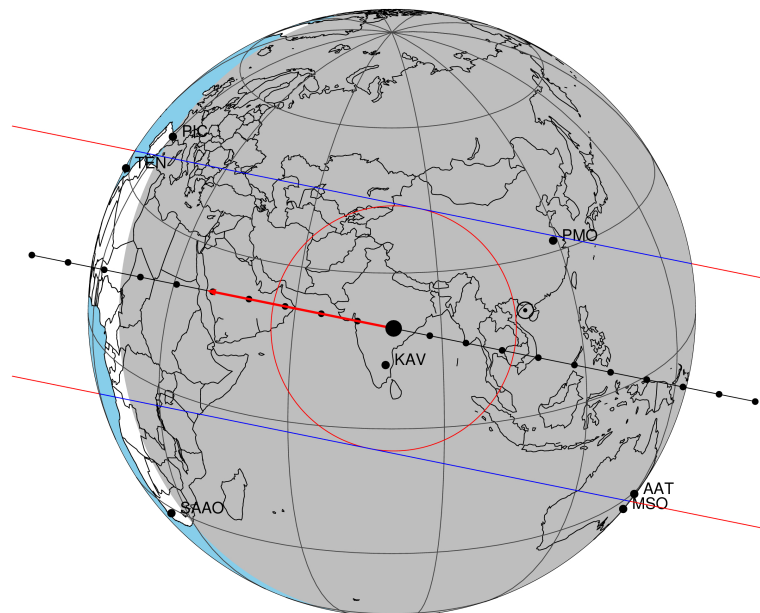


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2033-01-17T16:58:09.250
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3423750291158733696
 2Mass ID (if available) : 06060280+2229372

ICRS Star Coord at Epoch: 06h 06m 02.81221s +22:29:37.12120s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.529
 G magnitude : 15.891
 RP magnitude : 15.171
 BP magnitude : 16.415
 DUPflag : 0
 Distance (au) : 8.127
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.92
 Sun-Target sep (deg) : 153.94
 Sun-Moon sep (deg) : 50.44
 B (ring opening deg) : -26.43
 PA of pole (deg) : -5.78
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.058
 C/A sky separation (km) : 339.6
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

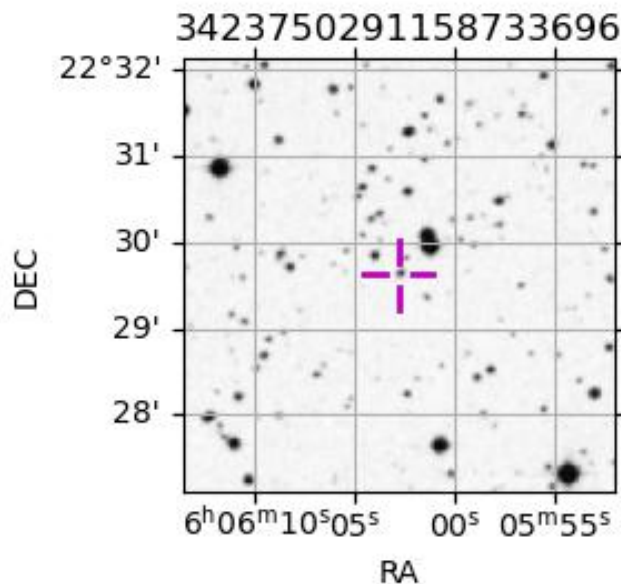
Titan 2033-01-17T16:58:09 K13.53 G15.89 dots 60.0 sec
 Pgt



2033-01-17T16:58:09.2500 α: 06 06 02.8122 δ: +22 29 37.121 C/A 0.053" PA 191.40 deg v_sky -12.91 km/s D 08.13 AU
 Credit: Styled after SORA/Lucky Star

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

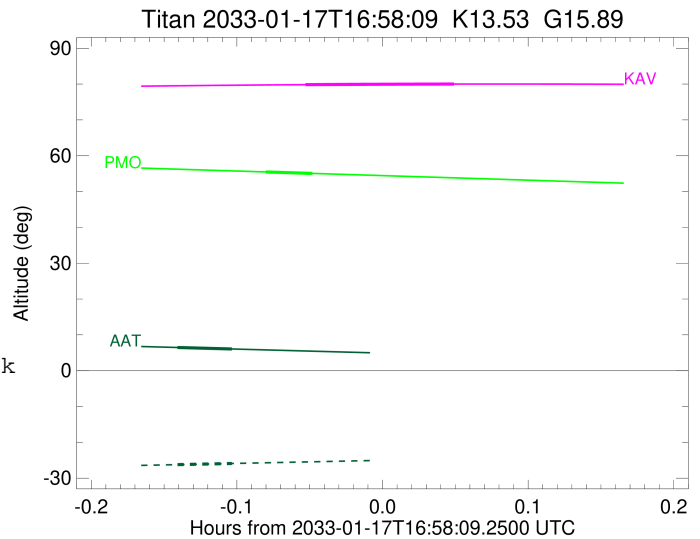
Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	JAN 17 16:53 - JAN 17 16:55	Pie
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JAN 17 16:54 - JAN 17 17:01	Pie
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	+ +	JAN 17 16:49 - JAN 17 16:51	Pie
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             : 2033-01-17T16:54:18.510
Event type            : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 3423750291158733696
2Mass ID (if available) : 06060280+2229372
ICRS Star Coord at Epoch: 06h 06m 02.81221s +22:29:37.12120s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 13.529
G magnitude           : 15.891
RP magnitude          : 15.171
BP magnitude          : 16.415
DUPflag              : 0
Distance (au)        : 8.127
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.92
Sun-Target sep (deg) : 153.94
Sun-Moon sep (deg)   : 50.72
B (ring opening deg) : -26.43
PA of pole (deg)     : -5.78
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.417
C/A sky separation (km) : 2455.9
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

