

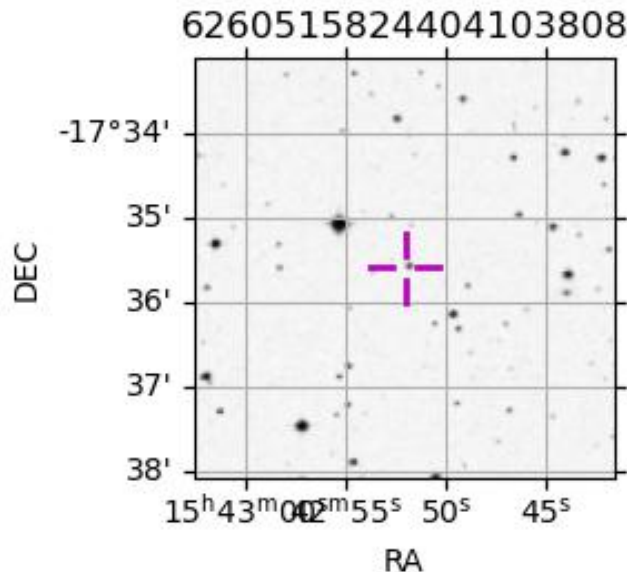
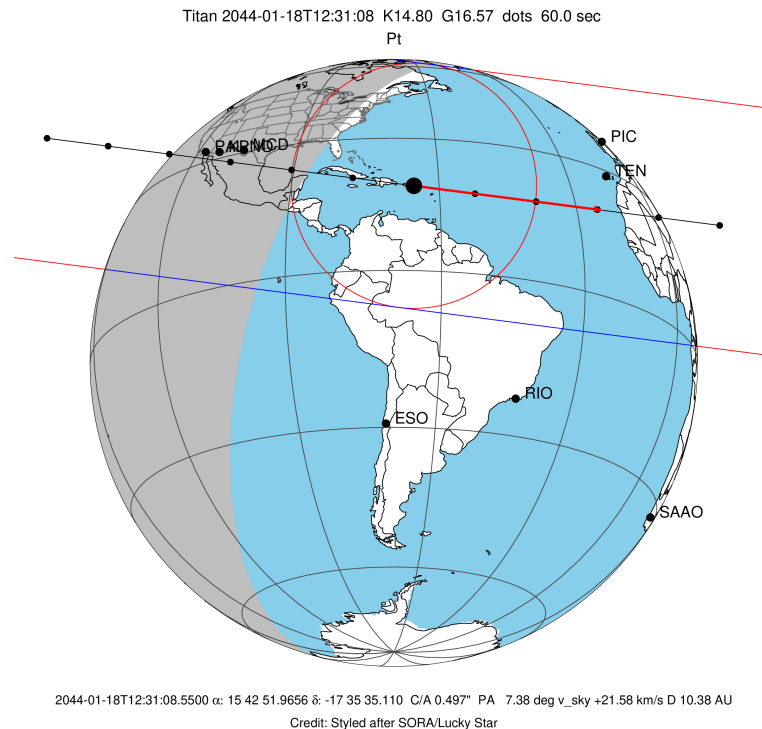
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2044-01-18T12:31:08.550  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 6260515824404103808  
 2Mass ID (if available) : 15425196-1735350

ICRS Star Coord at Epoch: 15h 42m 51.96562s -17:35:35.10992s  
 RUWE (>1.4 is poor) : 1.00  
 K magnitude : 14.797  
 G magnitude : 16.566  
 RP magnitude : 15.977  
 BP magnitude : 16.982  
 DUPflag : 0  
 Distance (au) : 10.378  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 21.58  
 Sun-Target sep (deg) : 59.95  
 Sun-Moon sep (deg) : 70.65  
 B (ring opening deg) : 23.89  
 PA of pole (deg) : 2.01  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.497  
 C/A sky separation (km) : 3737.2  
 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	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	JAN 18 12:25 - JAN 18 12:29	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JAN 18 12:25 - JAN 18 12:29	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JAN 18 12:26 - JAN 18 12:30	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



