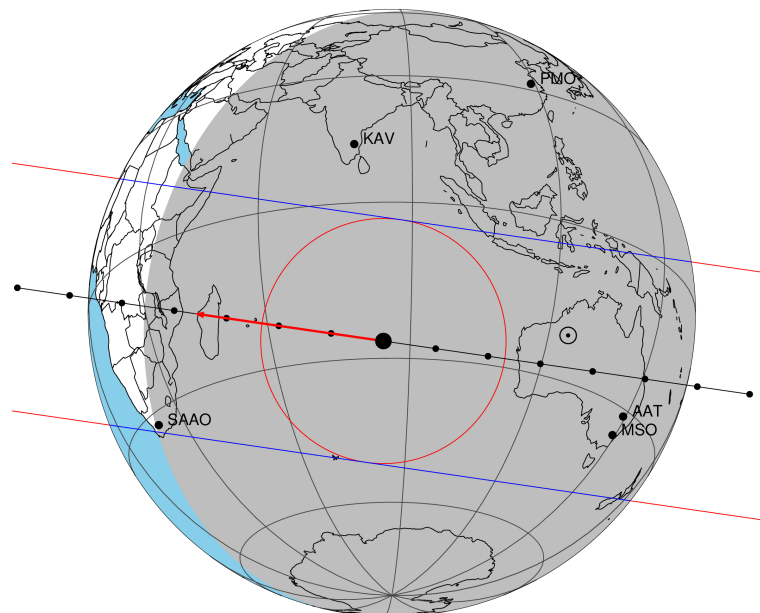


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-07-15T15:47:18.060
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4127655028241701248
 2Mass ID (if available) : 17034316-2119564

ICRS Star Coord at Epoch: 17h 03m 43.16234s -21:19:56.90915s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 13.396
 G magnitude : 16.271
 RP magnitude : 15.383
 BP magnitude : 16.985
 DUPflag : 0
 Distance (au) : 9.189
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -18.49
 Sun-Target sep (deg) : 144.18
 Sun-Moon sep (deg) : 8.79
 B (ring opening deg) : 26.56
 PA of pole (deg) : 4.36
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.091
 C/A sky separation (km) : 607.5
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

Titan 2046-07-15T15:47:18 K13.40 G16.27 dots 60.0 sec
 Pgt



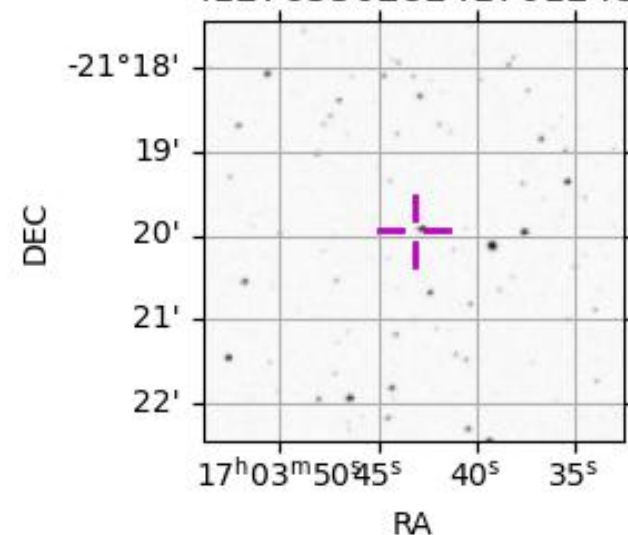
2046-07-15T15:47:18.0600 cc: 17 03 43.1623 s: -21 19 56.909 C/A 0.092" PA 188.22 deg v_sky -18.50 km/s D 09.19 AU

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 | OEncode |
|------|-----------------------------------|-------|-------|--------|-----------------------------|---------|
| 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 | + + | JUL 15 15:40 - JUL 15 15:44 | Pie |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + + | JUL 15 15:40 - JUL 15 15:44 | Pie |

4127655028241701248



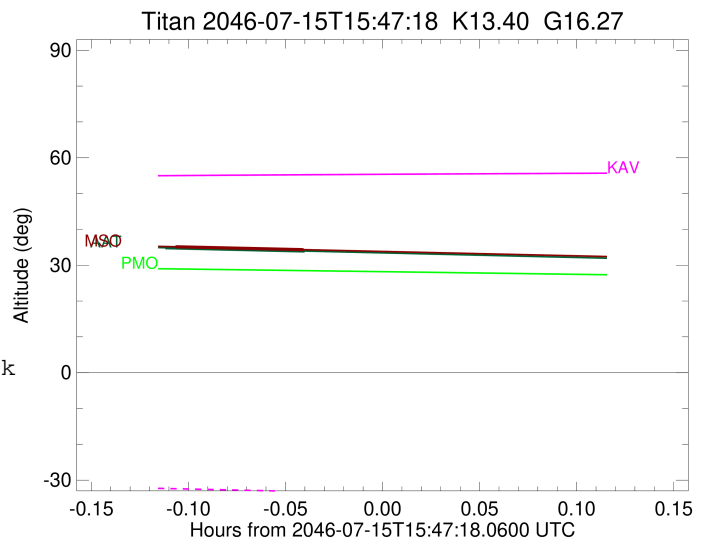
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-07-15T15:42:44.350
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       : 4127655028241701248
2Mass ID (if available) : 17034316-2119564
ICRS Star Coord at Epoch: 17h 03m 43.16234s -21:19:56.90915s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 13.396
G magnitude           : 16.271
RP magnitude          : 15.383
BP magnitude          : 16.985
DUPflag              : 0
Distance (au)        : 9.189
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -18.49
Sun-Target sep (deg) : 144.18
Sun-Moon sep (deg)   : 8.10
B (ring opening deg) : 26.56
PA of pole (deg)     : 4.36
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.124
C/A sky separation (km) : 828.0
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 | 2046-07-15T15:40:34.019 | 34.87 | -67.51 | 2575.1 | -12.98 | -12.98 |
| Titan | E | 2046-07-15T15:44:54.718 | 33.94 | -66.64 | 2575.1 | -20.44 | -20.45 |



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-07-15T15:42:52.980
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       : 4127655028241701248
2Mass ID (if available) : 17034316-2119564
ICRS Star Coord at Epoch: 17h 03m 43.16234s -21:19:56.90915s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 13.396
G magnitude           : 16.271
RP magnitude          : 15.383
BP magnitude          : 16.985
DUPflag              : 0
Distance (au)        : 9.189
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -18.49
Sun-Target sep (deg) : 144.18
Sun-Moon sep (deg)   : 8.09
B (ring opening deg) : 26.56
PA of pole (deg)     : 4.36
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.187
C/A sky separation (km): 1245.2
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 | 2046-07-15T15:40:52.445 | 35.15 | -65.84 | 2575.1 | -21.96 | -21.97 |
| Titan | E | 2046-07-15T15:44:53.557 | 34.33 | -65.11 | 2575.1 | -29.26 | -29.27 |

