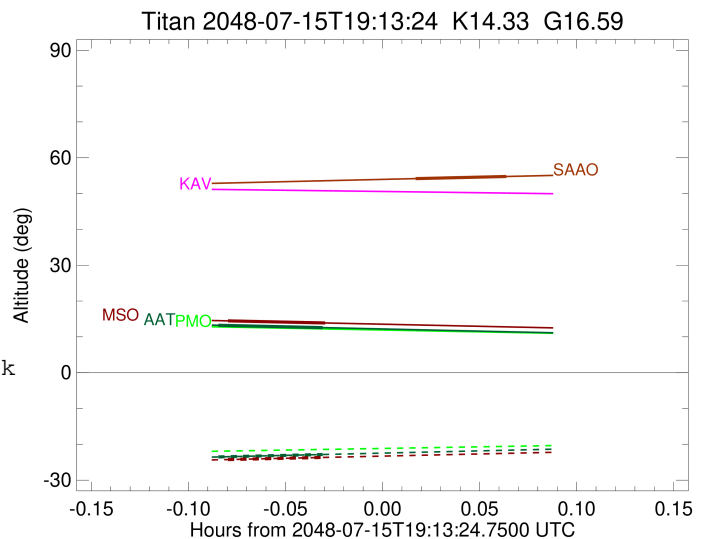
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-07-15T19:09:57.040
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 4078863783122957184
 2Mass ID (if available) : 18481904-2227420
 ICRS Star Coord at Epoch: 18h 48m 19.02973s -22:27:42.14997s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.332
 G magnitude : 16.588
 RP magnitude : 15.871
 BP magnitude : 17.182
 DUPflag : 0
 Distance (au) : 9.034
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -24.31
 Sun-Target sep (deg) : 167.84
 Sun-Moon sep (deg) : 114.49
 B (ring opening deg) : 25.36
 PA of pole (deg) : 6.46
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.154
 C/A sky separation (km) : 1006.4
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp
 de440.bsp
 earth_720101_070426.bpc
 jup365.bsp
 urall6.bsp
 IAU_SATURN_for_RINGFIT.tpc
 pck00010.tpc
 earth_200101_990628_predict.bpc
 IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
 uranus_ringframes_rfrench20220627_v1.tf
 neptune_ringframes_rfrench20220702a_v1.tf
 earth_flat_IAU.spk



x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2048-07-15T19:08:19.521	13.24	-23.52	2575.1	-32.03	-32.04
Titan	E	2048-07-15T19:11:34.574	12.57	-22.84	2575.2	-9.09	-9.10

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-07-15T19:15:50.060
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Observer code : SAAO
 Location : So. Afr. Astro. Obs. (Sutherland)
 Latitude (deg) : -32.37953
 E. Longitude (deg) : 20.81070
 Altitude (km) : 1.768
 Gaia source ID : 4078863783122957184
 2Mass ID (if available) : 18481904-2227420
 ICRS Star Coord at Epoch: 18h 48m 19.02973s -22:27:42.14997s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.332
 G magnitude : 16.588
 RP magnitude : 15.871
 BP magnitude : 17.182
 DUPflag : 0
 Distance (au) : 9.034
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -24.31
 Sun-Target sep (deg) : 167.84
 Sun-Moon sep (deg) : 115.52
 B (ring opening deg) : 25.36
 PA of pole (deg) : 6.46
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.231
 C/A sky separation (km) : 1514.7
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp
 de440.bsp
 earth_720101_070426.bpc
 jup365.bsp
 urall6.bsp
 IAU_SATURN_for_RINGFIT.tpc
 pck00010.tpc
 earth_200101_990628_predict.bpc
 IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
 uranus_ringframes_rfrench20220627_v1.tf
 neptune_ringframes_rfrench20220702a_v1.tf
 earth_flat_IAU.spk



x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2048-07-15T19:14:25.497	54.16	-42.69	2575.2	20.34	20.35
Titan	E	2048-07-15T19:17:14.604	54.76	-43.28	2575.1	43.36	43.37

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-07-15T19:10:08.810
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Observer code : MSO
 Location : Mt. Stromlo Observatory
 Latitude (deg) : -35.32000
 E. Longitude (deg) : 149.00833
 Altitude (km) : 0.770
 Gaia source ID : 4078863783122957184
 2Mass ID (if available) : 18481904-2227420
 ICRS Star Coord at Epoch: 18h 48m 19.02973s -22:27:42.14997s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.332
 G magnitude : 16.588
 RP magnitude : 15.871
 BP magnitude : 17.182
 DUPflag : 0
 Distance (au) : 9.034
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -24.31
 Sun-Target sep (deg) : 167.84
 Sun-Moon sep (deg) : 114.53
 B (ring opening deg) : 25.36
 PA of pole (deg) : 6.46
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.202
 C/A sky separation (km) : 1322.2
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp
 de440.bsp
 earth_720101_070426.bpc
 jup365.bsp
 urall6.bsp
 IAU_SATURN_for_RINGFIT.tpc
 pck00010.tpc
 earth_200101_990628_predict.bpc
 IAU_NEPTUNE_for_RINGFIT.tpc.BECAREFUL
 uranus_ringframes_rfrench20220627_v1.tf
 neptune_ringframes_rfrench20220702a_v1.tf
 earth_flat_IAU.spk

x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2048-07-15T19:08:37.902	14.46	-24.25	2575.1	-38.75	-38.77
Titan	E	2048-07-15T19:11:39.735	13.87	-23.64	2575.1	-16.17	-16.17

