

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-15T08:58:14.310
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4069691725852367360
 2Mass ID (if available) : 18050176-2222018

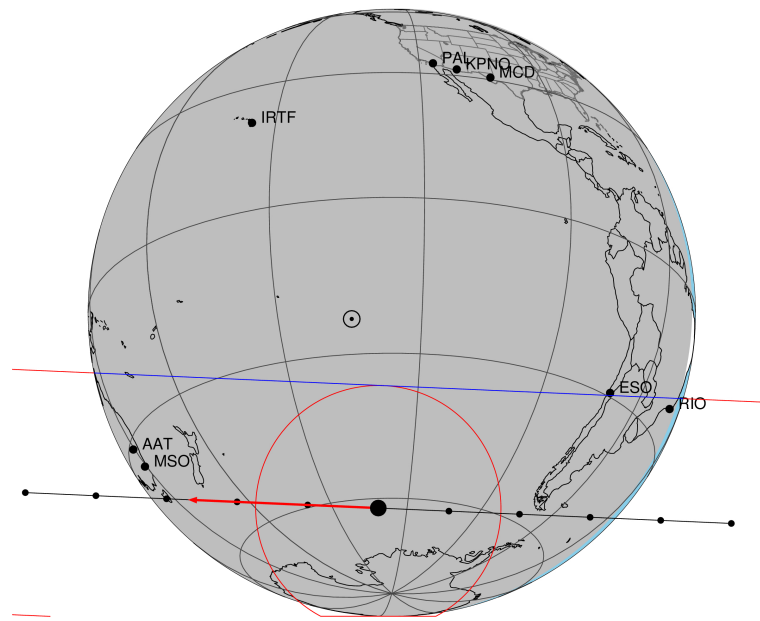
ICRS Star Coord at Epoch: 18h 05m 01.76398s -22:22:01.93689s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 12.198
 G magnitude : 18.408
 RP magnitude : 17.017
 BP magnitude : 20.799
 DUPflag : 0
 Distance (au) : 9.032
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -24.72
 Sun-Target sep (deg) : 172.33
 Sun-Moon sep (deg) : 82.90
 B (ring opening deg) : 26.33
 PA of pole (deg) : 5.76
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.627
 C/A sky separation (km) : 4105.2
 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			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 15 08:53 - JUN 15 08:54	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUN 15 09:00 - JUN 15 09:03	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 15 08:59 - JUN 15 09:03	Pie

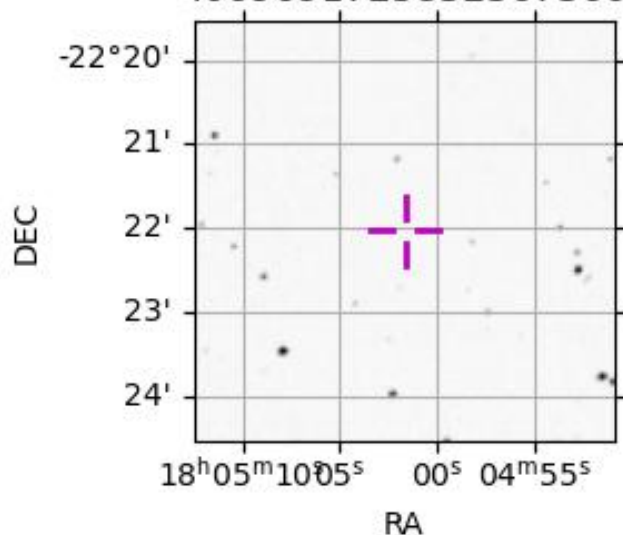
Titan 2047-06-15T08:58:14 K12.20 G18.41 dots 60.0 sec
 Pt



2047-06-15T08:58:14.3100 cc: 18 05 01.7640 & -22 22 01.937 C/A 0.627" PA 182.51 deg v_sky -24.73 km/s D 09.03 AU

