

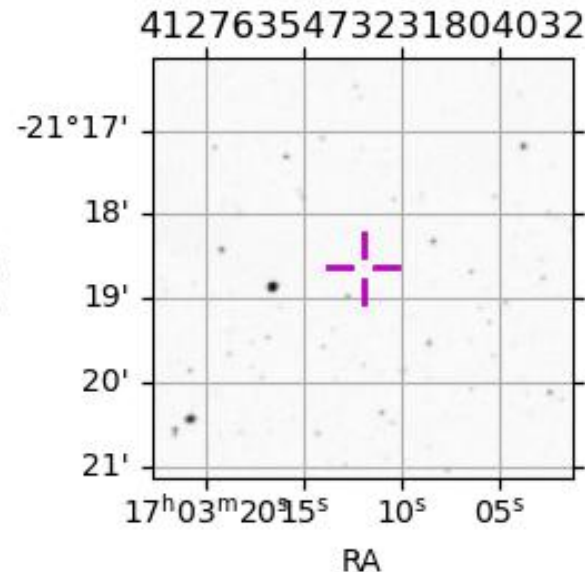
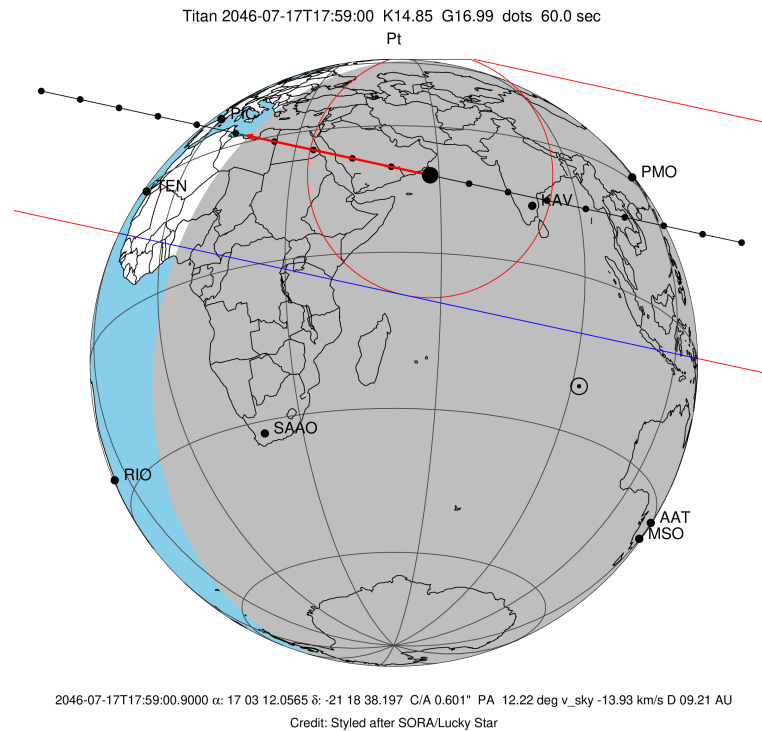
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2046-07-17T17:59:00.900  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4127635473231804032  
 2Mass ID (if available) : 17031206-2118383

ICRS Star Coord at Epoch: 17h 03m 12.05647s -21:18:38.19749s  
 RUWE (>1.4 is poor) : 1.04  
 K magnitude : 14.848  
 G magnitude : 16.988  
 RP magnitude : 16.258  
 BP magnitude : 17.571  
 DUPflag : 0  
 Distance (au) : 9.215  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -13.93  
 Sun-Target sep (deg) : 142.07  
 Sun-Moon sep (deg) : 34.61  
 B (ring opening deg) : 26.55  
 PA of pole (deg) : 4.35  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.602  
 C/A sky separation (km) : 4024.4  
 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 17 17:51 - JUL 17 17:57	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 17 17:53 - JUL 17 17:59	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



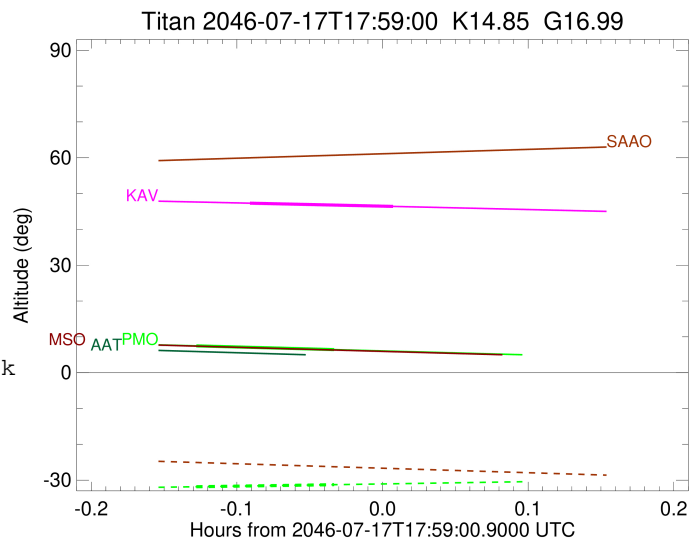
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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-07-17T17:54:10.870
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 4127635473231804032
2Mass ID (if available) : 17031206-2118383
ICRS Star Coord at Epoch: 17h 03m 12.05647s -21:18:38.19749s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 14.848
G magnitude           : 16.988
RP magnitude          : 16.258
BP magnitude          : 17.571
DUPflag              : 0
Distance (au)        : 9.215
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.93
Sun-Target sep (deg) : 142.07
Sun-Moon sep (deg)   : 34.15
B (ring opening deg) : 26.55
PA of pole (deg)     : 4.35
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.125
C/A sky separation (km) : 836.9
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	2046-07-17T17:51:18.441	7.48	-31.84	2575.1	24.15	24.17
Titan	E	2046-07-17T17:57:03.406	6.43	-31.26	2575.2	9.55	9.56



target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2046-07-17T17:56:30.060  
 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 : 4127635473231804032  
 2Mass ID (if available) : 17031206-2118383  
 ICRS Star Coord at Epoch: 17h 03m 12.05647s -21:18:38.19749s  
 RUWE (>1.4 is poor) : 1.04  
 K magnitude : 14.848  
 G magnitude : 16.988  
 RP magnitude : 16.258  
 BP magnitude : 17.571  
 DUPflag : 0  
 Distance (au) : 9.215  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -13.93  
 Sun-Target sep (deg) : 142.07  
 Sun-Moon sep (deg) : 34.72  
 B (ring opening deg) : 26.55  
 PA of pole (deg) : 4.35  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.030  
 C/A sky separation (km) : 203.3  
 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	2046-07-17T17:53:31.167	47.31	-53.61	2575.1	2.95	2.96
Titan	E	2046-07-17T17:59:29.043	46.40	-54.15	2575.1	-11.05	-11.05

