

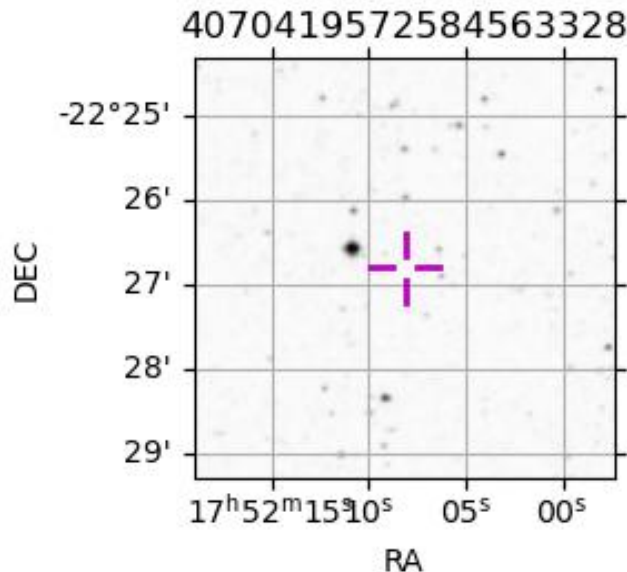
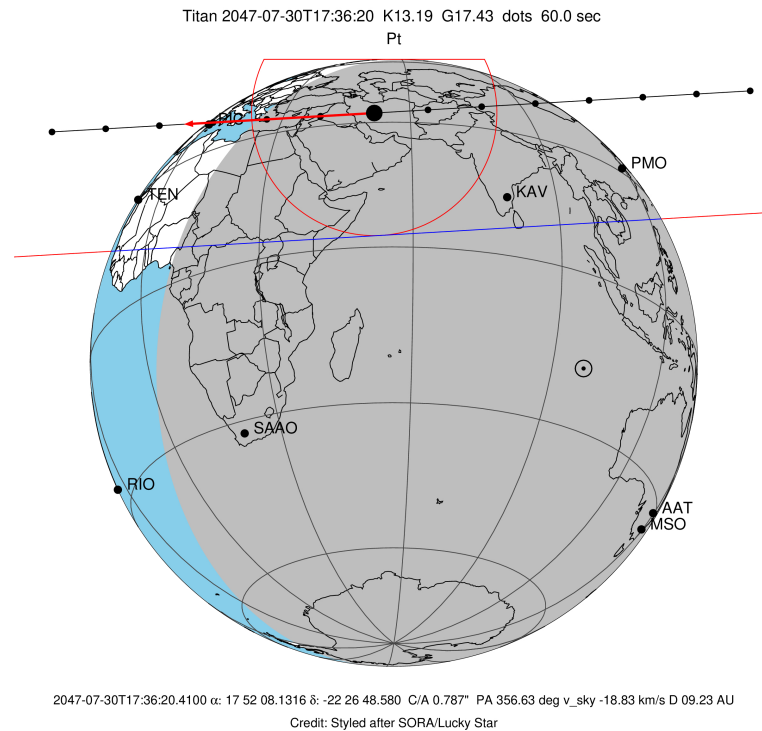
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2047-07-30T17:36:20.410  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4070419572584563328  
 2Mass ID (if available) : 17520816-2226482

ICRS Star Coord at Epoch: 17h 52m 08.13156s -22:26:48.57999s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 13.193  
 G magnitude : 17.431  
 RP magnitude : 16.266  
 BP magnitude : 18.895  
 DUPflag : 0  
 Distance (au) : 9.227  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -18.82  
 Sun-Target sep (deg) : 141.32  
 Sun-Moon sep (deg) : 40.85  
 B (ring opening deg) : 26.70  
 PA of pole (deg) : 5.51  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.785  
 C/A sky separation (km) : 5255.8  
 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

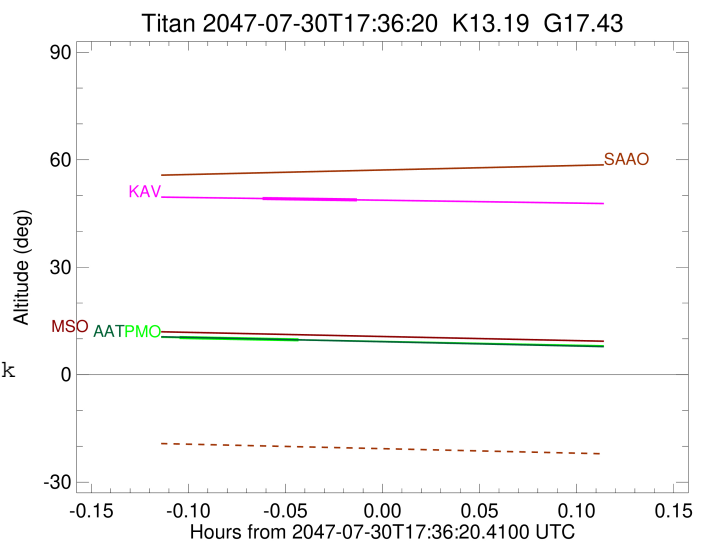
Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	JUL 30 17:30 - JUL 30 17:33	Pie
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUL 30 17:32 - JUL 30 17:35	Pie
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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2047-07-30T17:31:54.230  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Observer code : PMO  
 Location : Purple Mtn Obs. Nanking  
 Latitude (deg) : 32.06667  
 E. Longitude (deg) : 118.82089  
 Altitude (km) : 0.364  
 Gaia source ID : 4070419572584563328  
 2Mass ID (if available) : 17520816-2226482  
 ICRS Star Coord at Epoch: 17h 52m 08.13156s -22:26:48.57999s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 13.193  
 G magnitude : 17.431  
 RP magnitude : 16.266  
 BP magnitude : 18.895  
 DUPflag : 0  
 Distance (au) : 9.227  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -18.82  
 Sun-Target sep (deg) : 141.32  
 Sun-Moon sep (deg) : 41.57  
 B (ring opening deg) : 26.70  
 PA of pole (deg) : 5.51  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.219  
 C/A sky separation (km) : 1465.3  
 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	2047-07-30T17:30:02.831	10.36	-36.28	2575.1	-37.65	-37.67
Titan	E	2047-07-30T17:33:45.647	9.71	-35.96	2575.1	-23.26	-23.27



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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-07-30T17:34:04.960
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)   : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 4070419572584563328
2Mass ID (if available) : 17520816-2226482
ICRS Star Coord at Epoch: 17h 52m 08.13156s -22:26:48.57999s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 13.193
G magnitude           : 17.431
RP magnitude          : 16.266
BP magnitude          : 18.895
DUPflag              : 0
Distance (au)         : 9.227
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -18.82
Sun-Target sep (deg) : 141.32
Sun-Moon sep (deg)   : 41.68
B (ring opening deg) : 26.70
PA of pole (deg)     : 5.51
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.288
C/A sky separation (km) : 1929.6
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

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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	2047-07-30T17:32:36.348	49.17	-53.56	2575.1	-48.63	-48.65
Titan	E	2047-07-30T17:35:33.569	48.79	-53.94	2575.1	-34.98	-35.00

