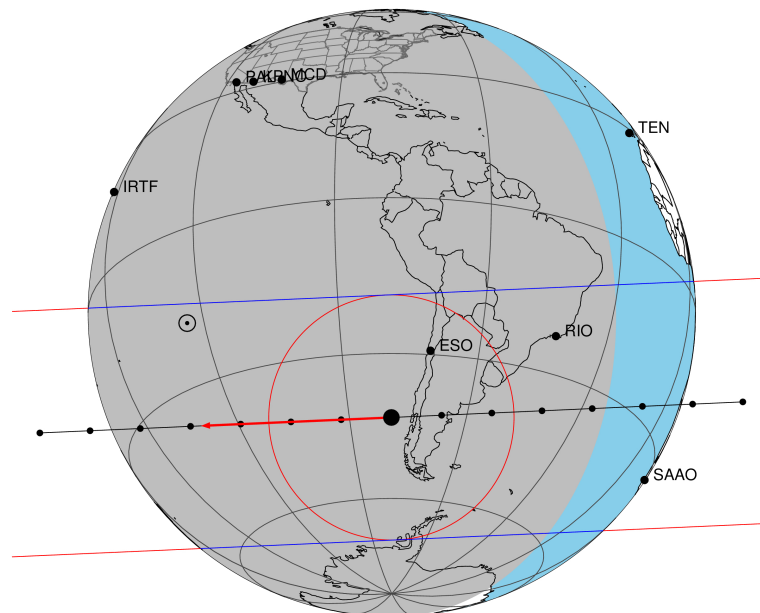


target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2047-05-12T08:13:22.680  
 Event type : Pgt  
 : Titan occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4090690576873524352  
 2Mass ID (if available) : 18141611-2219109

ICRS Star Coord at Epoch: 18h 14m 16.07791s -22:19:11.35000s  
 RUWE (>1.4 is poor) : 1.11  
 K magnitude : 13.370  
 G magnitude : 18.834  
 RP magnitude : 17.394  
 BP magnitude : 20.449  
 DUPflag : 0  
 Distance (au) : 9.270  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -17.58  
 Sun-Target sep (deg) : 137.59  
 Sun-Moon sep (deg) : 7.15  
 B (ring opening deg) : 26.06  
 PA of pole (deg) : 5.92  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.327  
 C/A sky separation (km) : 2198.5  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk  
 URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp

Titan 2047-05-12T08:13:22 K13.37 G18.83 dots 60.0 sec  
 Pgt



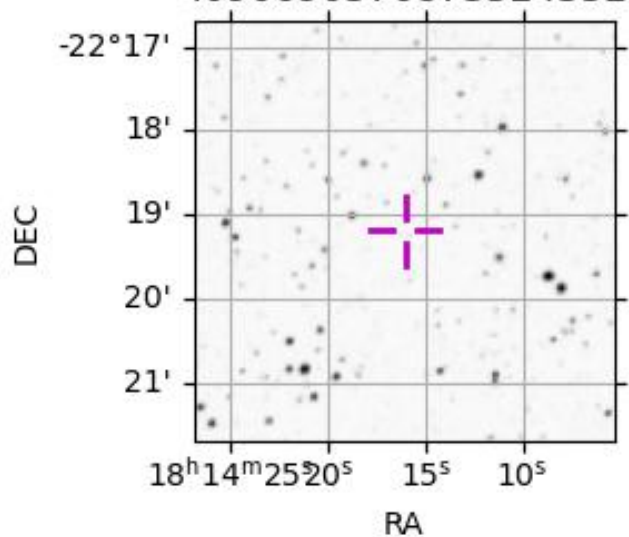
2047-05-12T08:13:22.6800 cc: 18 14 16.0779 & -22 19 11.350 C/A 0.327" PA 177.45 deg v\_sky -17.59 km/s D 09.27 AU

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 | + +    | MAY 12 08:08 - MAY 12 08:12 | Pie   |
| ESO  | European Southern Obs. (3.6m)     | -29.3 | 289.3 | + +    | MAY 12 08:10 - MAY 12 08:14 | Pie   |
| 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   |

4090690576873524352



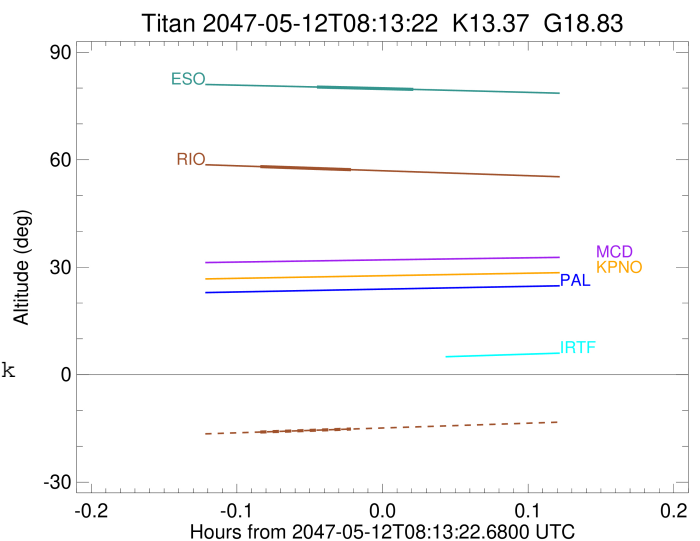
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-05-12T08:10:12.490
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : RIO
Location             : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)   : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 4090690576873524352
2Mass ID (if available) : 18141611-2219109
ICRS Star Coord at Epoch: 18h 14m 16.07791s -22:19:11.35000s
RUWE (>1.4 is poor) : 1.11
K magnitude          : 13.370
G magnitude          : 18.834
RP magnitude         : 17.394
BP magnitude         : 20.449
DUPflag             : 0
Distance (au)        : 9.270
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.58
Sun-Target sep (deg) : 137.59
Sun-Moon sep (deg)   : 7.72
B (ring opening deg) : 26.06
PA of pole (deg)     : 5.92
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.234
C/A sky separation (km) : 1576.1
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   | 2047-05-12T08:08:18.919 | 58.08 | -16.02  | 2575.1 | 26.36   | 26.38        |
| Titan  | E   | 2047-05-12T08:12:06.060 | 57.21 | -15.17  | 2575.1 | 40.13   | 40.14        |



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-05-12T08:12:39.830
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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        : 4090690576873524352
2Mass ID (if available) : 18141611-2219109
ICRS Star Coord at Epoch: 18h 14m 16.07791s -22:19:11.35000s
RUWE (>1.4 is poor) : 1.11
K magnitude           : 13.370
G magnitude           : 18.834
RP magnitude          : 17.394
BP magnitude          : 20.449
DUPflag              : 0
Distance (au)         : 9.270
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -17.58
Sun-Target sep (deg) : 137.59
Sun-Moon sep (deg)   : 7.34
B (ring opening deg) : 26.06
PA of pole (deg)     : 5.92
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.206
C/A sky separation (km) : 1384.4
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   | 2047-05-12T08:10:39.104 | 80.29 | -40.76  | 2575.1 | 21.60   | 21.61        |
| Titan  | E   | 2047-05-12T08:14:40.539 | 79.62 | -39.88  | 2575.1 | 35.97   | 35.99        |

