

target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2033-09-01T02:41:47.380  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 3367174374890459008  
 2Mass ID (if available) : 07160211+2150578

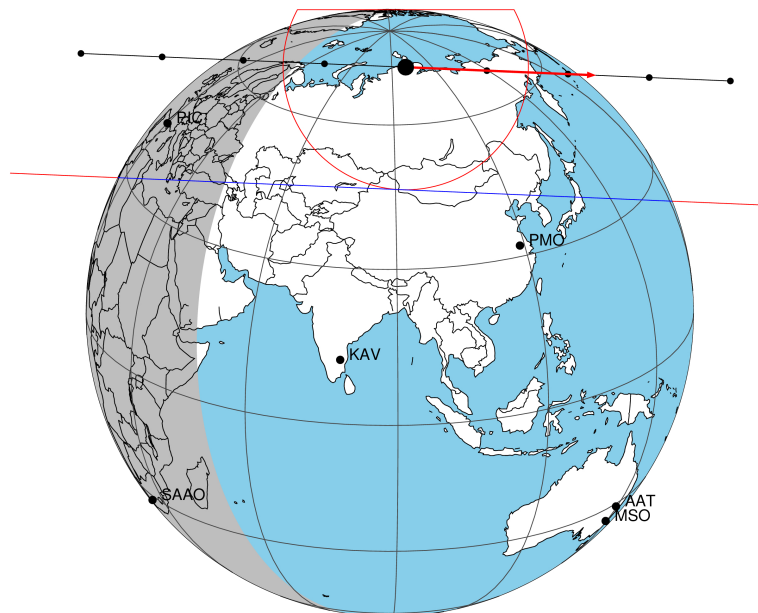
ICRS Star Coord at Epoch: 07h 16m 02.11709s +21:50:57.46864s  
 RUWE (>1.4 is poor) : 1.06  
 K magnitude : 13.590  
 G magnitude : 15.441  
 RP magnitude : 14.826  
 BP magnitude : 15.867  
 DUPflag : 0  
 Distance (au) : 9.625  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 28.43  
 Sun-Target sep (deg) : 50.94  
 Sun-Moon sep (deg) : 129.71  
 B (ring opening deg) : -24.01  
 PA of pole (deg) : -6.74  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.741  
 C/A sky separation (km) : 5172.9  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk

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

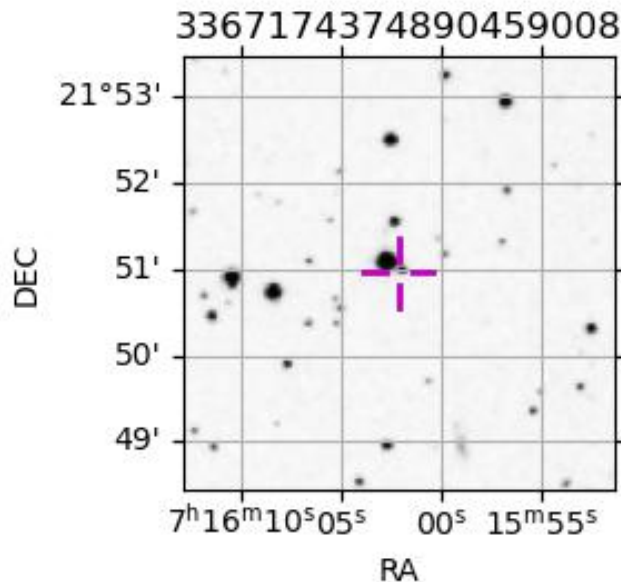
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
PIC	Pic du Midi	42.9	0.1	+ +	SEP 01 02:37 - SEP 01 02:40	Pie
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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

Titan 2033-09-01T02:41:47 K13.59 G15.44 dots 60.0 sec  
 Pt



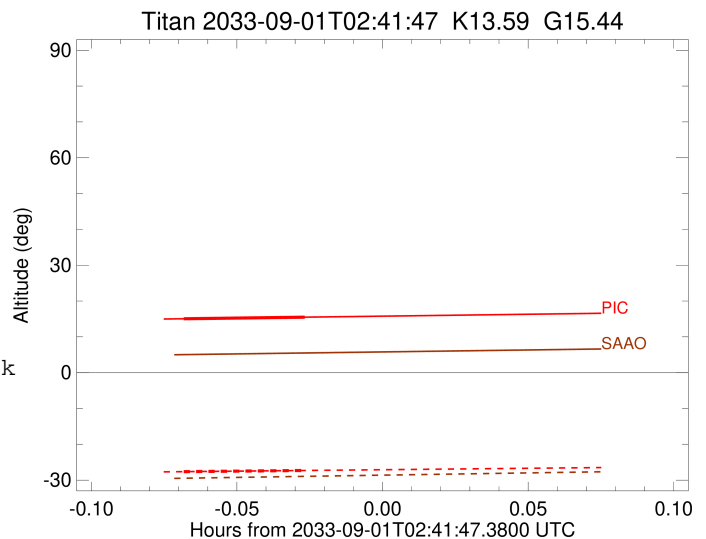
2033-09-01T02:41:47.3800 cc: 07 16 02.1171 & +21 50 57.469 C/A 0.741" PA 2.43 deg v\_sky +28.44 km/s D 09.62 AU  
 Credit: Styled after SORA/Lucky Star



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2033-09-01T02:38:56.410
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : PIC
Location              : Pic du Midi
Latitude (deg)        : 42.93656
E. Longitude (deg)    : 0.14231
Altitude (km)         : 2.890
Gaia source ID        : 3367174374890459008
2Mass ID (if available) : 07160211+2150578
ICRS Star Coord at Epoch: 07h 16m 02.11709s +21:50:57.46864s
RUWE (>1.4 is poor)  : 1.06
K magnitude           : 13.590
G magnitude           : 15.441
RP magnitude          : 14.826
BP magnitude          : 15.867
DUPflag              : 0
Distance (au)         : 9.625
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 28.43
Sun-Target sep (deg)  : 50.94
Sun-Moon sep (deg)    : 129.46
B (ring opening deg)  : -24.01
PA of pole (deg)      : -6.74
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.201
C/A sky separation (km) : 1404.5
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	2033-09-01T02:37:40.489	15.04	-27.63	2575.1	-37.65	-37.66
Titan	E	2033-09-01T02:40:12.345	15.49	-27.30	2575.1	-21.93	-21.94