

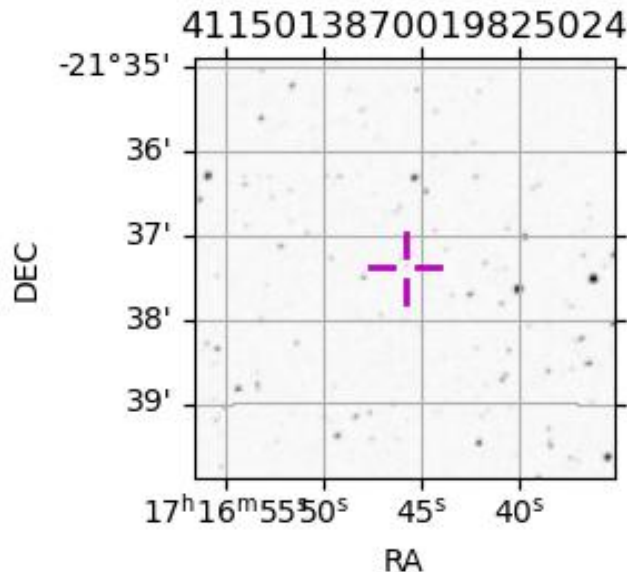
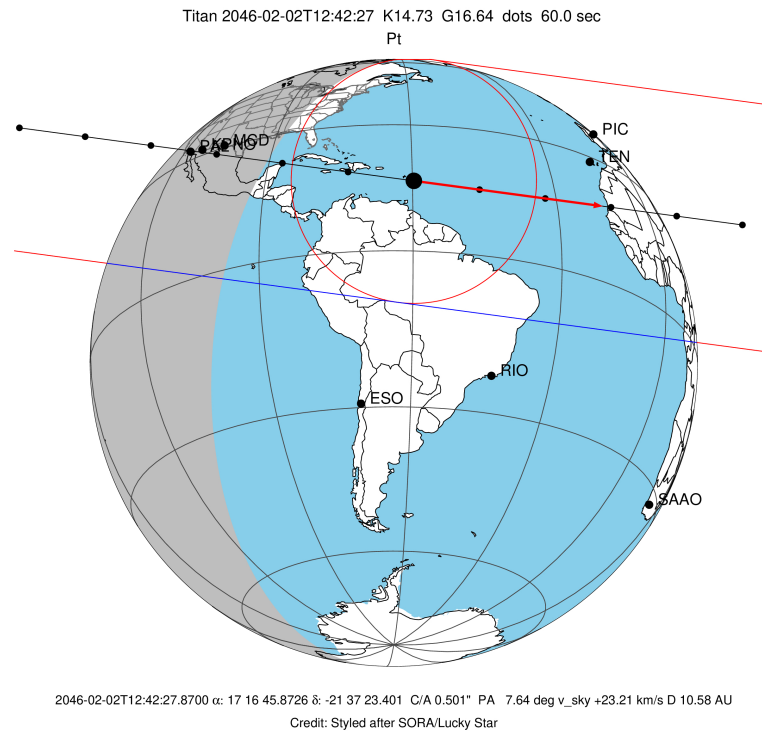
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2046-02-02T12:42:27.870  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4115013870019825024  
 2Mass ID (if available) : 17164587-2137233

ICRS Star Coord at Epoch: 17h 16m 45.87264s -21:37:23.40138s  
 RUWE (>1.4 is poor) : 1.02  
 K magnitude : 14.731  
 G magnitude : 16.636  
 RP magnitude : 15.991  
 BP magnitude : 17.110  
 DUPflag : 0  
 Distance (au) : 10.578  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 23.21  
 Sun-Target sep (deg) : 53.24  
 Sun-Moon sep (deg) : 15.83  
 B (ring opening deg) : 26.61  
 PA of pole (deg) : 4.69  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.502  
 C/A sky separation (km) : 3851.1  
 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 02 12:37 - FEB 02 12:40	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	FEB 02 12:37 - FEB 02 12:41	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	FEB 02 12:37 - FEB 02 12:41	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



