

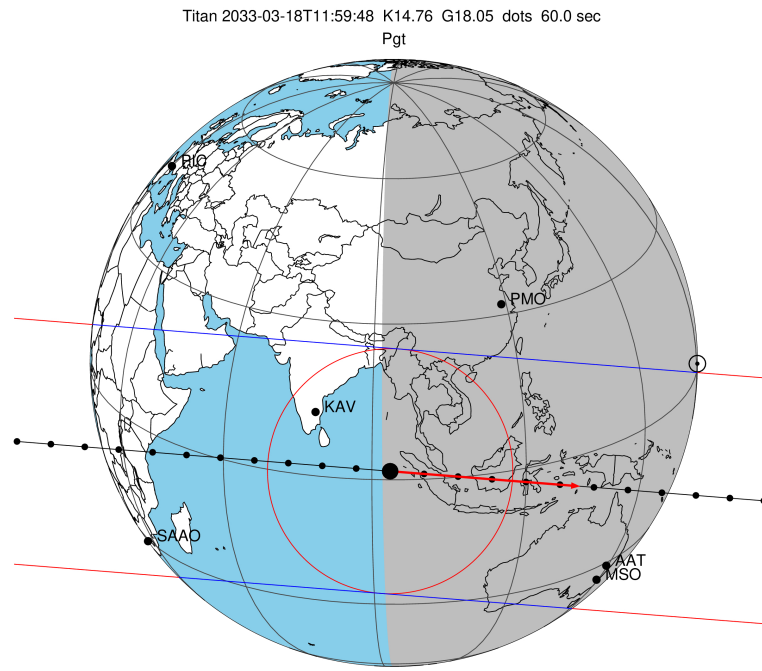
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2033-03-18T11:59:48.830
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3424506686438605056
 2Mass ID (if available) : 05595237+2240352

ICRS Star Coord at Epoch: 05h 59m 52.36932s +22:40:35.12709s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 14.758
 G magnitude : 18.052
 RP magnitude : 17.077
 BP magnitude : 19.082
 DUPflag : 0
 Distance (au) : 8.926
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 11.91
 Sun-Target sep (deg) : 92.23
 Sun-Moon sep (deg) : 114.12
 B (ring opening deg) : -26.76
 PA of pole (deg) : -5.67
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.354
 C/A sky separation (km) : 2291.3
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

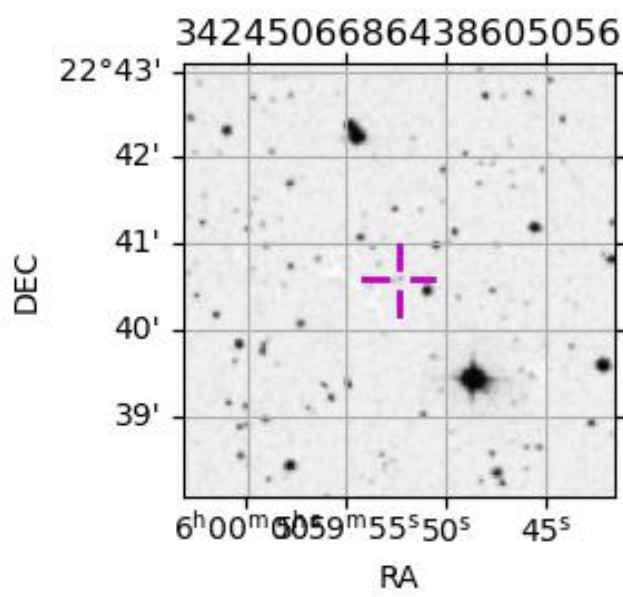
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

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 | | | Pnn |
| AAT | Siding Spring (AAT) | -31.3 | 149.1 | + + | MAR 18 12:03 - MAR 18 12:09 | Pie |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + + | MAR 18 12:03 - MAR 18 12:09 | Pie |



