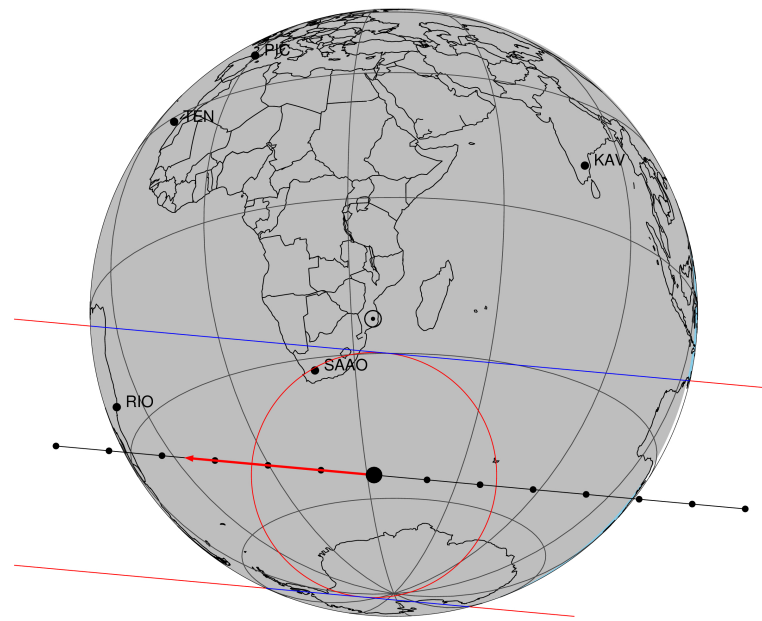


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-18T21:43:29.520
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4069858954688040576
 2Mass ID (if available) : 18034817-2220412

ICRS Star Coord at Epoch: 18h 03m 48.17769s -22:20:41.31288s
 RUWE (>1.4 is poor) : 1.08
 K magnitude : 14.435
 G magnitude : 18.165
 RP magnitude : 17.014
 BP magnitude : 19.556
 DUPflag : 0
 Distance (au) : 9.034
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -18.63
 Sun-Target sep (deg) : 175.91
 Sun-Moon sep (deg) : 125.13
 B (ring opening deg) : 26.34
 PA of pole (deg) : 5.73
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.522
 C/A sky separation (km) : 3421.8
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

Titan 2047-06-18T21:43:29 K14.44 G18.17 dots 60.0 sec
 Pt

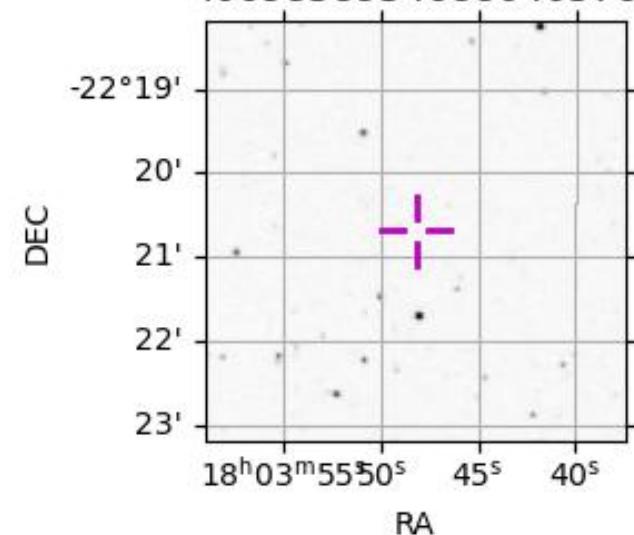


2047-06-18T21:43:29.5200 cc: 18 03 48.1777 & -22 20 41.313 C/A 0.524" PA 185.22 deg v_sky -18.63 km/s D 09.03 AU
 Credit: Styled after SORA/Lucky Star

Observable events with sun below -5 deg and altitude above 5 deg

| Obs | Location | lat | Elon | Target | Observed Events Interval | 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 | + + | JUN 18 21:46 - JUN 18 21:50 | Pie |
| 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 | + + | JUN 18 21:43 - JUN 18 21:46 | Pie |
| MSO | Mt. Stromlo Observatory | -35.3 | 149.0 | | | Pnn |

4069858954688040576



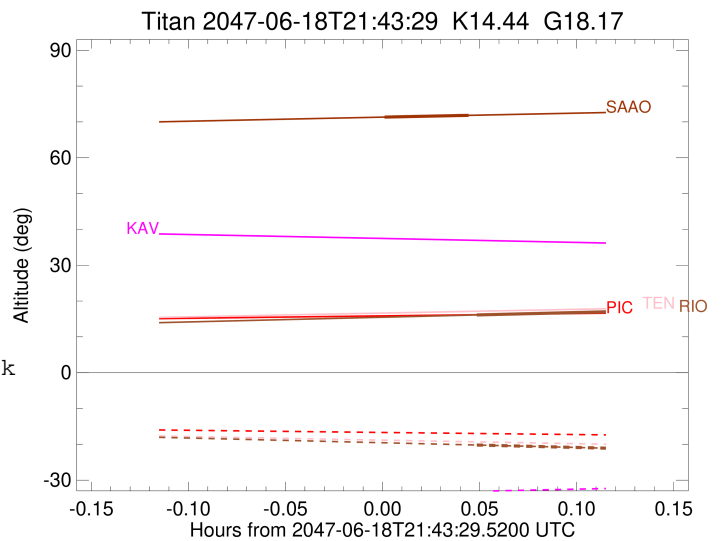
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-06-18T21:48:30.470
Event type           : Pt
: Titan occs: topocentric, not geocentric
: 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       : 4069858954688040576
2Mass ID (if available) : 18034817-2220412
ICRS Star Coord at Epoch: 18h 03m 48.17769s -22:20:41.31288s
RUWE (>1.4 is poor) : 1.08
K magnitude          : 14.435
G magnitude          : 18.165
RP magnitude         : 17.014
BP magnitude         : 19.556
DUPflag             : 0
Distance (au)        : 9.034
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -18.63
Sun-Target sep (deg) : 175.91
Sun-Moon sep (deg)   : 124.84
B (ring opening deg) : 26.34
PA of pole (deg)     : 5.73
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.154
C/A sky separation (km) : 1011.6
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 | 2047-06-18T21:46:23.683 | 16.11 | -20.19 | 2575.1 | 19.71 | 19.72 |
| Titan | E | 2047-06-18T21:50:37.249 | 17.04 | -21.12 | 2575.1 | 21.51 | 21.53 |



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-06-18T21:44:50.600
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : SAAO
Location               : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)        : -32.37953
E. Longitude (deg)    : 20.81070
Altitude (km)         : 1.768
Gaia source ID        : 4069858954688040576
2Mass ID (if available) : 18034817-2220412
ICRS Star Coord at Epoch: 18h 03m 48.17769s -22:20:41.31288s
RUWE (>1.4 is poor)  : 1.08
K magnitude           : 14.435
G magnitude           : 18.165
RP magnitude          : 17.014
BP magnitude          : 19.556
DUPflag              : 0
Distance (au)         : 9.034
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -18.63
Sun-Target sep (deg)  : 175.91
Sun-Moon sep (deg)    : 125.68
B (ring opening deg) : 26.34
PA of pole (deg)      : 5.73
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.320
C/A sky separation (km) : 2098.6
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 | 2047-06-18T21:43:32.052 | 71.33 | -75.12 | 2575.1 | 46.35 | 46.36 |
| Titan | E | 2047-06-18T21:46:09.156 | 71.82 | -75.58 | 2575.1 | 47.48 | 47.50 |