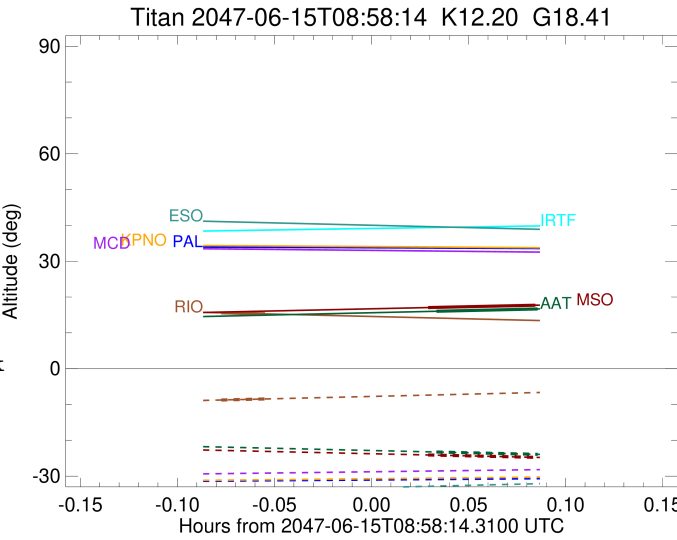
Credit: Styled after SORA/Lucky Star

4069691725852367360



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-15T08:54:16.630
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     : 4069691725852367360
2Mass ID (if available) : 18050176-2222018
ICRS Star Coord at Epoch: 18h 05m 01.76398s -22:22:01.93689s
RUWE (>1.4 is poor) : 1.07
K magnitude         : 12.198
G magnitude         : 18.408
RP magnitude        : 17.017
BP magnitude        : 20.799
DUPflag            : 0
Distance (au)      : 9.032
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -24.72
Sun-Target sep (deg) : 172.33
Sun-Moon sep (deg)  : 83.03
B (ring opening deg) : 26.33
PA of pole (deg)    : 5.76
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.361
C/A sky separation (km) : 2362.9
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 2047-06-15T08:53:35.362 15.59 -8.75 2575.1 53.46 53.47
Titan E 2047-06-15T08:54:57.906 15.29 -8.45 2575.1 57.07 57.09
    
```

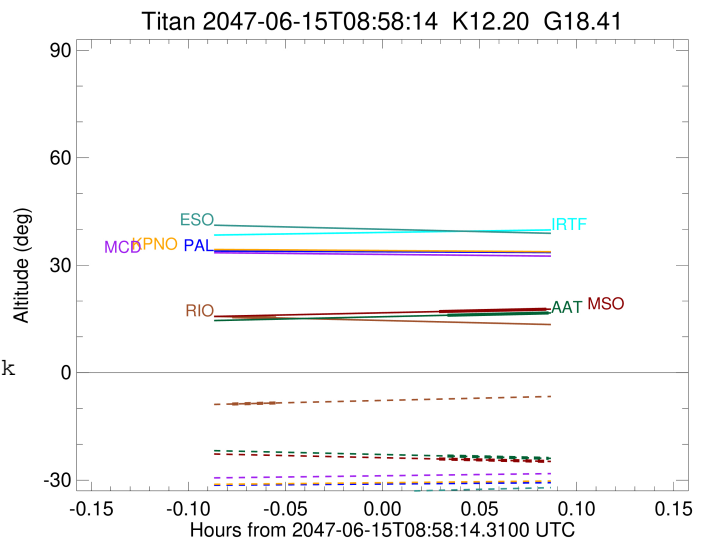
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-15T09:01:48.880
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       : 4069691725852367360
2Mass ID (if available) : 18050176-2222018
ICRS Star Coord at Epoch: 18h 05m 01.76398s -22:22:01.93689s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 12.198
G magnitude           : 18.408
RP magnitude          : 17.017
BP magnitude          : 20.799
DUPflag              : 0
Distance (au)         : 9.032
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -24.72
Sun-Target sep (deg)  : 172.33
Sun-Moon sep (deg)    : 83.24
B (ring opening deg) : 26.33
PA of pole (deg)     : 5.76
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.164
C/A sky separation (km) : 1074.9
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	2047-06-15T09:00:14.383	16.02	-23.26	2575.1	18.79	18.80
Titan	E	2047-06-15T09:03:23.372	16.67	-23.92	2575.1	25.12	25.13



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-15T09:01:38.550
 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 : 4069691725852367360
 2Mass ID (if available) : 18050176-2222018
 ICRS Star Coord at Epoch: 18h 05m 01.76398s -22:22:01.93689s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 12.198
 G magnitude : 18.408
 RP magnitude : 17.017
 BP magnitude : 20.799
 DUPflag : 0
 Distance (au) : 9.032
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -24.72
 Sun-Target sep (deg) : 172.33
 Sun-Moon sep (deg) : 83.25
 B (ring opening deg) : 26.33
 PA of pole (deg) : 5.76
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.111
 C/A sky separation (km) : 724.7
 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	2047-06-15T08:59:58.751	17.05	-24.09	2575.1	11.41	11.42
Titan	E	2047-06-15T09:03:18.338	17.71	-24.75	2575.1	17.79	17.80