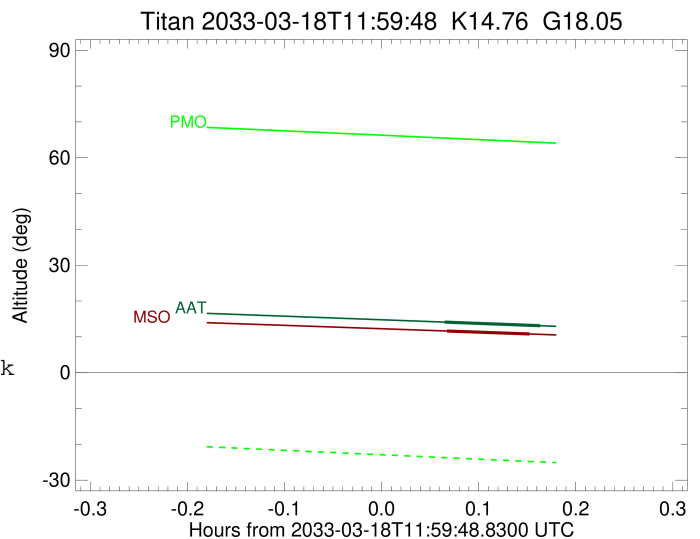
2033-03-18T11:59:48.8300 α: 05 59 52.3693 δ: +22 40 35.127 C/A 0.352" PA 184.54 deg v_sky +11.92 km/s D 08.93 AU
 Credit: Styled after SORA/Lucky Star



3424506686438605056

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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2033-03-18T12:06:40.430
Event type          : Pgt
                    : Titan occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : AAT
Location            : Siding Spring (AAT)
Latitude (deg)      : -31.27703
E. Longitude (deg)  : 149.06608
Altitude (km)       : 1.164
Gaia source ID      : 3424506686438605056
2Mass ID (if available) : 05595237+2240352
ICRS Star Coord at Epoch: 05h 59m 52.36932s +22:40:35.12709s
RUWE (>1.4 is poor) : 1.02
K magnitude          : 14.758
G magnitude          : 18.052
RP magnitude         : 17.077
BP magnitude         : 19.082
DUPflag             : 0
Distance (au)       : 8.926
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 11.91
Sun-Target sep (deg) : 92.23
Sun-Moon sep (deg)  : 114.59
B (ring opening deg) : -26.76
PA of pole (deg)    : -5.67
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.234
C/A sky separation (km) : 1513.3
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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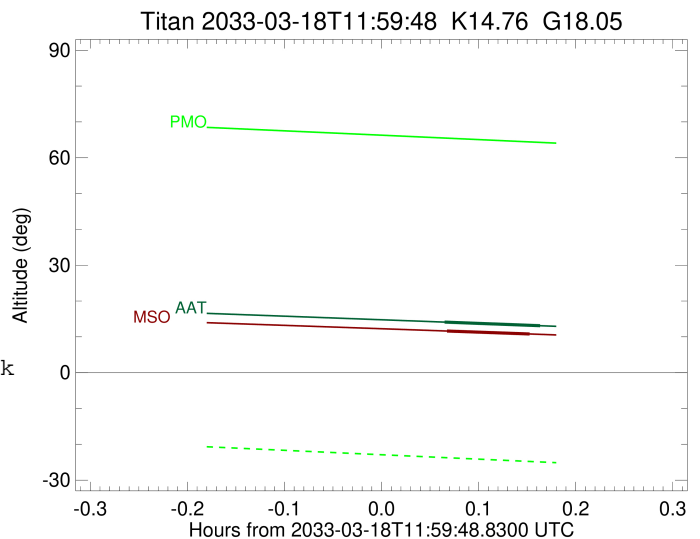
x: target alt < 5.0 deg or sun > -5.0 deg

```

| Target | I/E | UTC | alt | alt-sun | radius | lat-geo | lat-geodetic |
|--------|-----|-------------------------|-------|---------|--------|---------|--------------|
| Titan | I | 2033-03-18T12:03:42.628 | 14.11 | -46.03 | 2575.1 | -40.70 | -40.71 |
| Titan | E | 2033-03-18T12:09:38.100 | 13.10 | -46.99 | 2575.1 | -22.24 | -22.25 |

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2033-03-18T12:06:25.010
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : MSO
Location             : Mt. Stromlo Observatory
Latitude (deg)       : -35.32000
E. Longitude (deg)   : 149.00833
Altitude (km)        : 0.770
Gaia source ID       : 3424506686438605056
2Mass ID (if available) : 05595237+2240352
ICRS Star Coord at Epoch: 05h 59m 52.36932s +22:40:35.12709s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.758
G magnitude           : 18.052
RP magnitude          : 17.077
BP magnitude          : 19.082
DUPflag              : 0
Distance (au)        : 8.926
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.91
Sun-Target sep (deg) : 92.23
Sun-Moon sep (deg)   : 114.55
B (ring opening deg) : -26.76
PA of pole (deg)     : -5.67
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.282
C/A sky separation (km) : 1826.7
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 | 2033-03-18T12:03:50.240 | 11.62 | -43.33 | 2575.1 | -47.80 | -47.82 |
| Titan | E | 2033-03-18T12:08:59.682 | 10.79 | -44.09 | 2575.1 | -30.22 | -30.23 |