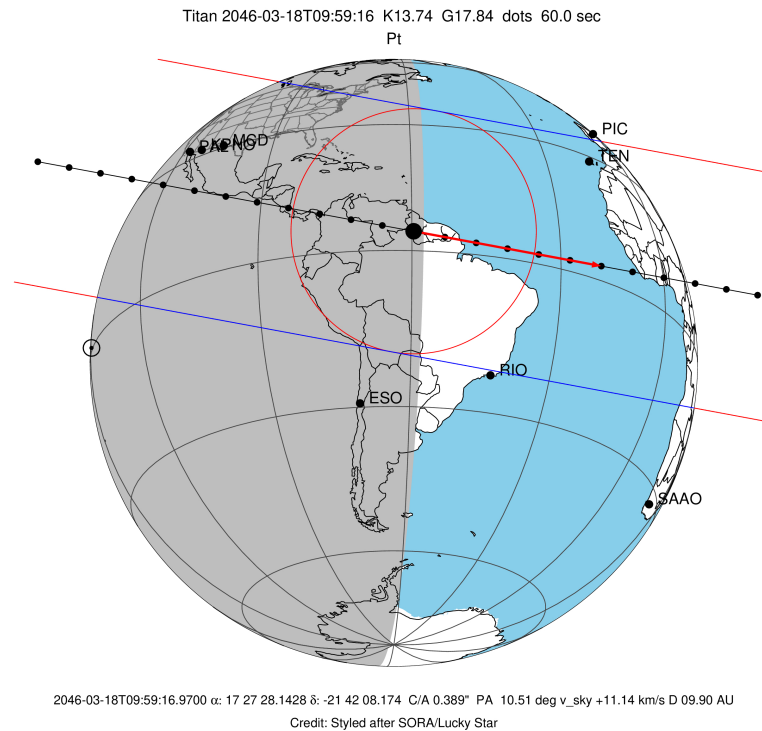


```

target           : Titan
target radius (km) : 2575.15
C/A epoch       : 2046-03-18T09:59:16.970
Event type      : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Gaia source ID  : 4120805513157294208
2Mass ID (if available) : 17272815-2142080

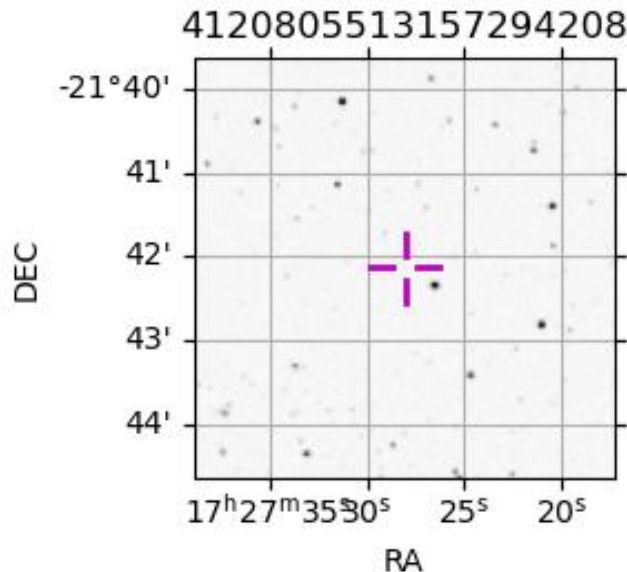
ICRS Star Coord at Epoch: 17h 27m 28.14284s -21:42:08.17390s
RUWE (>1.4 is poor) : 1.04
K magnitude     : 13.736
G magnitude     : 17.844
RP magnitude    : 16.710
BP magnitude    : 19.121
DUPflag        : 0
Distance (au)   : 9.899
f0 (km)        : 0.00
g0 (km)        : 0.00
skyplane vel. (km/s) : 11.13
Sun-Target sep (deg) : 94.88
Sun-Moon sep (deg) : 140.56
B (ring opening deg) : 26.48
PA of pole (deg) : 4.94
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.391
C/A sky separation (km) : 2805.6
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	+ +	MAR 18 09:47 - MAR 18 09:55	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAR 18 09:48 - MAR 18 09:55	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAR 18 09:48 - MAR 18 09:56	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
M50	Mt. Stromlo Observatory	-35.3	149.0			Pnn



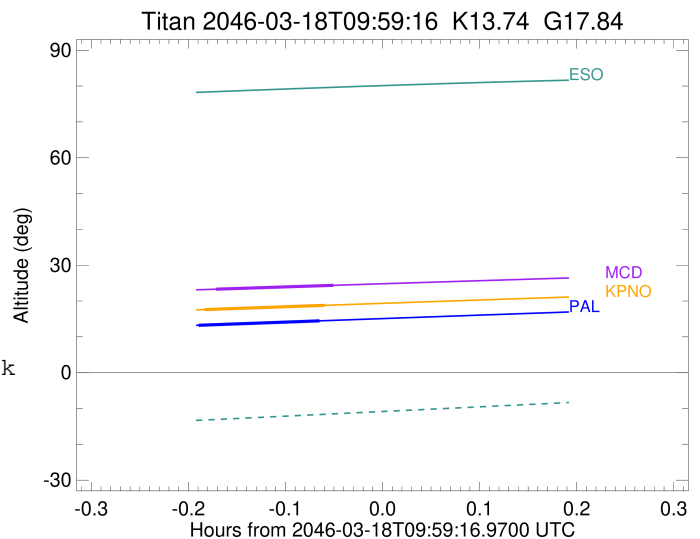
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-03-18T09:51:38.950
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       : 4120805513157294208
2Mass ID (if available) : 17272815-2142080
ICRS Star Coord at Epoch: 17h 27m 28.14284s -21:42:08.17390s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 13.736
G magnitude           : 17.844
RP magnitude          : 16.710
BP magnitude          : 19.121
DUPflag              : 0
Distance (au)         : 9.899
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 11.13
Sun-Target sep (deg) : 94.88
Sun-Moon sep (deg)   : 141.30
B (ring opening deg) : 26.48
PA of pole (deg)     : 4.94
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.099
C/A sky separation (km): 709.4
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	2046-03-18T09:47:53.045	13.22	-48.22	2575.2	8.62	8.63
