

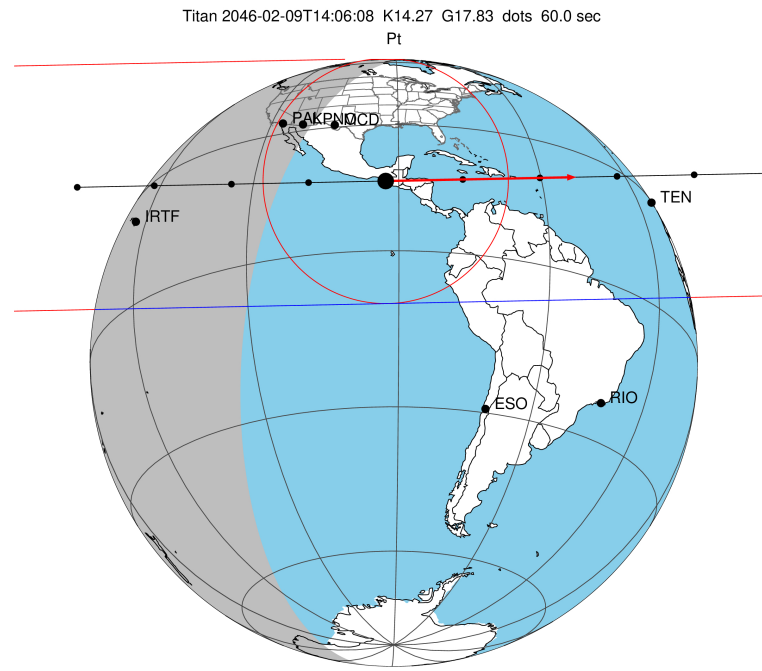
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-02-09T14:06:08.440
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4115095165162009088
 2Mass ID (if available) : 17185694-2137462

ICRS Star Coord at Epoch: 17h 18m 56.94973s -21:37:46.57435s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 14.270
 G magnitude : 17.825
 RP magnitude : 16.815
 BP magnitude : 18.967
 DUPflag : 0
 Distance (au) : 10.488
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 26.99
 Sun-Target sep (deg) : 59.89
 Sun-Moon sep (deg) : 98.91
 B (ring opening deg) : 26.58
 PA of pole (deg) : 4.74
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.501
 C/A sky separation (km) : 3813.6
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

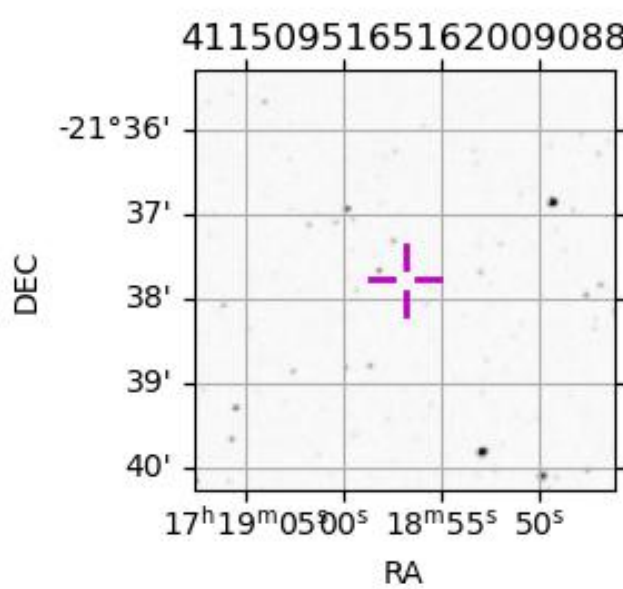
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

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	+ +	FEB 09 14:03 - FEB 09 14:06	Pie
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	+ +	FEB 09 14:01 - FEB 09 14:04	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