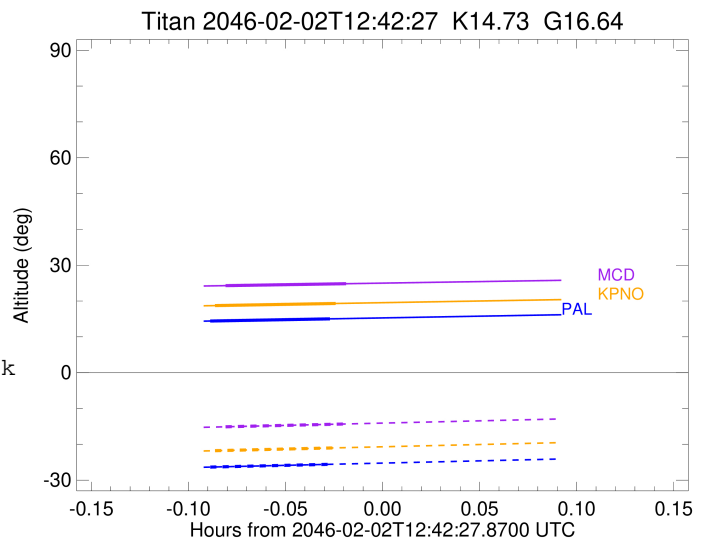
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-02-02T12:38:58.910
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       : 4115013870019825024
2Mass ID (if available) : 17164587-2137233
ICRS Star Coord at Epoch: 17h 16m 45.87264s -21:37:23.40138s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.731
G magnitude           : 16.636
RP magnitude          : 15.991
BP magnitude          : 17.110
DUPflag              : 0
Distance (au)         : 10.578
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 23.21
Sun-Target sep (deg) : 53.24
Sun-Moon sep (deg)   : 16.68
B (ring opening deg) : 26.61
PA of pole (deg)     : 4.69
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.006
C/A sky separation (km) : 47.5
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	2046-02-02T12:37:06.980	14.41	-26.36	2575.1	-3.90	-3.90
Titan	E	2046-02-02T12:40:50.870	15.02	-25.58	2575.1	2.05	2.05



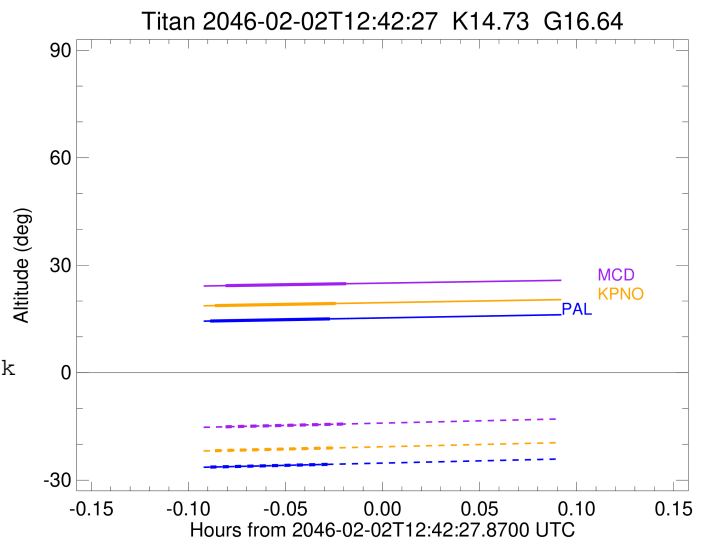
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-02-02T12:39:09.120
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       : 4115013870019825024
2Mass ID (if available) : 17164587-2137233
ICRS Star Coord at Epoch: 17h 16m 45.87264s -21:37:23.40138s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.731
G magnitude           : 16.636
RP magnitude         : 15.991
BP magnitude         : 17.110
DUPflag              : 0
Distance (au)        : 10.578
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.21
Sun-Target sep (deg) : 53.24
Sun-Moon sep (deg)   : 16.67
B (ring opening deg) : 26.61
PA of pole (deg)     : 4.69
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.004
C/A sky separation (km) : 32.0
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	2046-02-02T12:37:17.013	18.72	-21.78	2575.1	-2.43	-2.43
Titan	E	2046-02-02T12:41:01.249	19.31	-20.99	2575.1	3.51	3.51



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-02-02T12:39:28.340
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       : 4115013870019825024
2Mass ID (if available) : 17164587-2137233
ICRS Star Coord at Epoch: 17h 16m 45.87264s -21:37:23.40138s
RUWE (>1.4 is poor) : 1.02
K magnitude          : 14.731
G magnitude          : 16.636
RP magnitude         : 15.991
BP magnitude         : 17.110
DUPflag             : 0
Distance (au)        : 10.578
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 23.21
Sun-Target sep (deg) : 53.24
Sun-Moon sep (deg)  : 16.64
B (ring opening deg) : 26.61
PA of pole (deg)    : 4.69
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.024
C/A sky separation (km) : 182.0
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	2046-02-02T12:37:36.293	24.29	-15.11	2575.2	0.66	0.66
Titan	E	2046-02-02T12:41:20.403	24.83	-14.32	2575.1	6.57	6.57