Titan	E	2046-03-18T09:55:25.063	14.46	-47.09	2575.1	19.90	19.91



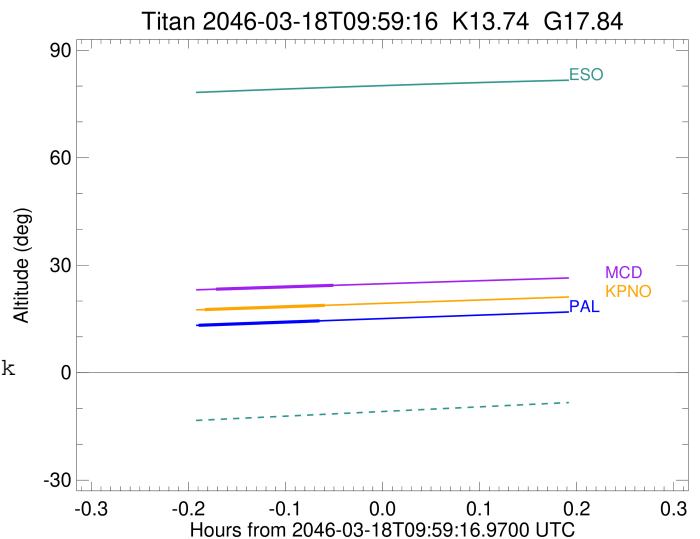
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-03-18T09:51:59.080
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       : 4120805513157294208
2Mass ID (if available) : 17272815-2142080
ICRS Star Coord at Epoch: 17h 27m 28.14284s -21:42:08.17390s
RUWE (>1.4 is poor) : 1.04
K magnitude          : 13.736
G magnitude          : 17.844
RP magnitude         : 16.710
BP magnitude         : 19.121
DUPflag             : 0
Distance (au)        : 9.899
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.13
Sun-Target sep (deg) : 94.88
Sun-Moon sep (deg)  : 141.31
B (ring opening deg) : 26.48
PA of pole (deg)    : 4.94
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.111
C/A sky separation (km) : 796.7
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	2046-03-18T09:48:14.917	17.60	-45.75	2575.1	10.43	10.44
Titan	E	2046-03-18T09:55:43.445	18.79	-44.48	2575.1	21.69	21.70



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-03-18T09:52:37.570
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        : 4120805513157294208
2Mass ID (if available) : 17272815-2142080
ICRS Star Coord at Epoch: 17h 27m 28.14284s -21:42:08.17390s
RUWE (>1.4 is poor) : 1.04
K magnitude           : 13.736
G magnitude           : 17.844
RP magnitude          : 16.710
BP magnitude          : 19.121
DUPflag              : 0
Distance (au)         : 9.899
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 11.13
Sun-Target sep (deg) : 94.88
Sun-Moon sep (deg)   : 141.31
B (ring opening deg) : 26.48
PA of pole (deg)     : 4.94
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.136
C/A sky separation (km) : 978.1
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

```

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	2046-03-18T09:48:58.600	23.30	-40.92	2575.1	14.27	14.28
Titan	E	2046-03-18T09:56:16.725	24.38	-39.53	2575.1	25.43	25.44

