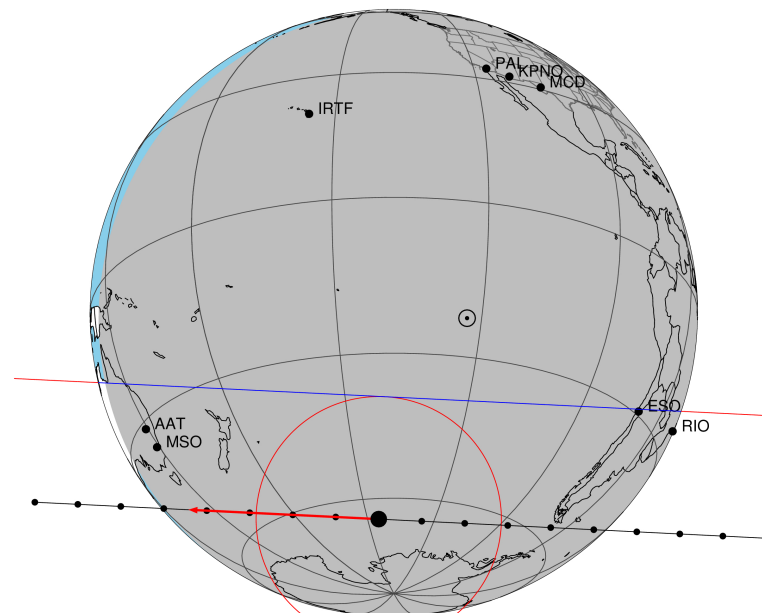


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-07-06T08:17:03.320
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4070280514318173056
 2Mass ID (if available) : 17582210-2221505

ICRS Star Coord at Epoch: 17h 58m 22.09336s -22:21:50.32833s
 RUWE (>1.4 is poor) : 1.08
 K magnitude : 13.750
 G magnitude : 16.769
 RP magnitude : 15.812
 BP magnitude : 17.489
 DUPflag : 0
 Distance (au) : 9.062
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.07
 Sun-Target sep (deg) : 166.01
 Sun-Moon sep (deg) : 2.60
 B (ring opening deg) : 26.48
 PA of pole (deg) : 5.63
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.660
 C/A sky separation (km) : 4339.9
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

Titan 2047-07-06T08:17:03 K13.75 G16.77 dots 60.0 sec
 Pt

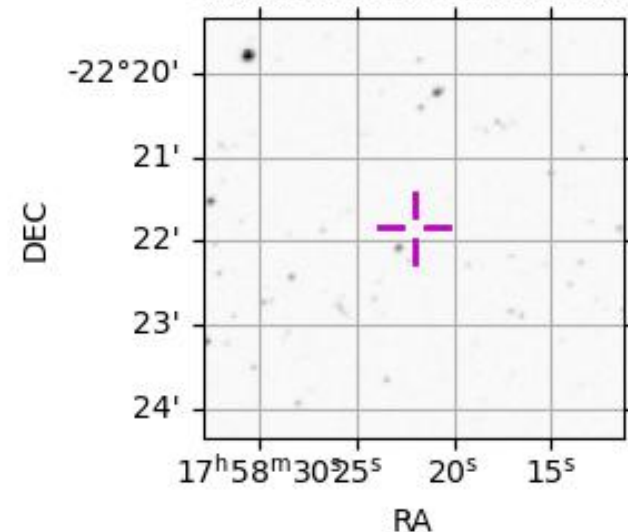


2047-07-06T08:17:03.3200 α: 17 58 22.0934 δ: -22 21 50.328 C/A 0.661" PA 182.82 deg v_sky -15.07 km/s D 09.06 AU
 Credit: Styled after SORA/Lucky Star

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

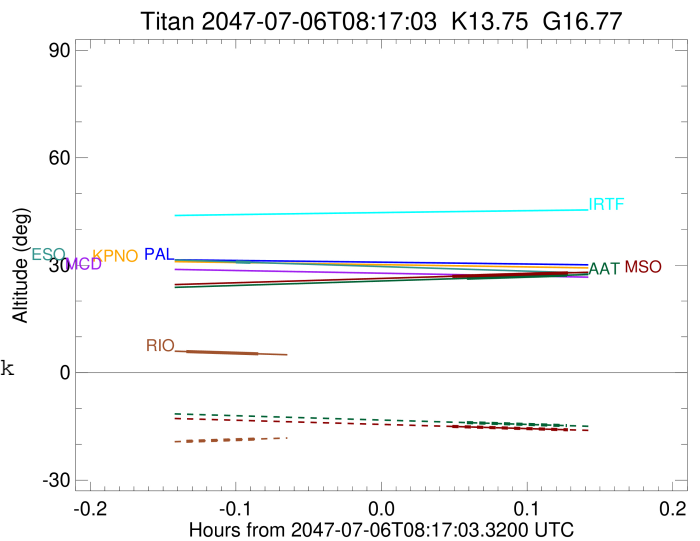
Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUL 06 08:08 - JUL 06 08:11	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUL 06 08:11 - JUL 06 08:11	Pie
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUL 06 08:20 - JUL 06 08:24	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 06 08:19 - JUL 06 08:24	Pie

4070280514318173056



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-06T08:10:28.790
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       : 4070280514318173056
2Mass ID (if available) : 17582210-2221505
ICRS Star Coord at Epoch: 17h 58m 22.09336s -22:21:50.32833s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 13.750
G magnitude           : 16.769
RP magnitude          : 15.812
BP magnitude          : 17.489
DUPflag              : 0
Distance (au)         : 9.062
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.07
Sun-Target sep (deg) : 166.01
Sun-Moon sep (deg)   : 2.61
B (ring opening deg) : 26.48
PA of pole (deg)     : 5.63
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.333
C/A sky separation (km): 2190.8
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
    
