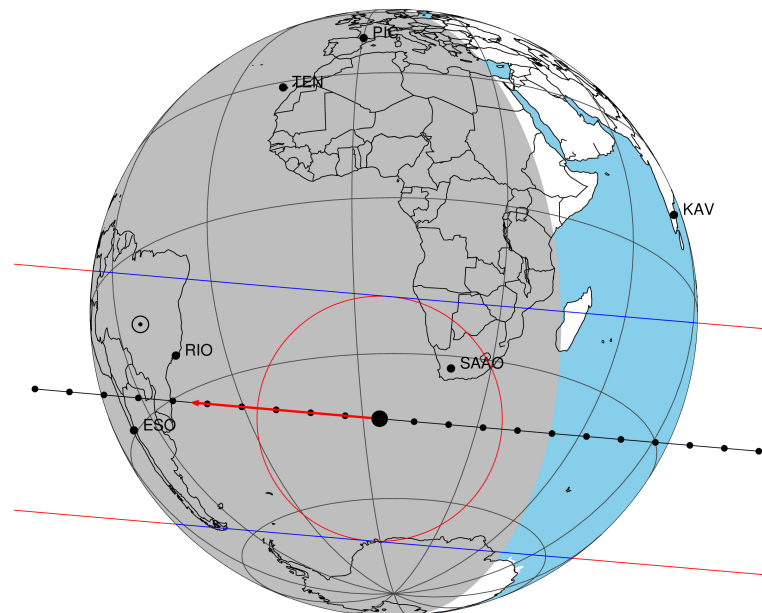


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-04-28T03:23:05.670
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4090524310098516864
 2Mass ID (if available) : 18161379-2218257

ICRS Star Coord at Epoch: 18h 16m 13.78334s -22:18:26.13280s
 RUWE (>1.4 is poor) : 1.11
 K magnitude : 13.107
 G magnitude : 17.405
 RP magnitude : 16.148
 BP magnitude : 18.776
 DUPflag : 0
 Distance (au) : 9.450
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.10
 Sun-Target sep (deg) : 123.37
 Sun-Moon sep (deg) : 155.30
 B (ring opening deg) : 26.01
 PA of pole (deg) : 5.96
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.325
 C/A sky separation (km) : 2230.7
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

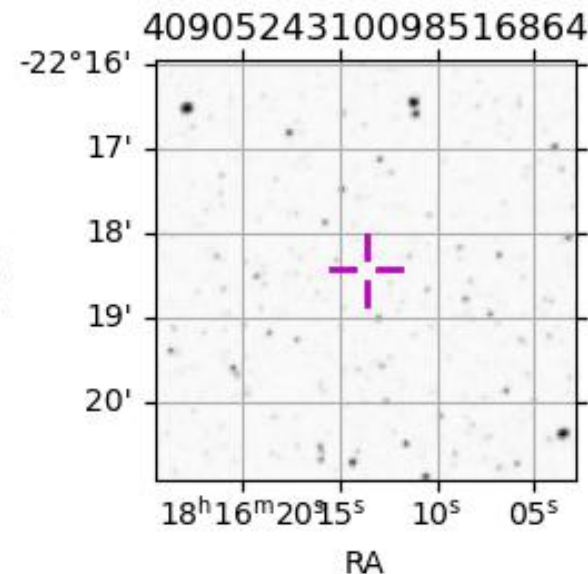
Titan 2047-04-28T03:23:05 K13.11 G17.41 dots 60.0 sec
 Pgt



2047-04-28T03:23:05.6700 cc: 18 16 13.7833 s: -22 18 26.133 C/A 0.327" PA 184.91 deg v_sky -12.11 km/s D 09.45 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	+ +	APR 28 03:25 - APR 28 03:32	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	APR 28 03:26 - APR 28 03:33	Pie
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	APR 28 03:18 - APR 28 03:24	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



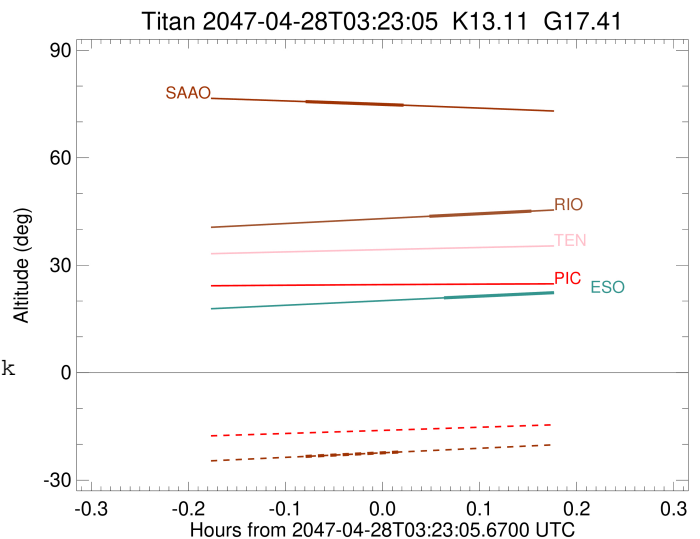
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-04-28T03:29:07.920
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       : 4090524310098516864
2Mass ID (if available) : 18161379-2218257
ICRS Star Coord at Epoch: 18h 16m 13.78334s -22:18:26.13280s
RUWE (>1.4 is poor) : 1.11
K magnitude           : 13.107
G magnitude           : 17.405
RP magnitude          : 16.148
BP magnitude          : 18.776
DUPflag              : 0
Distance (au)         : 9.450
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.10
Sun-Target sep (deg) : 123.37
Sun-Moon sep (deg)   : 154.96
B (ring opening deg) : 26.01
PA of pole (deg)     : 5.96
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.151
C/A sky separation (km): 1032.9
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	2047-04-28T03:25:57.227	43.64	-77.92	2575.1	19.62	19.63
Titan	E	2047-04-28T03:32:18.549	45.09	-76.83	2575.1	22.62	22.63



