

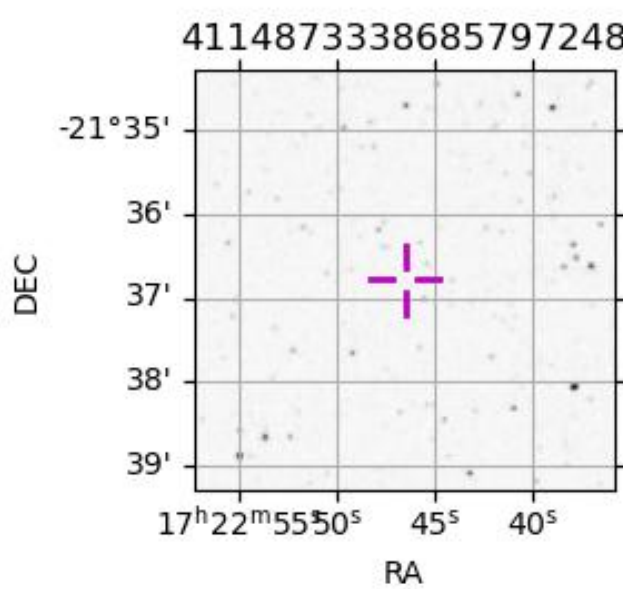
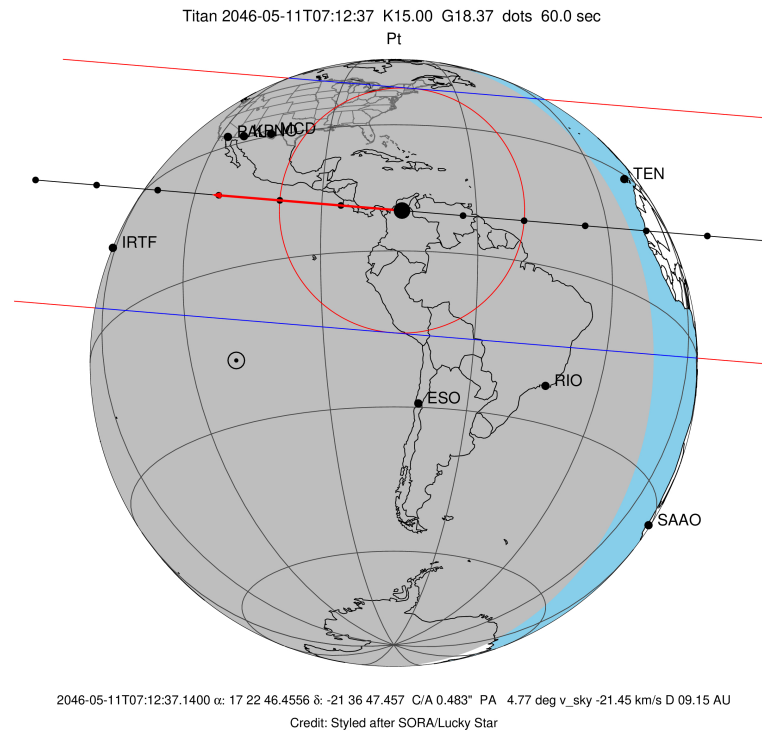
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-05-11T07:12:37.140
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4114873338685797248
 2Mass ID (if available) : 17224645-2136474

ICRS Star Coord at Epoch: 17h 22m 46.45563s -21:36:47.45673s
 RUWE (>1.4 is poor) : 1.04
 K magnitude : 15.000
 G magnitude : 18.372
 RP magnitude : 17.399
 BP magnitude : 19.394
 DUPflag : 0
 Distance (au) : 9.148
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -21.44
 Sun-Target sep (deg) : 148.76
 Sun-Moon sep (deg) : 148.43
 B (ring opening deg) : 26.49
 PA of pole (deg) : 4.83
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.483
 C/A sky separation (km) : 3204.5
 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	+ +	MAY 11 07:13 - MAY 11 07:17	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAY 11 07:13 - MAY 11 07:17	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAY 11 07:13 - MAY 11 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



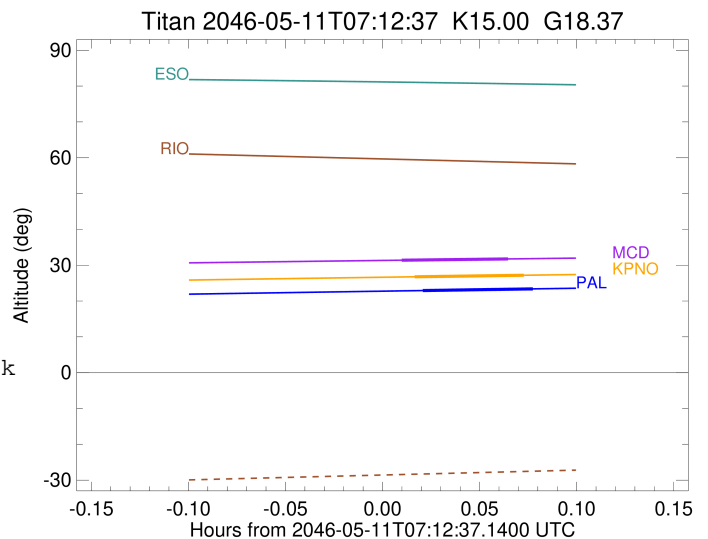
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-05-11T07:15:33.850
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4114873338685797248
2Mass ID (if available) : 17224645-2136474
ICRS Star Coord at Epoch: 17h 22m 46.45563s -21:36:47.45673s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 15.000
G magnitude           : 18.372
RP magnitude         : 17.399
BP magnitude         : 19.394
DUPflag              : 0
Distance (au)        : 9.148
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -21.44
Sun-Target sep (deg) : 148.76
Sun-Moon sep (deg)  : 149.15
B (ring opening deg) : 26.49
PA of pole (deg)    : 4.83
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.190
C/A sky separation (km): 1259.5
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	2046-05-11T07:13:50.507	22.92	-38.37	2575.1	25.64	25.66
Titan	E	2046-05-11T07:17:17.194	23.39	-38.48	2575.1	26.28	26.29



