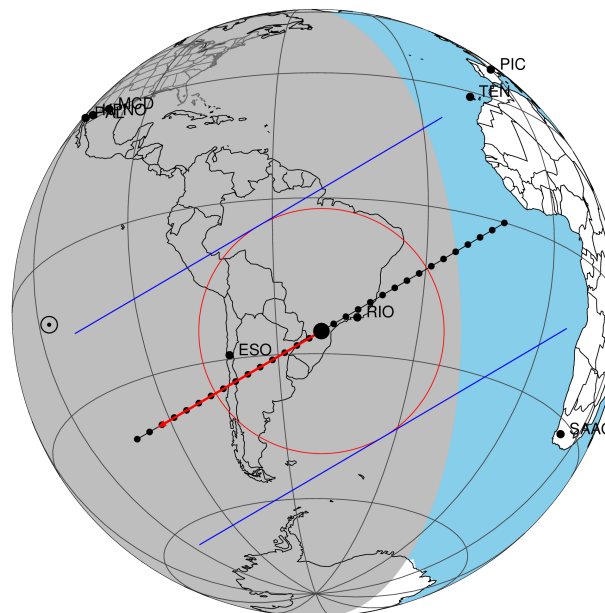


target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2047-04-23T07:41:31.260  
 Event type : Pgt  
 : Titan occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4090526753972826752  
 2Mass ID (if available) : 18165517-2217243

ICRS Star Coord at Epoch: 18h 16m 55.18530s -22:17:23.78325s  
 RUWE (>1.4 is poor) : 0.98  
 K magnitude : 11.241  
 G magnitude : 16.127  
 RP magnitude : 14.774  
 BP magnitude : 17.199  
 DUPflag : 0  
 Distance (au) : 9.527  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -4.97  
 Sun-Target sep (deg) : 118.52  
 Sun-Moon sep (deg) : 97.99  
 B (ring opening deg) : 25.97  
 PA of pole (deg) : 5.97  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.064  
 C/A sky separation (km) : 442.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk  
 URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp

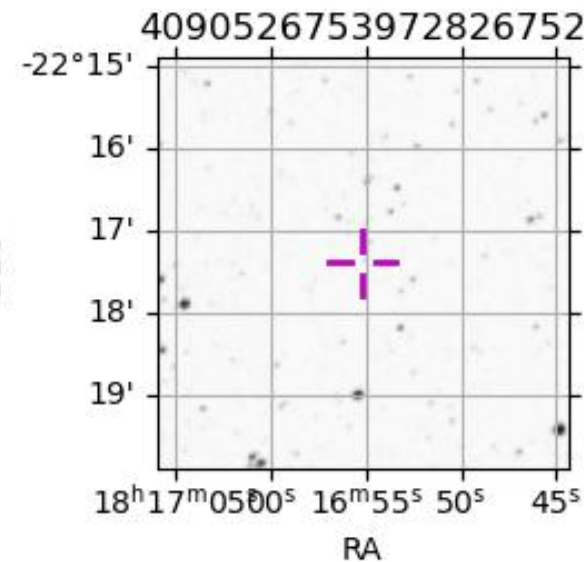
Titan 2047-04-23T07:41:31 K11.24 G16.13 dots 60.0 sec  
 Pgt



2047-04-23T07:41:31.2600 α: 18 16 55.1853 δ: -22 17 23.783 C/A 0.056" PA 149.46 deg v\_sky - 4.97 km/s D 09.53 AU  
 Credit: Styled after SORA/Lucky Star

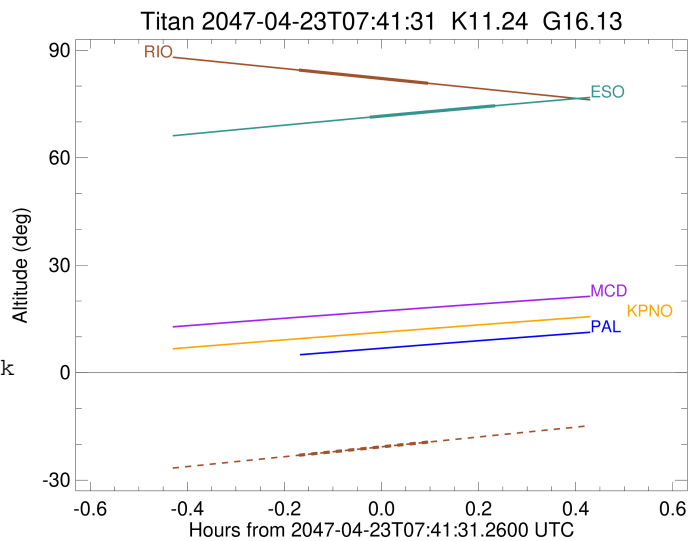
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
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	+ +	APR 23 07:31 - APR 23 07:47	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	APR 23 07:39 - APR 23 07:55	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             : 2047-04-23T07:39:17.820
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       : 4090526753972826752
2Mass ID (if available) : 18165517-2217243
ICRS Star Coord at Epoch: 18h 16m 55.18530s -22:17:23.78325s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 11.241
G magnitude           : 16.127
RP magnitude          : 14.774
BP magnitude          : 17.199
DUPflag              : 0
Distance (au)         : 9.527
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.97
Sun-Target sep (deg) : 118.52
Sun-Moon sep (deg)   : 98.89
B (ring opening deg) : 25.97
PA of pole (deg)     : 5.97
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.006
C/A sky separation (km) : 44.2
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	2047-04-23T07:31:13.914	84.48	-23.06	2575.1	-30.97	-30.99
Titan	E	2047-04-23T07:47:20.933	80.76	-19.36	2575.1	29.31	29.33

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-04-23T07:47:50.270
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       : 4090526753972826752
2Mass ID (if available) : 18165517-2217243
ICRS Star Coord at Epoch: 18h 16m 55.18530s -22:17:23.78325s
RUWE (>1.4 is poor) : 0.98
K magnitude          : 11.241
G magnitude          : 16.127
RP magnitude         : 14.774
BP magnitude         : 17.199
DUPflag             : 0
Distance (au)        : 9.527
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.97
Sun-Target sep (deg) : 118.52
Sun-Moon sep (deg)  : 98.79
B (ring opening deg) : 25.97
PA of pole (deg)    : 5.97
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.081
C/A sky separation (km) : 560.3
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	2047-04-23T07:39:58.792	71.29	-45.40	2575.1	-19.87	-19.88
Titan	E	2047-04-23T07:55:40.492	74.53	-42.03	2575.1	41.27	41.28

