

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-06-27T15:09:52.580
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4078728959825631488
 2Mass ID (if available) : 18540899-2218132

ICRS Star Coord at Epoch: 18h 54m 08.97815s -22:18:13.27572s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 12.132
 G magnitude : 14.632
 RP magnitude : 13.866
 BP magnitude : 15.271
 DUPflag : 0
 Distance (au) : 9.026
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -20.86
 Sun-Target sep (deg) : 173.44
 Sun-Moon sep (deg) : 15.23
 B (ring opening deg) : 25.05
 PA of pole (deg) : 6.52
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.422
 C/A sky separation (km) : 2760.9
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

Titan 2048-06-27T15:09:52 K12.13 G14.63 dots 60.0 sec
 Pt

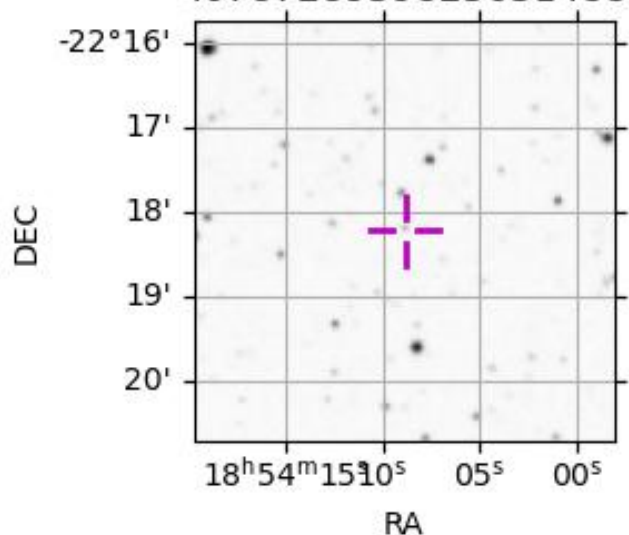


2048-06-27T15:09:52.5800 α: 18 54 08.9782 δ: -22 18 13.276 C/A 0.420" PA 167.41 deg v_sky -20.86 km/s D 09.03 AU
 Credit: Styled after SORA/Lucky Star

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 | + + | JUN 27 15:07 - JUN 27 15:11 | Pie |
| SAAO | So. Afr. Astro. Obs. (Sutherland) | -32.4 | 20.8 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | + + | JUN 27 15:07 - JUN 27 15:11 | Pie |

4078728959825631488



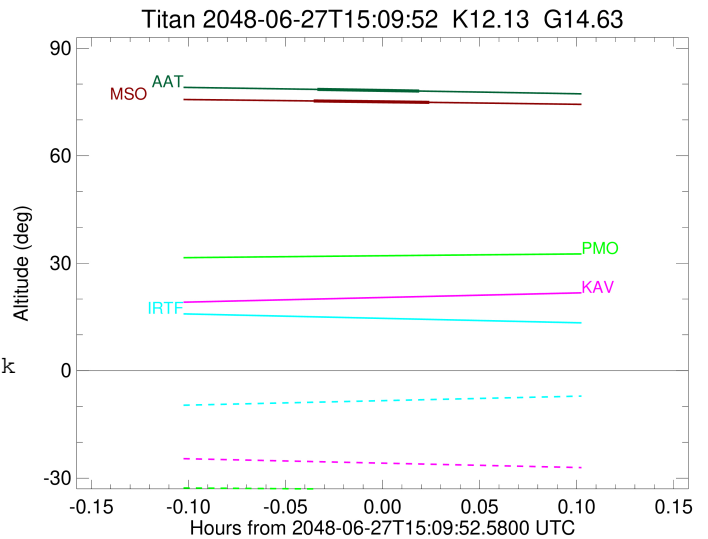
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-06-27T15:09:25.630
Event type            : Pt
: Titan occs: topocentric, not geocentric
: 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        : 4078728959825631488
2Mass ID (if available) : 18540899-2218132
ICRS Star Coord at Epoch: 18h 54m 08.97815s -22:18:13.27572s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 12.132
G magnitude           : 14.632
RP magnitude          : 13.866
BP magnitude          : 15.271
DUPflag              : 0
Distance (au)         : 9.026
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -20.86
Sun-Target sep (deg)  : 173.44
Sun-Moon sep (deg)    : 15.41
B (ring opening deg) : 25.05
PA of pole (deg)     : 6.52
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.244
C/A sky separation (km) : 1598.7
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 | 2048-06-27T15:07:50.573 | 78.51 | -74.37 | 2575.2 | 17.65 | 17.65 |
| Titan | E | 2048-06-27T15:11:00.675 | 78.04 | -73.76 | 2575.1 | 49.60 | 49.62 |



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-06-27T15:09:32.050
Event type          : Pt
: Titan occs: topocentric, not geocentric
: 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     : 4078728959825631488
2Mass ID (if available) : 18540899-2218132
ICRS Star Coord at Epoch: 18h 54m 08.97815s -22:18:13.27572s
RUWE (>1.4 is poor) : 1.02
K magnitude         : 12.132
G magnitude         : 14.632
RP magnitude        : 13.866
BP magnitude        : 15.271
DUPflag            : 0
Distance (au)      : 9.026
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -20.86
Sun-Target sep (deg) : 173.44
Sun-Moon sep (deg)  : 15.43
B (ring opening deg) : 25.05
PA of pole (deg)    : 6.52
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.180
C/A sky separation (km) : 1179.8
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 | 2048-06-27T15:07:44.189 | 75.28 | -72.28 | 2575.2 | 7.63 | 7.63 |
| Titan | E | 2048-06-27T15:11:19.908 | 74.89 | -71.69 | 2575.1 | 40.76 | 40.77 |

