

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-22T03:18:51.720
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069861394229476352
 2Mass ID (if available) : 18025877-2220173

ICRS Star Coord at Epoch: 18h 02m 58.76897s -22:20:17.32258s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 11.379
 G magnitude : 17.353
 RP magnitude : 16.327
 BP magnitude : 18.439
 DUPflag : 0
 Distance (au) : 9.037
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.66
 Sun-Target sep (deg) : 178.72
 Sun-Moon sep (deg) : 164.02
 B (ring opening deg) : 26.35
 PA of pole (deg) : 5.72
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.070
 C/A sky separation (km) : 458.2
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

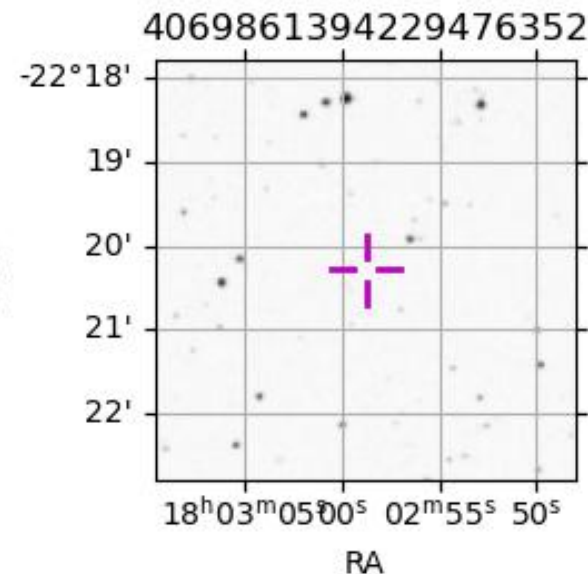
Titan 2047-06-22T03:18:51 K11.38 G17.35 dots 60.0 sec
 Pgt



2047-06-22T03:18:51.7200 cc: 18 02 58.7690 & -22 20 17.323 C/A 0.069" PA 176.65 deg v_sky -14.66 km/s D 09.04 AU
 Credit: Styled after SORA/Lucky Star

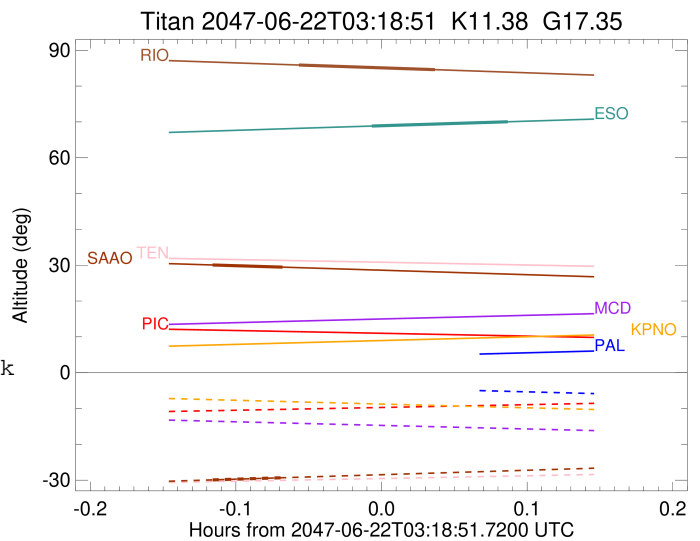
Observable events with sun below -5 deg and altitude above 5 deg

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 22 03:15 - JUN 22 03:21	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUN 22 03:18 - JUN 22 03:24	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 22 03:11 - JUN 22 03:14	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-22T03:18:16.080
Event type           : Pgt
: Titan occs: geocentric, topocentric
: 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       : 4069861394229476352
2Mass ID (if available) : 18025877-2220173
ICRS Star Coord at Epoch: 18h 02m 58.76897s -22:20:17.32258s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 11.379
G magnitude          : 17.353
RP magnitude         : 16.327
BP magnitude         : 18.439
DUPflag             : 0
Distance (au)        : 9.037
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.66
Sun-Target sep (deg) : 178.72
Sun-Moon sep (deg)   : 164.34
B (ring opening deg) : 26.35
PA of pole (deg)     : 5.72
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.056
C/A sky separation (km) : 368.6
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
    
```



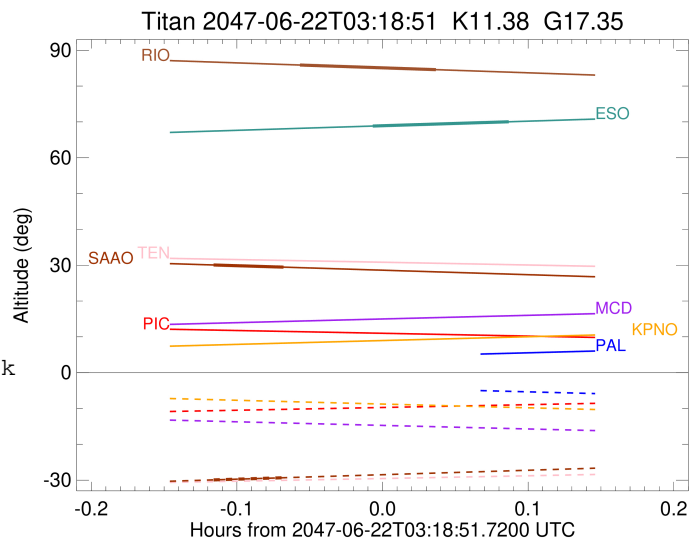
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-06-22T03:15:27.084	85.87	-85.20	2575.2	-0.62	-0.62
Titan	E	2047-06-22T03:21:05.089	84.57	-83.92	2575.1	15.32	15.33

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-06-22T03:21:15.370
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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        : 4069861394229476352
2Mass ID (if available) : 18025877-2220173
ICRS Star Coord at Epoch: 18h 02m 58.76897s -22:20:17.32258s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 11.379
G magnitude           : 17.353
RP magnitude          : 16.327
BP magnitude          : 18.439
DUPflag              : 0
Distance (au)         : 9.037
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.66
Sun-Target sep (deg)  : 178.72
Sun-Moon sep (deg)   : 163.95
B (ring opening deg) : 26.35
PA of pole (deg)     : 5.72
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.047
C/A sky separation (km) : 308.9
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	2047-06-22T03:18:25.330	68.83	-69.85	2575.1	-14.39	-14.39
Titan	E	2047-06-22T03:24:05.395	70.03	-71.06	2575.2	2.08	2.08

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-06-22T03:13:20.080
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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        : 4069861394229476352
2Mass ID (if available) : 18025877-2220173
ICRS Star Coord at Epoch: 18h 02m 58.76897s -22:20:17.32258s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 11.379
G magnitude           : 17.353
RP magnitude          : 16.327
BP magnitude          : 18.439
DUPflag              : 0
Distance (au)         : 9.037
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.66
Sun-Target sep (deg)  : 178.72
Sun-Moon sep (deg)   : 164.73
B (ring opening deg) : 26.35
PA of pole (deg)     : 5.72
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.340
C/A sky separation (km) : 2227.5
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	2047-06-22T03:11:52.757	30.06	-29.93	2575.1	-56.41	-56.43
Titan	E	2047-06-22T03:14:47.429	29.45	-29.33	2575.1	-44.45	-44.46