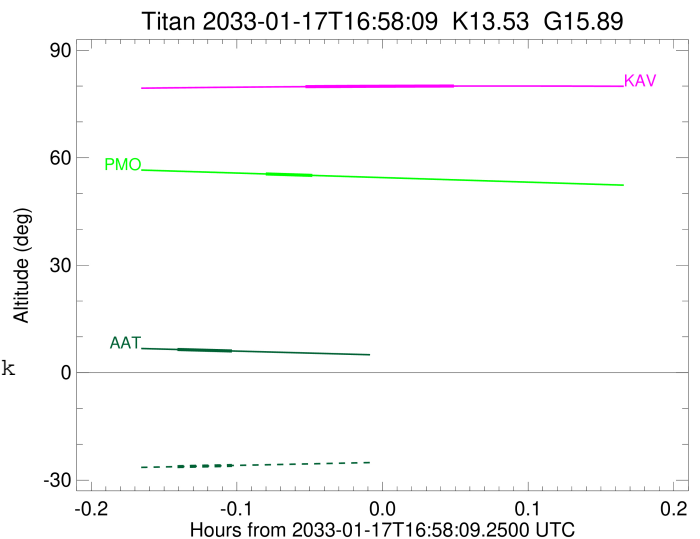
```



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	2033-01-17T16:53:19.841	55.47	-75.79	2575.1	63.55	63.57
Titan	E	2033-01-17T16:55:17.196	55.05	-75.53	2575.1	47.88	47.89

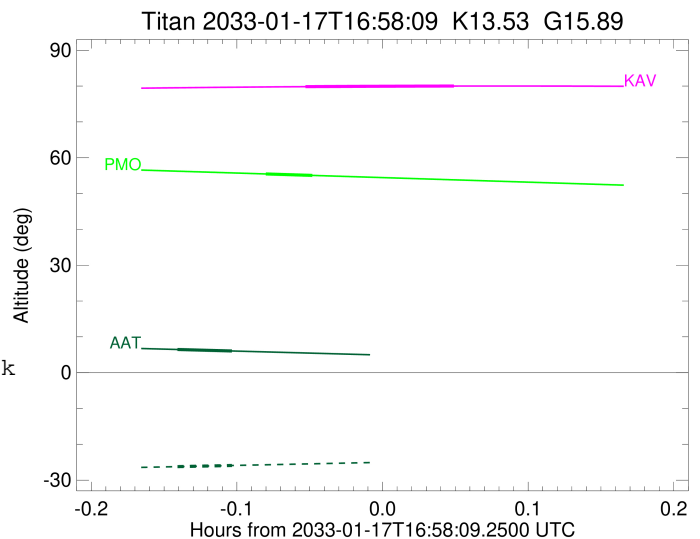
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2033-01-17T16:58:02.520
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Observer code : KAV
 Location : Kavalur Observatory
 Latitude (deg) : 12.57556
 E. Longitude (deg) : 78.83167
 Altitude (km) : 0.722
 Gaia source ID : 3423750291158733696
 2Mass ID (if available) : 06060280+2229372
 ICRS Star Coord at Epoch: 06h 06m 02.81221s +22:29:37.12120s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.529
 G magnitude : 15.891
 RP magnitude : 15.171
 BP magnitude : 16.415
 DUPflag : 0
 Distance (au) : 8.127
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.92
 Sun-Target sep (deg) : 153.94
 Sun-Moon sep (deg) : 51.14
 B (ring opening deg) : -26.43
 PA of pole (deg) : -5.78
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.131
 C/A sky separation (km) : 771.0
 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	2033-01-17T16:54:58.583	79.83	-60.20	2575.1	-0.49	-0.49
Titan	E	2033-01-17T17:01:06.431	80.00	-61.61	2575.1	-30.29	-30.30

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2033-01-17T16:50:49.830
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 3423750291158733696
 2Mass ID (if available) : 06060280+2229372
 ICRS Star Coord at Epoch: 06h 06m 02.81221s +22:29:37.12120s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.529
 G magnitude : 15.891
 RP magnitude : 15.171
 BP magnitude : 16.415
 DUPflag : 0
 Distance (au) : 8.127
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.92
 Sun-Target sep (deg) : 153.94
 Sun-Moon sep (deg) : 50.00
 B (ring opening deg) : -26.43
 PA of pole (deg) : -5.78
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.410
 C/A sky separation (km) : 2416.6
 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	2033-01-17T16:49:41.579	6.47	-26.23	2575.1	-45.89	-45.90
Titan	E	2033-01-17T16:51:58.073	6.05	-25.91	2575.1	-63.33	-63.34