```

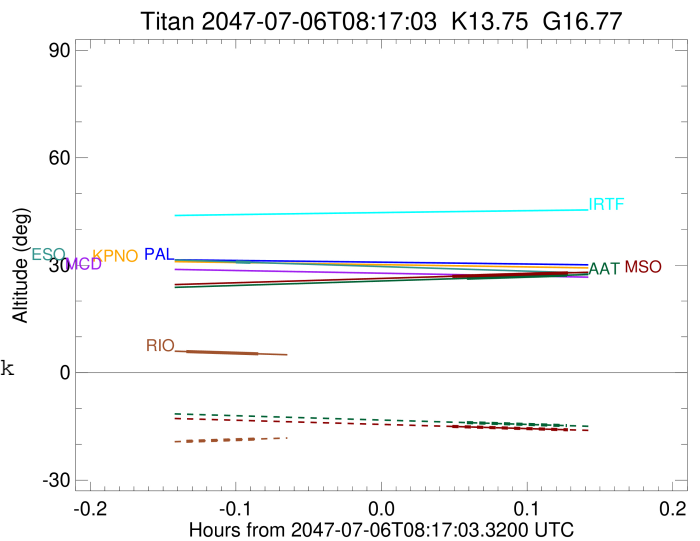


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-07-06T08:08:58.908	5.90	-19.17	2575.1	48.00	48.01
Titan	E	2047-07-06T08:11:58.696	5.26	-18.51	2575.1	51.15	51.17

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-07-06T08:11:21.370
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : ESO
Location              : European Southern Obs. (3.6m)
Latitude (deg)        : -29.26097
E. Longitude (deg)    : 289.26831
Altitude (km)         : 2.400
Gaia source ID        : 4070280514318173056
2Mass ID (if available) : 17582210-2221505
ICRS Star Coord at Epoch: 17h 58m 22.09336s -22:21:50.32833s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 13.750
G magnitude           : 16.769
RP magnitude          : 15.812
BP magnitude          : 17.489
DUPflag              : 0
Distance (au)         : 9.062
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.07
Sun-Target sep (deg) : 166.01
Sun-Moon sep (deg)   : 2.62
B (ring opening deg) : 26.48
PA of pole (deg)     : 5.63
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.390
C/A sky separation (km) : 2560.1
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	2047-07-06T08:11:03.192	30.92	-44.15	2575.0	62.29	62.30
Titan	E	2047-07-06T08:11:39.546	30.78	-44.02	2575.0	63.26	63.27

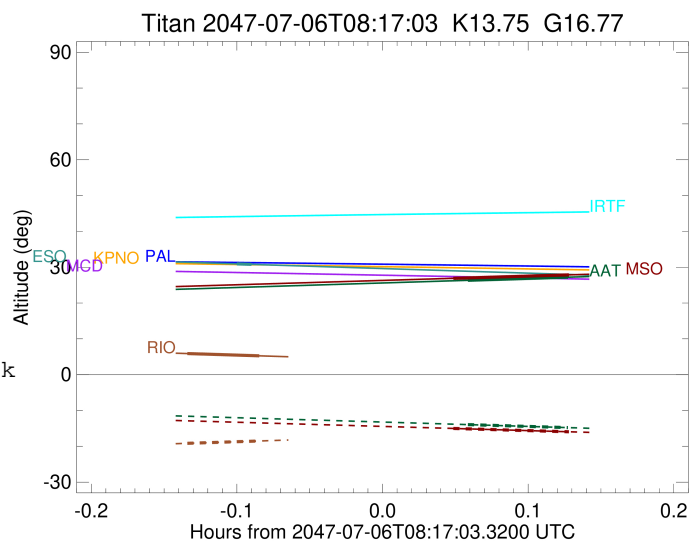
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-06T08:22:38.060
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       : 4070280514318173056
2Mass ID (if available) : 17582210-2221505
ICRS Star Coord at Epoch: 17h 58m 22.09336s -22:21:50.32833s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 13.750
G magnitude           : 16.769
RP magnitude         : 15.812
BP magnitude         : 17.489
DUPflag              : 0
Distance (au)        : 9.062
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.07
Sun-Target sep (deg) : 166.01
Sun-Moon sep (deg)   : 2.20
B (ring opening deg) : 26.48
PA of pole (deg)     : 5.63
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.264
C/A sky separation (km) : 1735.0
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	2047-07-06T08:20:32.703	26.33	-13.93	2575.1	34.26	34.28
Titan	E	2047-07-06T08:24:43.398	27.21	-14.78	2575.1	39.87	39.89



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-06T08:22:21.980
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       : 4070280514318173056
2Mass ID (if available) : 17582210-2221505
ICRS Star Coord at Epoch: 17h 58m 22.09336s -22:21:50.32833s
RUWE (>1.4 is poor) : 1.08
K magnitude          : 13.750
G magnitude          : 16.769
RP magnitude         : 15.812
BP magnitude         : 17.489
DUPflag             : 0
Distance (au)        : 9.062
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.07
Sun-Target sep (deg) : 166.01
Sun-Moon sep (deg)   : 2.14
B (ring opening deg) : 26.48
PA of pole (deg)     : 5.63
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.208
C/A sky separation (km): 1364.9
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	2047-07-06T08:19:58.074	26.89	-15.01	2575.1	25.41	25.43
Titan	E	2047-07-06T08:24:45.869	27.86	-15.95	2575.1	31.20	31.22

