

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-13T16:59:24.110
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4069679459416422784
 2Mass ID (if available) : 18054162-2222111

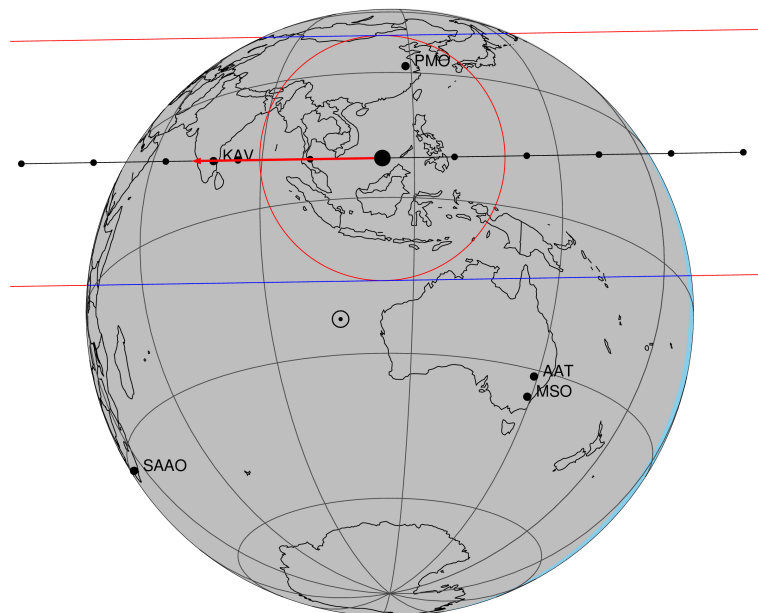
ICRS Star Coord at Epoch: 18h 05m 41.63446s -22:22:11.29430s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 13.385
 G magnitude : 18.314
 RP magnitude : 17.018
 BP magnitude : 20.205
 DUPflag : 0
 Distance (au) : 9.036
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -25.26
 Sun-Target sep (deg) : 170.60
 Sun-Moon sep (deg) : 62.23
 B (ring opening deg) : 26.32
 PA of pole (deg) : 5.77
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.496
 C/A sky separation (km) : 3253.4
 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

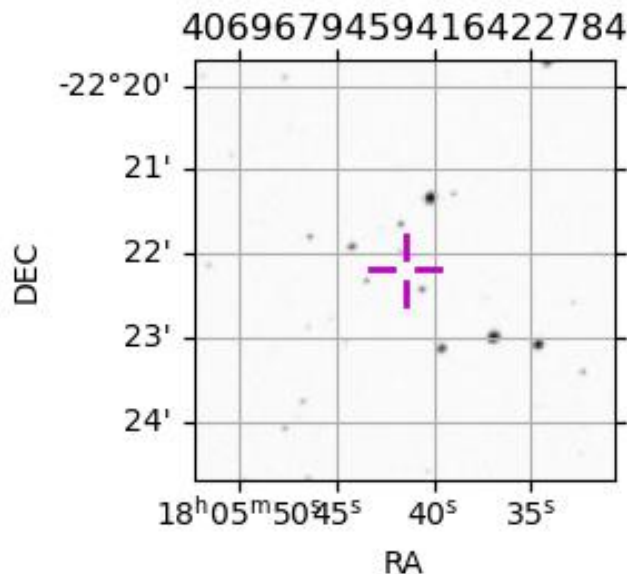
| Obs | Location | lat | Elon | Target | Observed Events Interval | OCode |
|------|-----------------------------------|-------|-------|--------|-----------------------------|-------|
| PIC | Pic du Midi | 42.9 | 0.1 | | | Pnn |
| PAL | Palomar Mt (200") | 33.4 | 243.1 | | | Pnn |
| PMO | Purple Mtn Obs. Nanking | 32.1 | 118.8 | + + | JUN 13 16:58 - JUN 13 17:00 | Pie |
| 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 | + + | JUN 13 17:00 - JUN 13 17:03 | Pie |
| 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 | | | Pnn |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | | | Pnn |

Titan 2047-06-13T16:59:24 K13.38 G18.31 dots 60.0 sec
 Pt



2047-06-13T16:59:24.1100 cc: 18 05 41.6345 d: -22 22 11.294 C/A 0.497" PA 359.09 deg v_sky -25.27 km/s D 09.04 AU

Credit: Styled after SORA/Lucky Star



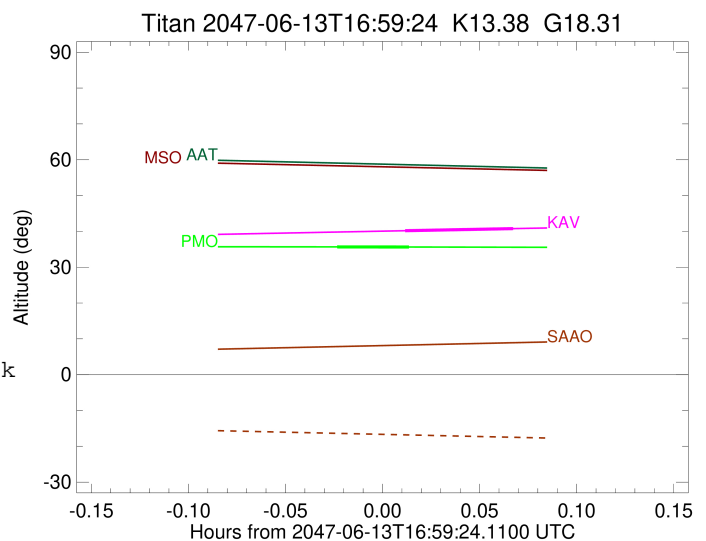
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-13T16:59:07.090
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PMO
Location             : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 4069679459416422784
2Mass ID (if available) : 18054162-2222111
ICRS Star Coord at Epoch: 18h 05m 41.63446s -22:22:11.29430s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 13.385
G magnitude           : 18.314
RP magnitude          : 17.018
BP magnitude          : 20.205
DUPflag              : 0
Distance (au)         : 9.036
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -25.26
Sun-Target sep (deg) : 170.60
Sun-Moon sep (deg)   : 62.66
B (ring opening deg) : 26.32
PA of pole (deg)     : 5.77
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.291
C/A sky separation (km) : 1907.2
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 | 2047-06-13T16:57:59.661 | 35.66 | -33.43 | 2575.1 | 36.13 | 36.15 |
| Titan | E | 2047-06-13T17:00:14.516 | 35.63 | -33.31 | 2575.1 | 46.81 | 46.83 |



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-13T17:01:45.930
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 4069679459416422784
2Mass ID (if available) : 18054162-2222111
ICRS Star Coord at Epoch: 18h 05m 41.63446s -22:22:11.29430s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 13.385
G magnitude          : 18.314
RP magnitude         : 17.018
BP magnitude         : 20.205
DUPflag             : 0
Distance (au)        : 9.036
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -25.26
Sun-Target sep (deg) : 170.60
Sun-Moon sep (deg)  : 62.99
B (ring opening deg) : 26.32
PA of pole (deg)    : 5.77
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.003
C/A sky separation (km) : 20.3
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

```

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 | 2047-06-13T17:00:05.490 | 40.18 | -46.05 | 2575.1 | -5.83 | -5.83 |
| Titan | E | 2047-06-13T17:03:26.366 | 40.76 | -46.52 | 2575.1 | 6.52 | 6.52 |