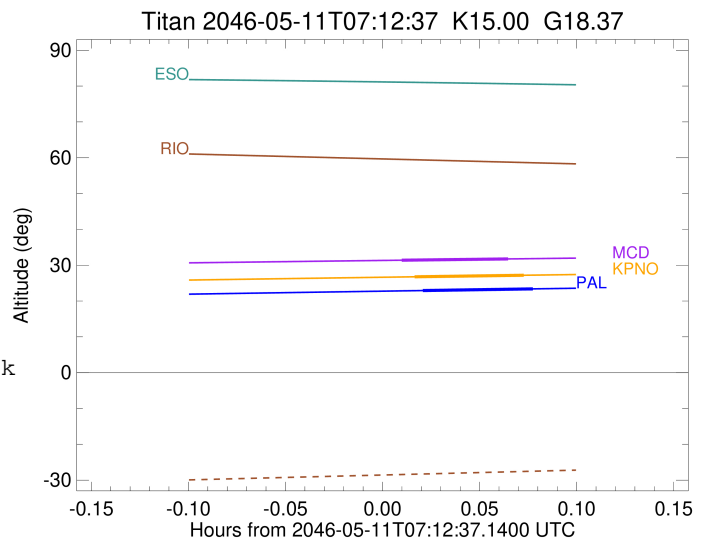
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-05-11T07:15:18.290
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4114873338685797248
2Mass ID (if available) : 17224645-2136474
ICRS Star Coord at Epoch: 17h 22m 46.45563s -21:36:47.45673s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 15.000
G magnitude           : 18.372
RP magnitude          : 17.399
BP magnitude          : 19.394
DUPflag              : 0
Distance (au)         : 9.148
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -21.44
Sun-Target sep (deg) : 148.76
Sun-Moon sep (deg)   : 149.14
B (ring opening deg) : 26.49
PA of pole (deg)     : 4.83
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.196
C/A sky separation (km) : 1299.1
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

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x: target alt < 5.0 deg or sun > -5.0 deg

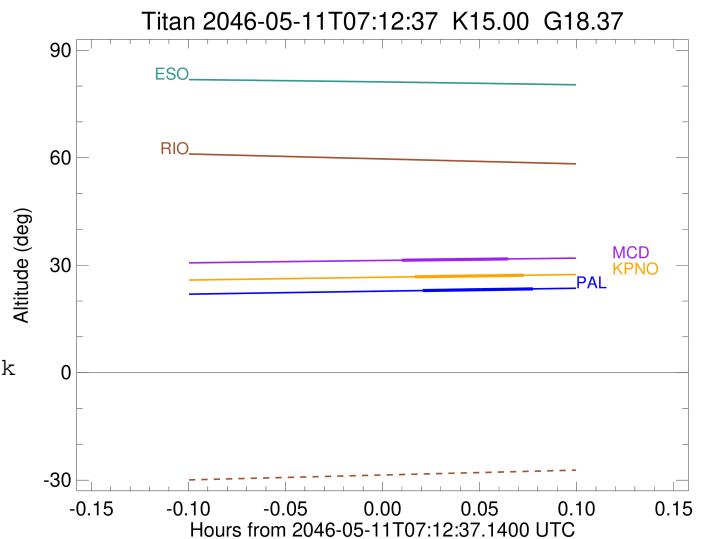
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2046-05-11T07:13:36.115	26.76	-40.21	2575.1	26.54	26.55
Titan	E	2046-05-11T07:17:00.459	27.19	-40.24	2575.1	27.14	27.15



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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-05-11T07:14:51.990
Event type            : Pt
: Titan occs: topocentric, not geocentric
: 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        : 4114873338685797248
2Mass ID (if available) : 17224645-2136474
ICRS Star Coord at Epoch: 17h 22m 46.45563s -21:36:47.45673s
RUWE (>1.4 is poor)  : 1.04
K magnitude           : 15.000
G magnitude           : 18.372
RP magnitude          : 17.399
BP magnitude          : 19.394
DUPflag              : 0
Distance (au)         : 9.148
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -21.44
Sun-Target sep (deg)  : 148.76
Sun-Moon sep (deg)    : 149.10
B (ring opening deg)  : 26.49
PA of pole (deg)      : 4.83
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.209
C/A sky separation (km) : 1389.0
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	2046-05-11T07:13:12.491	31.39	-41.29	2575.1	28.60	28.61
Titan	E	2046-05-11T07:16:31.484	31.75	-41.20	2575.1	29.13	29.15