

target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2047-07-09T23:16:26.590  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4070282507182970368  
 2Mass ID (if available) : 17573421-2222347

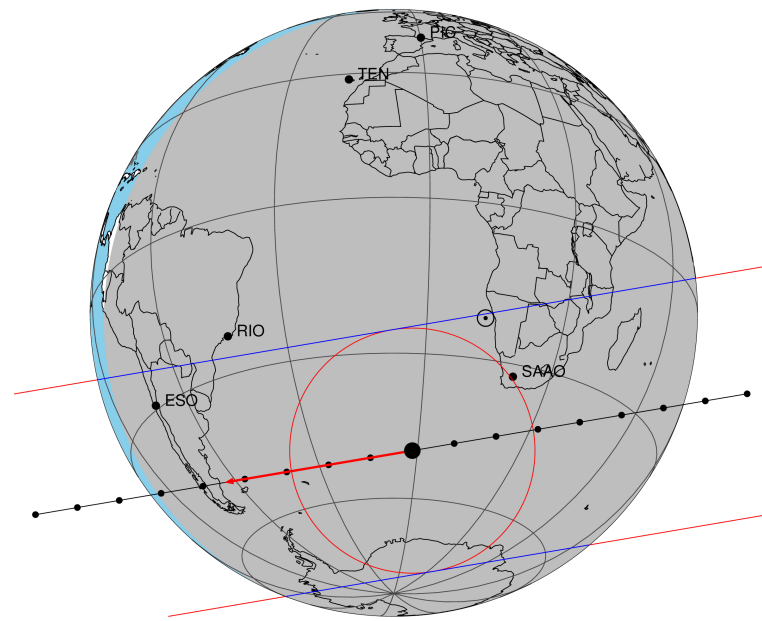
ICRS Star Coord at Epoch: 17h 57m 34.20743s -22:22:34.78681s  
 RUWE (>1.4 is poor) : 0.95  
 K magnitude : 11.032  
 G magnitude : 17.902  
 RP magnitude : 16.674  
 BP magnitude : 19.643  
 DUPflag : 0  
 Distance (au) : 9.078  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -14.86  
 Sun-Target sep (deg) : 162.38  
 Sun-Moon sep (deg) : 49.67  
 B (ring opening deg) : 26.51  
 PA of pole (deg) : 5.62  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.446  
 C/A sky separation (km) : 2937.6  
 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	+ +	JUL 09 23:20 - JUL 09 23:24	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 09 23:11 - JUL 09 23:16	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

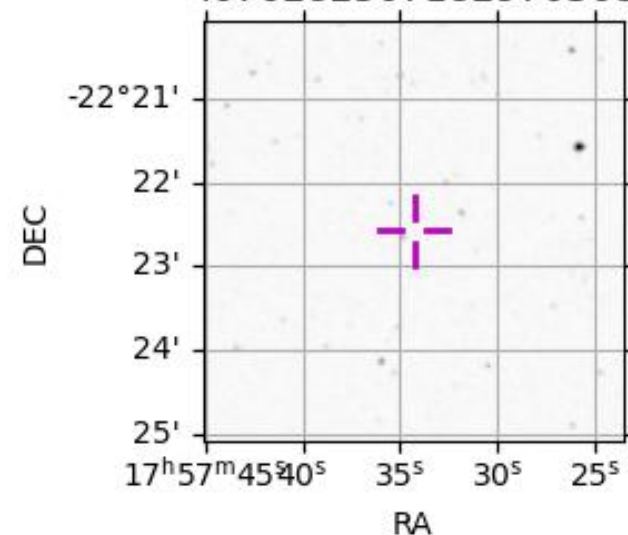
Titan 2047-07-09T23:16:26 K11.03 G17.90 dots 60.0 sec  
 Pt



2047-07-09T23:16:26.5900 cc: 17 57 34.2074 & -22 22 34.787 C/A 0.443" PA 170.35 deg v\_sky -14.86 km/s D 09.08 AU

