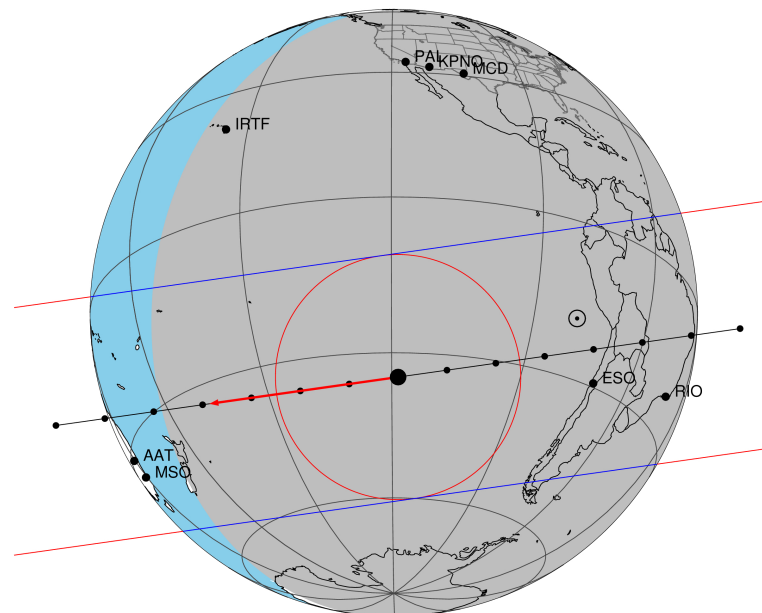


target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2047-07-29T05:26:12.840  
 Event type : Pgt  
 : Titan occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4070419121542321536  
 2Mass ID (if available) : 17523354-2226123

ICRS Star Coord at Epoch: 17h 52m 33.52766s -22:26:12.49799s  
 RUWE (>1.4 is poor) : 2.19  
 K magnitude : 13.459  
 G magnitude : 17.955  
 RP magnitude : 16.653  
 BP magnitude : 19.237  
 DUPflag : 0  
 Distance (au) : 9.215  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -17.27  
 Sun-Target sep (deg) : 142.86  
 Sun-Moon sep (deg) : 62.29  
 B (ring opening deg) : 26.68  
 PA of pole (deg) : 5.52  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.204  
 C/A sky separation (km) : 1365.2  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk

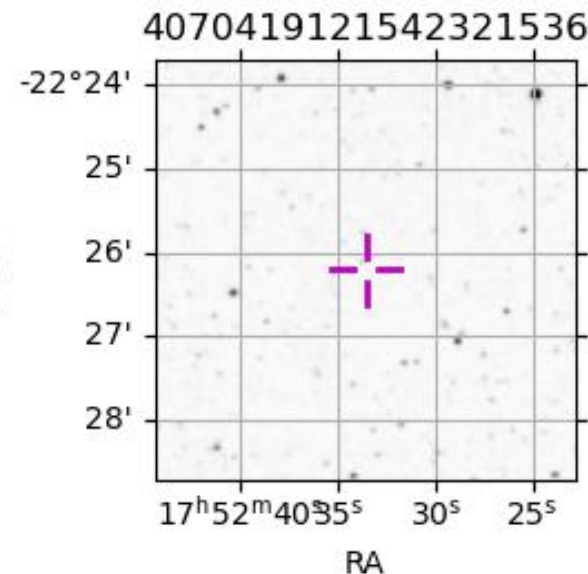
Titan 2047-07-29T05:26:12 K13.46 G17.96 dots 60.0 sec  
 Pgt



2047-07-29T05:26:12.8400 cc: 17 52 33.5277 & -22 26 12.498 C/A 0.202" PA 171.93 deg v\_sky -17.27 km/s D 09.21 AU  
 Credit: Styled after SORA/Lucky Star

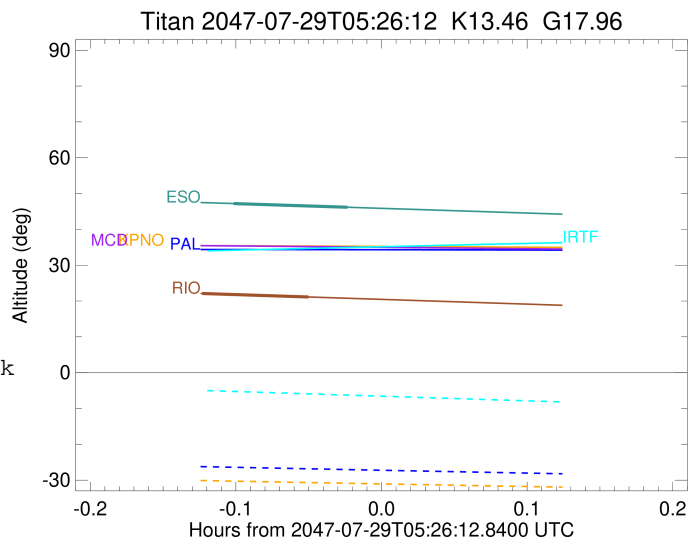
Observable events with sun below -5 deg and altitude above 5 deg

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 29 05:18 - JUL 29 05:23	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUL 29 05:20 - JUL 29 05:24	Pie
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



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-29T05:21:01.160
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     : 4070419121542321536
2Mass ID (if available) : 17523354-2226123
ICRS Star Coord at Epoch: 17h 52m 33.52766s -22:26:12.49799s
RUWE (>1.4 is poor) : 2.19
K magnitude         : 13.459
G magnitude         : 17.955
RP magnitude        : 16.653
BP magnitude        : 19.237
DUPflag            : 0
Distance (au)      : 9.215
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -17.27
Sun-Target sep (deg) : 142.86
Sun-Moon sep (deg)  : 62.98
B (ring opening deg) : 26.68
PA of pole (deg)   : 5.52
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.171
C/A sky separation (km) : 1140.8
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	2047-07-29T05:18:48.132	22.10	-57.23	2575.1	-34.48	-34.50
Titan	E	2047-07-29T05:23:14.203	21.12	-56.21	2575.1	-11.83	-11.84

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-29T05:22:27.990
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       : 4070419121542321536
2Mass ID (if available) : 17523354-2226123
ICRS Star Coord at Epoch: 17h 52m 33.52766s -22:26:12.49799s
RUWE (>1.4 is poor) : 2.19
K magnitude          : 13.459
G magnitude          : 17.955
RP magnitude         : 16.653
BP magnitude         : 19.237
DUPflag             : 0
Distance (au)        : 9.215
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.27
Sun-Target sep (deg) : 142.86
Sun-Moon sep (deg)  : 63.20
B (ring opening deg) : 26.68
PA of pole (deg)    : 5.52
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.098
C/A sky separation (km) : 658.2
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	2047-07-29T05:20:05.903	47.20	-77.51	2575.1	-24.72	-24.73
Titan	E	2047-07-29T05:24:50.078	46.17	-76.87	2575.2	-1.54	-1.54

