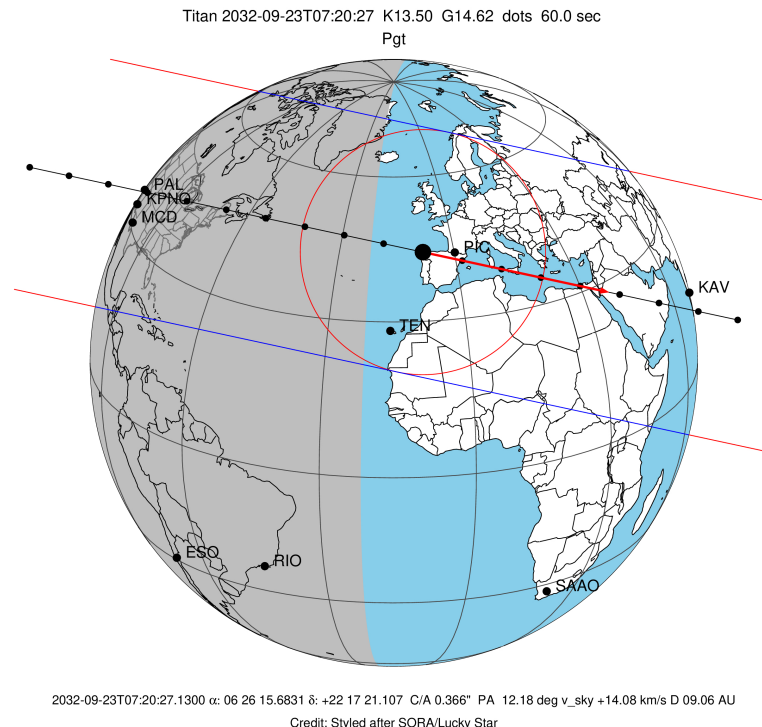


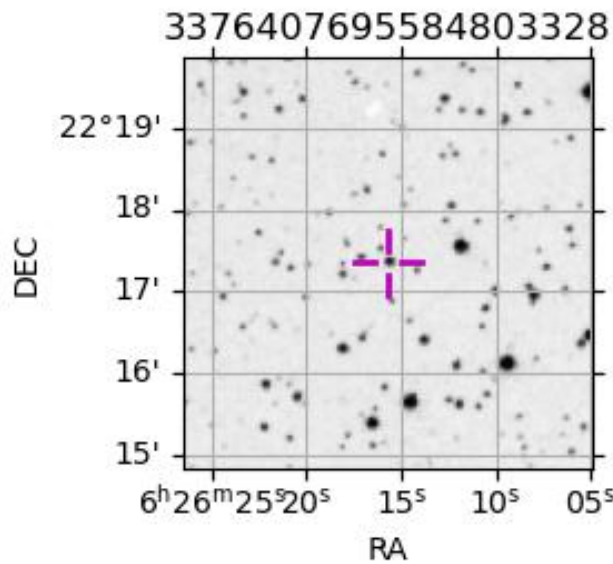
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2032-09-23T07:20:27.130
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3376407695584803328
 2Mass ID (if available) : 06261568+2217211

ICRS Star Coord at Epoch: 06h 26m 15.68308s +22:17:21.10671s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 13.503
 G magnitude : 14.615
 RP magnitude : 14.221
 BP magnitude : 14.851
 DUPflag : 0
 Distance (au) : 9.062
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 14.08
 Sun-Target sep (deg) : 84.29
 Sun-Moon sep (deg) : 42.83
 B (ring opening deg) : -25.74
 PA of pole (deg) : -6.12
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.362
 C/A sky separation (km) : 2377.0
 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	OEcode
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	+	SEP 23 07:16 - SEP 23 07:16	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	SEP 23 07:10 - SEP 23 07:16	Pie
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			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
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



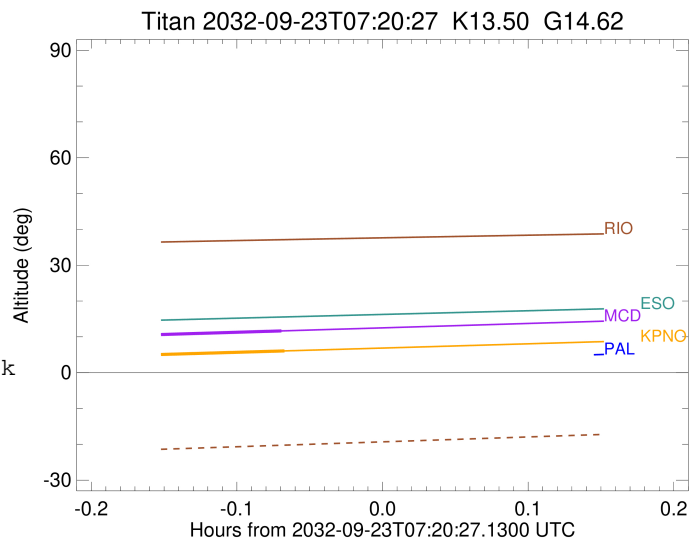
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2032-09-23T07:13:22.910
Event type            : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code         : KPNO
Location              : Kitt Peak Natl Obs
Latitude (deg)        : 31.96333
E. Longitude (deg)    : 248.40000
Altitude (km)         : 2.120
Gaia source ID        : 3376407695584803328
2Mass ID (if available) : 06261568+2217211
ICRS Star Coord at Epoch: 06h 26m 15.68308s +22:17:21.10671s
RUWE (>1.4 is poor)  : 0.98
K magnitude           : 13.503
G magnitude           : 14.615
RP magnitude          : 14.221
BP magnitude          : 14.851
DUPflag              : 0
Distance (au)         : 9.062
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 14.08
Sun-Target sep (deg)  : 84.29
Sun-Moon sep (deg)    : 42.29
B (ring opening deg)  : -25.74
PA of pole (deg)      : -6.12
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.035
C/A sky separation (km) : 227.7
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	2032-09-23T07:10:20.926	4.88x	-58.48	2575.1	-20.39	-20.40
Titan	E	2032-09-23T07:16:24.913	6.07	-58.53	2575.1	11.34	11.35



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2032-09-23T07:13:19.980
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : MCD
Location             : McDonald Obs. 2.7m
Latitude (deg)       : 30.67158
E. Longitude (deg)  : 255.97844
Altitude (km)        : 2.075
Gaia source ID       : 3376407695584803328
2Mass ID (if available) : 06261568+2217211
ICRS Star Coord at Epoch: 06h 26m 15.68308s +22:17:21.10671s
RUWE (>1.4 is poor) : 0.98
K magnitude          : 13.503
G magnitude          : 14.615
RP magnitude         : 14.221
BP magnitude         : 14.851
DUPflag             : 0
Distance (au)        : 9.062
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 14.08
Sun-Target sep (deg) : 84.29
Sun-Moon sep (deg)  : 42.35
B (ring opening deg) : -25.74
PA of pole (deg)    : -6.12
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.096
C/A sky separation (km) : 628.3
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	2032-09-23T07:10:22.157	10.45	-59.37	2575.1	-28.37	-28.38
Titan	E	2032-09-23T07:16:17.831	11.65	-59.10	2575.2	3.23	3.23