Credit: Styled after SORA/Lucky Star

4070282507182970368



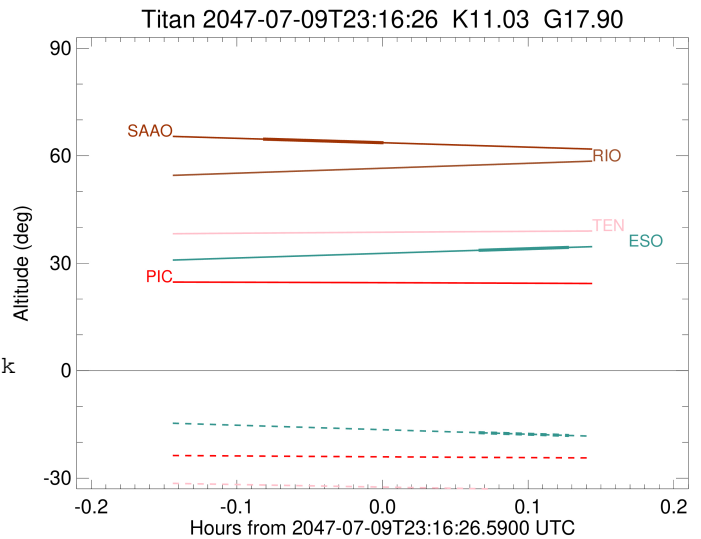
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-09T23:22:14.890
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : ESO
Location             : European Southern Obs. (3.6m)
Latitude (deg)       : -29.26097
E. Longitude (deg)   : 289.26831
Altitude (km)        : 2.400
Gaia source ID       : 4070282507182970368
2Mass ID (if available) : 17573421-2222347
ICRS Star Coord at Epoch: 17h 57m 34.20743s -22:22:34.78681s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 11.032
G magnitude          : 17.902
RP magnitude         : 16.674
BP magnitude         : 19.643
DUPflag             : 0
Distance (au)        : 9.078
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.86
Sun-Target sep (deg) : 162.38
Sun-Moon sep (deg)   : 50.55
B (ring opening deg) : 26.51
PA of pole (deg)     : 5.62
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.294
C/A sky separation (km): 1932.8
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

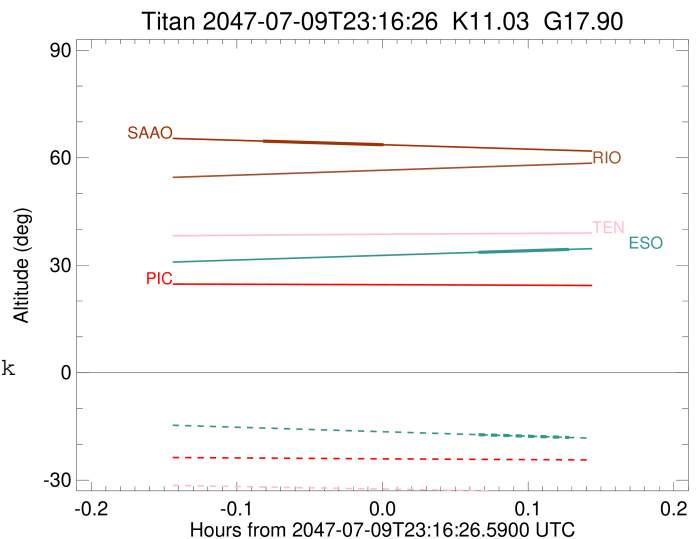
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-07-09T23:20:21.973	33.59	-17.30	2575.1	29.15	29.17
Titan	E	2047-07-09T23:24:07.757	34.40	-18.09	2575.1	53.74	53.75



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-09T23:13:59.940
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       : 4070282507182970368
2Mass ID (if available) : 17573421-2222347
ICRS Star Coord at Epoch: 17h 57m 34.20743s -22:22:34.78681s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 11.032
G magnitude           : 17.902
RP magnitude          : 16.674
BP magnitude          : 19.643
DUPflag              : 0
Distance (au)         : 9.078
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.86
Sun-Target sep (deg) : 162.38
Sun-Moon sep (deg)   : 50.09
B (ring opening deg) : 26.51
PA of pole (deg)     : 5.62
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.186
C/A sky separation (km) : 1222.1
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	2047-07-09T23:11:30.706	64.63	-78.10	2575.1	12.11	12.11
Titan	E	2047-07-09T23:16:29.162	63.62	-77.46	2575.1	37.70	37.71