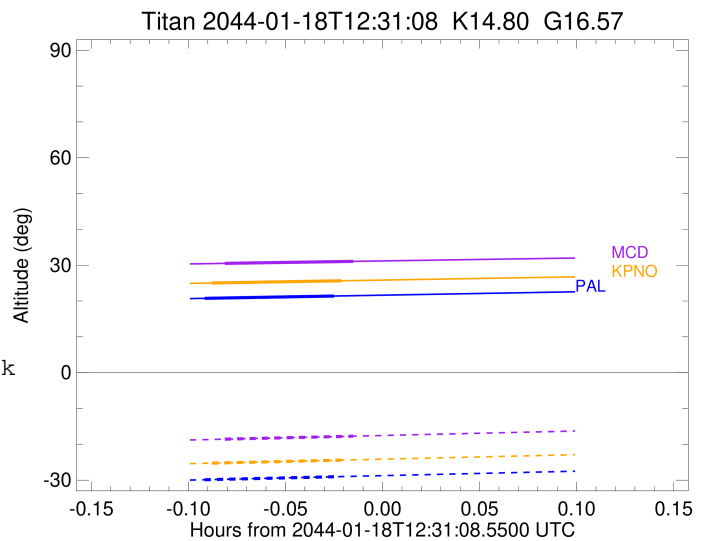
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2044-01-18T12:27:38.790
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       : 6260515824404103808
2Mass ID (if available) : 15425196-1735350
ICRS Star Coord at Epoch: 15h 42m 51.96562s -17:35:35.10992s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 14.797
G magnitude          : 16.566
RP magnitude         : 15.977
BP magnitude         : 16.982
DUPflag             : 0
Distance (au)        : 10.378
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 21.58
Sun-Target sep (deg) : 59.95
Sun-Moon sep (deg)   : 70.74
B (ring opening deg) : 23.89
PA of pole (deg)     : 2.01
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.016
C/A sky separation (km): 122.8
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	2044-01-18T12:25:38.215	20.74	-29.89	2575.1	-2.74	-2.74
Titan	E	2044-01-18T12:29:39.379	21.39	-29.05	2575.1	7.70	7.70



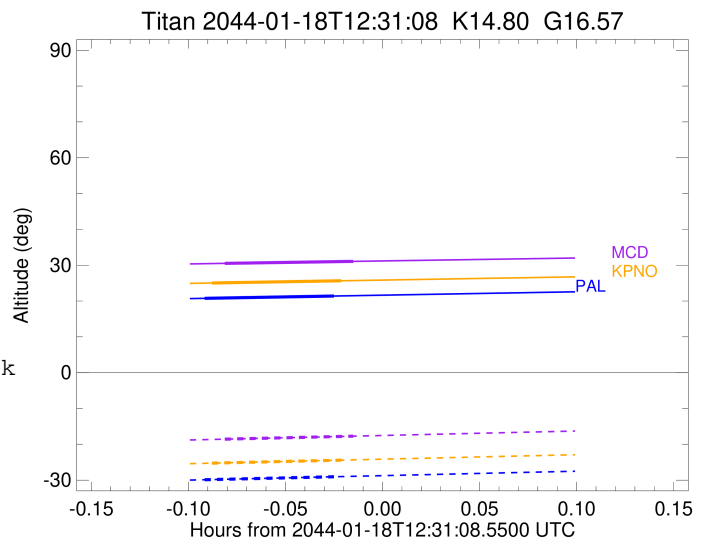
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2044-01-18T12:27:51.920
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       : 6260515824404103808
2Mass ID (if available) : 15425196-1735350
ICRS Star Coord at Epoch: 15h 42m 51.96562s -17:35:35.10992s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 14.797
G magnitude          : 16.566
RP magnitude         : 15.977
BP magnitude         : 16.982
DUPflag             : 0
Distance (au)        : 10.378
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 21.58
Sun-Target sep (deg) : 59.95
Sun-Moon sep (deg)   : 70.82
B (ring opening deg) : 23.89
PA of pole (deg)     : 2.01
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.021
C/A sky separation (km) : 161.6
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	2044-01-18T12:25:51.269	25.03	-25.26	2575.2	-1.94	-1.94
Titan	E	2044-01-18T12:29:52.579	25.65	-24.41	2575.1	8.49	8.49



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2044-01-18T12:28:15.380
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       : 6260515824404103808
2Mass ID (if available) : 15425196-1735350
ICRS Star Coord at Epoch: 15h 42m 51.96562s -17:35:35.10992s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 14.797
G magnitude          : 16.566
RP magnitude         : 15.977
BP magnitude         : 16.982
DUPflag             : 0
Distance (au)        : 10.378
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 21.58
Sun-Target sep (deg) : 59.95
Sun-Moon sep (deg)  : 70.92
B (ring opening deg) : 23.89
PA of pole (deg)    : 2.01
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.036
C/A sky separation (km) : 267.8
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	2044-01-18T12:26:14.921	30.50	-18.56	2575.2	0.25	0.25
Titan	E	2044-01-18T12:30:15.835	31.06	-17.72	2575.1	10.64	10.65

