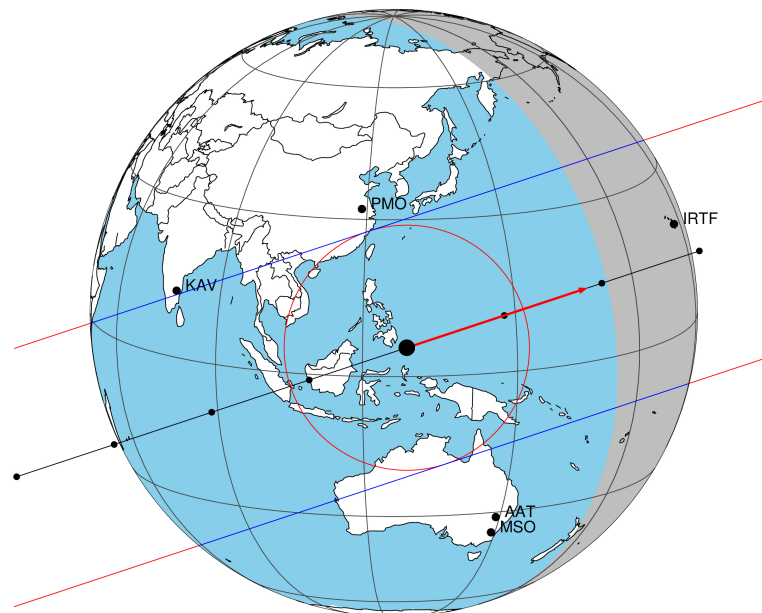


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2029-03-13T06:37:46.610
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 72816948551516288
 2Mass ID (if available) : 02244363+1201015

ICRS Star Coord at Epoch: 02h 24m 43.65226s +12:01:01.64661s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.399
 G magnitude : 18.242
 RP magnitude : 17.061
 BP magnitude : 19.504
 DUPflag : 0
 Distance (au) : 9.866
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 35.95
 Sun-Target sep (deg) : 45.29
 Sun-Moon sep (deg) : 66.43
 B (ring opening deg) : -18.58
 PA of pole (deg) : 0.40
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.110
 C/A sky separation (km) : 786.9
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

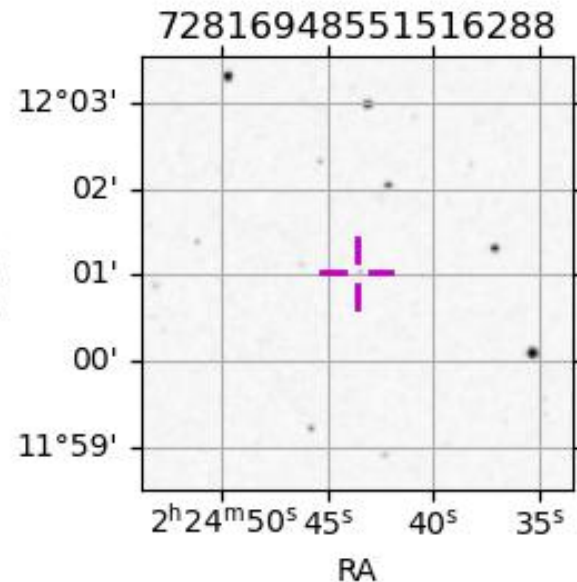
Titan 2029-03-13T06:37:46 K14.40 G18.24 dots 60.0 sec
 Pgt



2029-03-13T06:37:46.6100 α: 02 24 43.6523 δ: +12 01 01.647 C/A 0.109" PA 161.70 deg v_sky +35.95 km/s D 09.87 AU
 Credit: Styled after SORA/Lucky Star

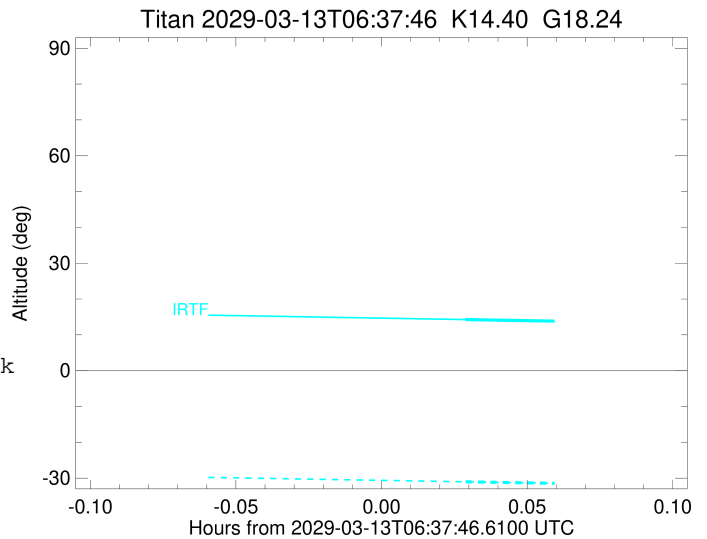
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	MAR 13 06:39 - MAR 13 06:41	Pie
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            : 2029-03-13T06:40:38.760
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : IRTF
Location             : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 72816948551516288
2Mass ID (if available) : 02244363+1201015
ICRS Star Coord at Epoch: 02h 24m 43.65226s +12:01:01.64661s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 14.399
G magnitude           : 18.242
RP magnitude          : 17.061
BP magnitude          : 19.504
DUPflag              : 0
Distance (au)        : 9.866
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 35.95
Sun-Target sep (deg) : 45.29
Sun-Moon sep (deg)   : 66.98
B (ring opening deg) : -18.58
PA of pole (deg)     : 0.40
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.100
C/A sky separation (km) : 716.5
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
    
```



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	2029-03-13T06:39:29.754	14.26	-31.02	2575.1	32.73	32.74
Titan	E	2029-03-13T06:41:47.758	13.73	-31.55	2575.2	-2.33	-2.34