

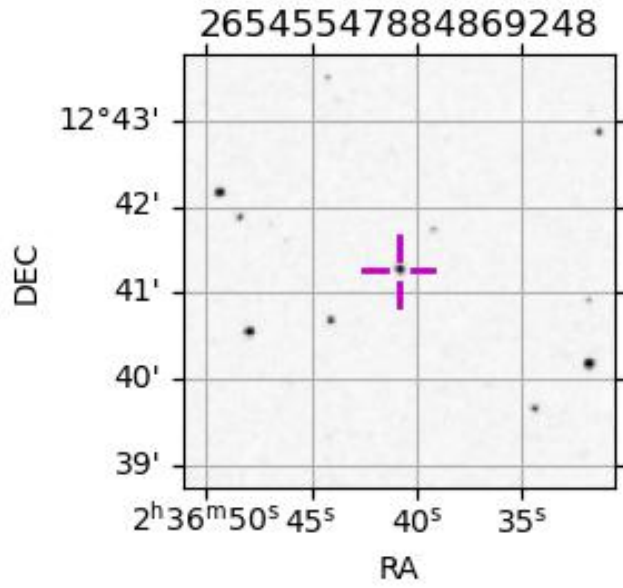
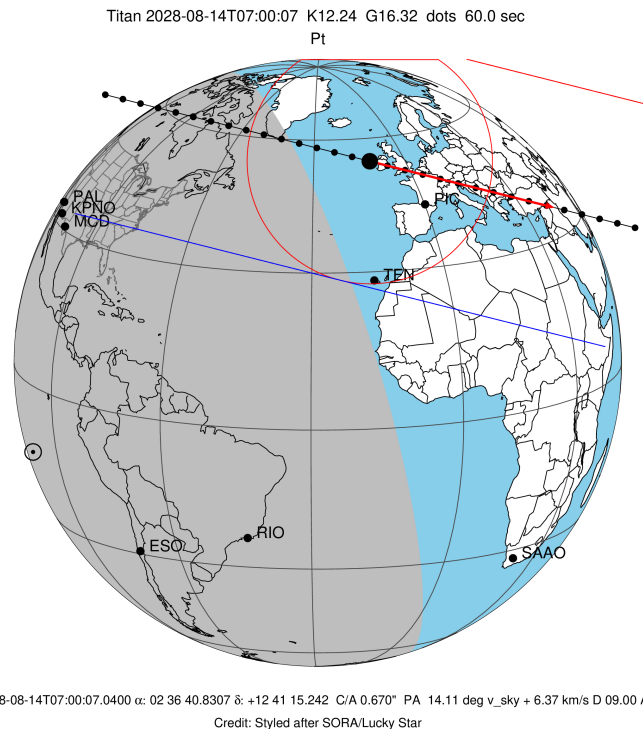
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2028-08-14T07:00:07.040  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 26545547884869248  
 2Mass ID (if available) : 02364085+1241147

ICRS Star Coord at Epoch: 02h 36m 40.83073s +12:41:15.24208s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 12.240  
 G magnitude : 16.319  
 RP magnitude : 0.000  
 BP magnitude : 0.000  
 DUPflag : 0  
 Distance (au) : 8.999  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 6.37  
 Sun-Target sep (deg) : 100.82  
 Sun-Moon sep (deg) : 21.23  
 B (ring opening deg) : -19.26  
 PA of pole (deg) : 0.04  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.667  
 C/A sky separation (km) : 4351.4  
 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	+	AUG 14 06:47 - AUG 14 06:47	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	AUG 14 06:43 - AUG 14 06:44	Pie
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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