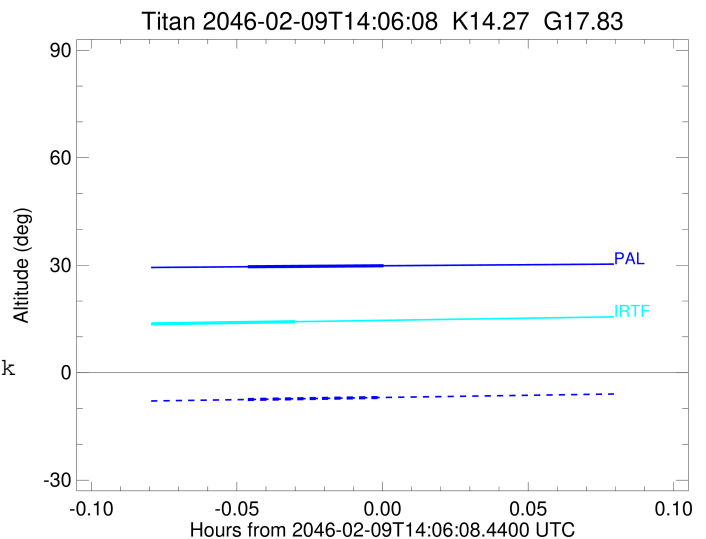
2046-02-09T14:06:08.4400 α: 17 18 56.9497 δ: -21 37 46.574 C/A 0.503" PA 358.83 deg v_sky +26.99 km/s D 10.49 AU
 Credit: Styled after SORA/Lucky Star



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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-02-09T14:04:45.640
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       : 4115095165162009088
2Mass ID (if available) : 17185694-2137462
ICRS Star Coord at Epoch: 17h 18m 56.94973s -21:37:46.57435s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.270
G magnitude           : 17.825
RP magnitude          : 16.815
BP magnitude          : 18.967
DUPflag              : 0
Distance (au)        : 10.488
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 26.99
Sun-Target sep (deg) : 59.89
Sun-Moon sep (deg)   : 99.30
B (ring opening deg) : 26.58
PA of pole (deg)     : 4.74
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.165
C/A sky separation (km) : 1252.6
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

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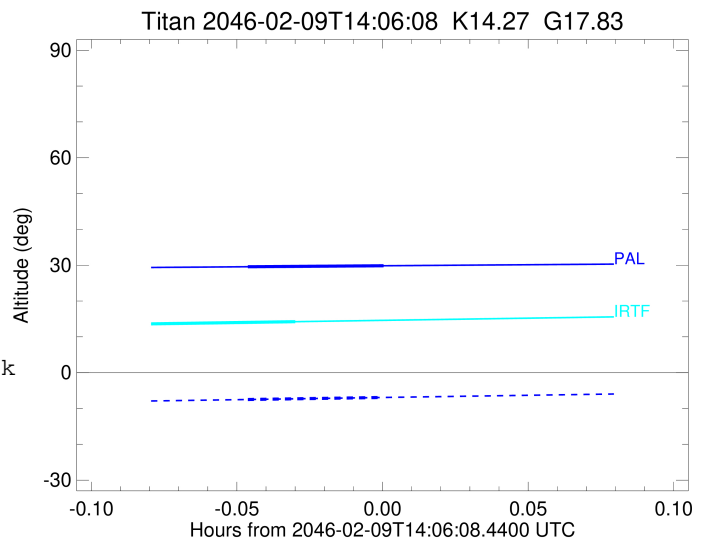
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2046-02-09T14:03:21.182	29.56	-7.50	2575.1	30.77	30.79
Titan	E	2046-02-09T14:06:10.103	29.84	-6.92	2575.1	20.73	20.74

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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-02-09T14:02:49.130
Event type           : Pt
: Titan occs: topocentric, not geocentric
: 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       : 4115095165162009088
2Mass ID (if available) : 17185694-2137462
ICRS Star Coord at Epoch: 17h 18m 56.94973s -21:37:46.57435s
RUWE (>1.4 is poor) : 1.02
K magnitude          : 14.270
G magnitude          : 17.825
RP magnitude         : 16.815
BP magnitude         : 18.967
DUPflag             : 0
Distance (au)        : 10.488
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 26.99
Sun-Target sep (deg) : 59.89
Sun-Moon sep (deg)   : 99.01
B (ring opening deg) : 26.58
PA of pole (deg)     : 4.74
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.099
C/A sky separation (km) : 752.9
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	2046-02-09T14:01:17.251	13.60	-40.83	2575.1	-10.18	-10.18
Titan	E	2046-02-09T14:04:21.016	14.23	-40.11	2575.1	-20.11	-20.12