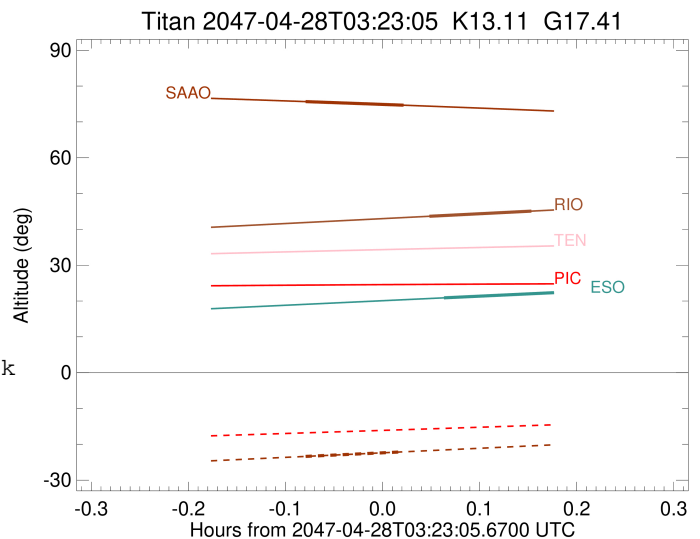
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-04-28T03:30:17.010
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      : 4090524310098516864
2Mass ID (if available) : 18161379-2218257
ICRS Star Coord at Epoch: 18h 16m 13.78334s -22:18:26.13280s
RUWE (>1.4 is poor) : 1.11
K magnitude         : 13.107
G magnitude         : 17.405
RP magnitude        : 16.148
BP magnitude        : 18.776
DUPflag            : 0
Distance (au)       : 9.450
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -12.10
Sun-Target sep (deg) : 123.37
Sun-Moon sep (deg)  : 154.68
B (ring opening deg) : 26.01
PA of pole (deg)    : 5.96
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.086
C/A sky separation (km) : 589.4
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	2047-04-28T03:26:51.257	20.88	-67.33	2575.1	-13.44	-13.45
Titan	E	2047-04-28T03:33:42.663	22.33	-68.49	2575.1	-10.30	-10.31

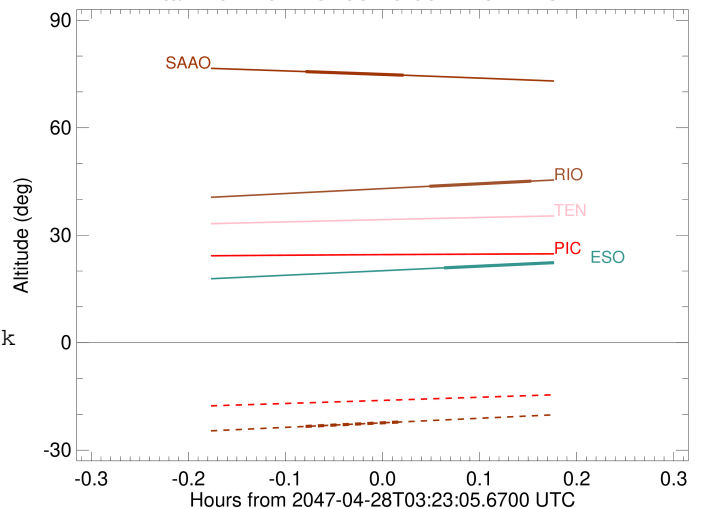


```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-04-28T03:21:22.330
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       : 4090524310098516864
2Mass ID (if available) : 18161379-2218257
ICRS Star Coord at Epoch: 18h 16m 13.78334s -22:18:26.13280s
RUWE (>1.4 is poor) : 1.11
K magnitude           : 13.107
G magnitude           : 17.405
RP magnitude          : 16.148
BP magnitude          : 18.776
DUPflag              : 0
Distance (au)        : 9.450
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.10
Sun-Target sep (deg) : 123.37
Sun-Moon sep (deg)   : 155.78
B (ring opening deg) : 26.01
PA of pole (deg)     : 5.96
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.173
C/A sky separation (km): 1182.5
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

```

Titan 2047-04-28T03:23:05 K13.11 G17.41



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	2047-04-28T03:18:19.193	75.66	-23.38	2575.1	23.46	23.47
Titan	E	2047-04-28T03:24:25.480	74.65	-22.09	2575.1	25.27	25.28