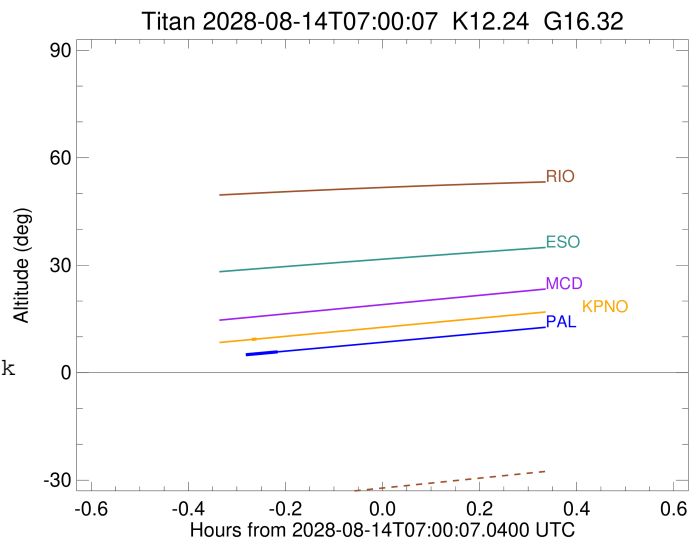
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2028-08-14T06:44:17.250
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 26545547884869248
2Mass ID (if available) : 02364085+1241147
ICRS Star Coord at Epoch: 02h 36m 40.83073s +12:41:15.24208s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 12.240
G magnitude          : 16.319
RP magnitude         : 0.000
BP magnitude         : 0.000
DUPflag             : 0
Distance (au)        : 8.999
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 6.37
Sun-Target sep (deg) : 100.82
Sun-Moon sep (deg)  : 21.62
B (ring opening deg) : -19.26
PA of pole (deg)    : 0.04
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.356
C/A sky separation (km): 2323.4
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

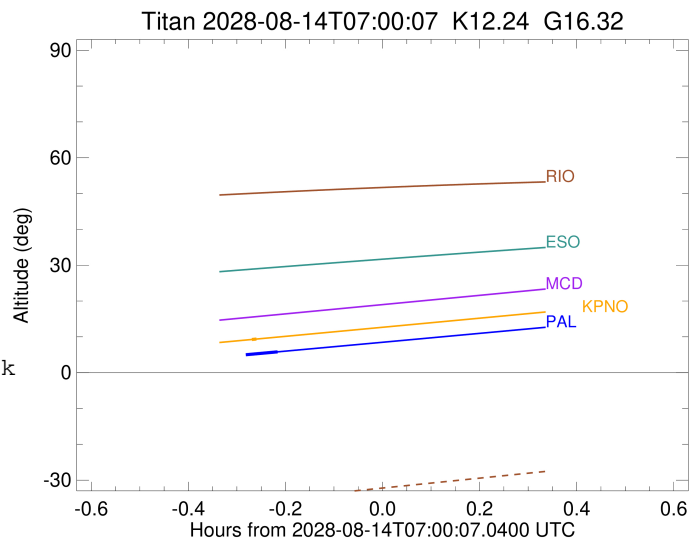
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x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2028-08-14T06:41:22.319	4.62x	-39.73	2575.1	-67.32	-67.33
Titan	E	2028-08-14T06:47:12.233	5.82	-40.19	2575.2	-47.30	-47.31



target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2028-08-14T06:44:14.210  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Observer code : KPNO  
 Location : Kitt Peak Natl Obs  
 Latitude (deg) : 31.96333  
 E. Longitude (deg) : 248.40000  
 Altitude (km) : 2.120  
 Gaia source ID : 26545547884869248  
 2Mass ID (if available) : 02364085+1241147  
 ICRS Star Coord at Epoch: 02h 36m 40.83073s +12:41:15.24208s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 12.240  
 G magnitude : 16.319  
 RP magnitude : 0.000  
 BP magnitude : 0.000  
 DUPflag : 0  
 Distance (au) : 8.999  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 6.37  
 Sun-Target sep (deg) : 100.82  
 Sun-Moon sep (deg) : 21.67  
 B (ring opening deg) : -19.26  
 PA of pole (deg) : 0.04  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.394  
 C/A sky separation (km) : 2571.7  
 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	2028-08-14T06:43:53.221	9.24	-42.67	2575.1	-68.18	-68.19
Titan	E	2028-08-14T06:44:35.255	9.39	-42.71	2575.2	-64.93	-64.95