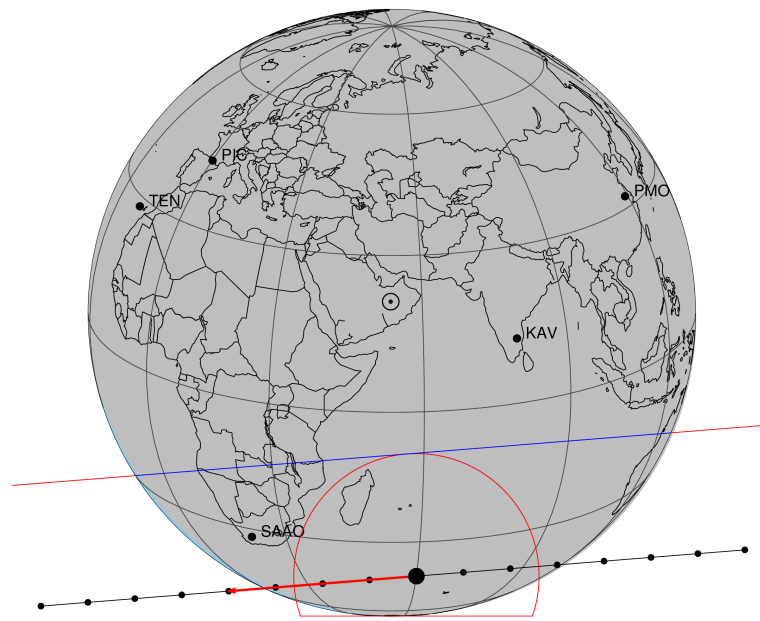


target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2030-11-27T20:13:08.660  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 48528667975029888  
 2Mass ID (if available) : 04135881+1903249

Titan 2030-11-27T20:13:08 K13.57 G16.22 dots 60.0 sec  
 Pt

ICRS Star Coord at Epoch: 04h 13m 58.82023s +19°03'24.86175s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 13.566  
 G magnitude : 16.218  
 RP magnitude : 15.385  
 BP magnitude : 16.919  
 DUPflag : 0  
 Distance (au) : 8.086  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -16.48  
 Sun-Target sep (deg) : 177.88  
 Sun-Moon sep (deg) : 143.79  
 B (ring opening deg) : -25.04  
 PA of pole (deg) : -2.95  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.950  
 C/A sky separation (km) : 5569.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk  
 URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp

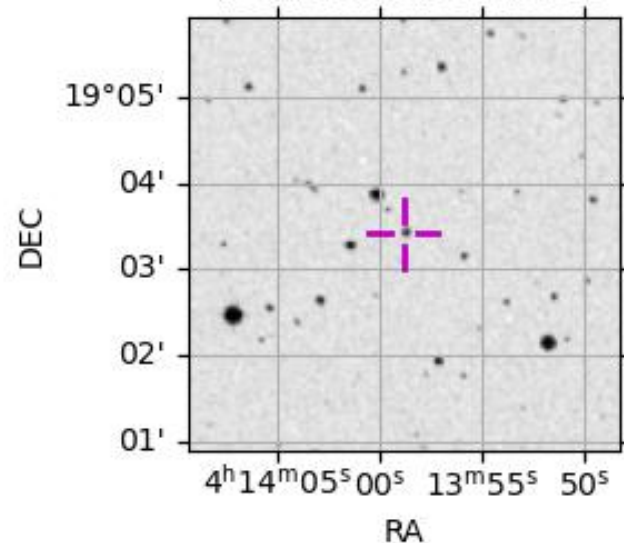


2030-11-27T20:13:08.6600 α: 04 13 58.8202 δ: +19 03 24.862 C/A 0.947" PA 175.42 deg v\_sky -16.47 km/s D 08.09 AU  
 Credit: Styled after SORA/Lucky Star

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

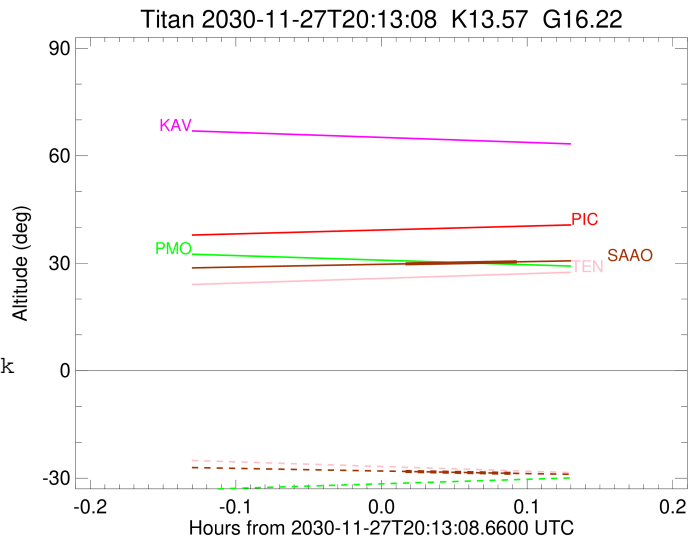
Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	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			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	NOV 27 20:14 - NOV 27 20:18	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

48528667975029888



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2030-11-27T20:16:25.110
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       : 48528667975029888
2Mass ID (if available) : 04135881+1903249
ICRS Star Coord at Epoch: 04h 13m 58.82023s +19:03:24.86175s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 13.566
G magnitude          : 16.218
RP magnitude         : 15.385
BP magnitude         : 16.919
DUPflag             : 0
Distance (au)        : 8.086
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.48
Sun-Target sep (deg) : 177.88
Sun-Moon sep (deg)   : 144.54
B (ring opening deg) : -25.04
PA of pole (deg)     : -2.95
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.187
C/A sky separation (km) : 1099.4
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
    
```



```

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   2030-11-27T20:14:06.495  29.81 -28.13  2575.1  21.60  21.61
Titan   E   2030-11-27T20:18:43.682  30.38 -28.67  2575.1  23.91  23.92
    
```