

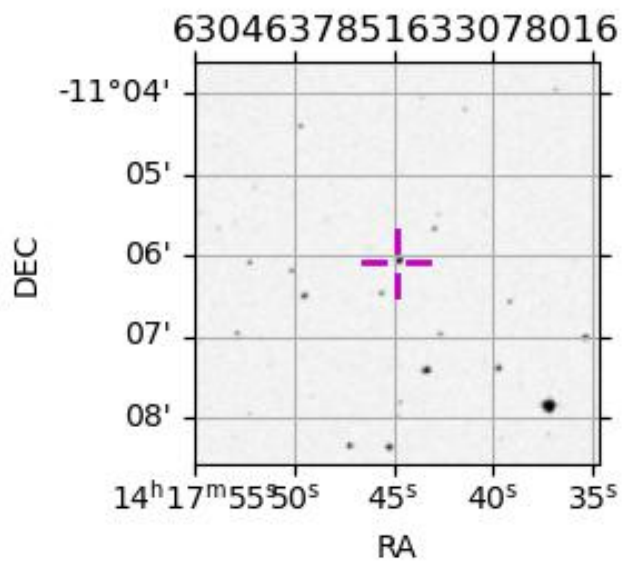
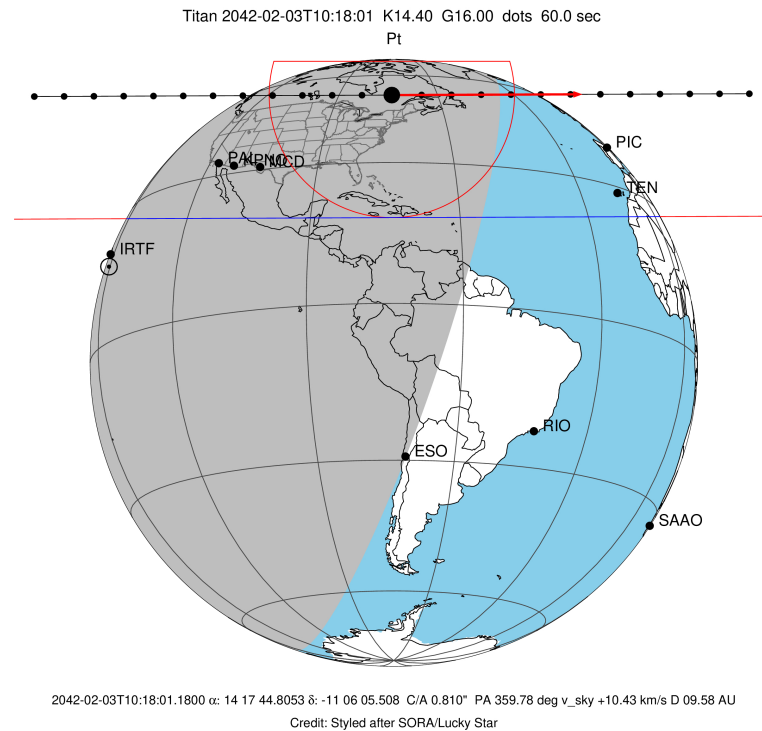
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2042-02-03T10:18:01.180  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 6304637851633078016  
 2Mass ID (if available) : 14174479-1106054

ICRS Star Coord at Epoch: 14h 17m 44.80533s -11:06:05.50828s  
 RUWE (>1.4 is poor) : 1.02  
 K magnitude : 14.400  
 G magnitude : 16.004  
 RP magnitude : 15.458  
 BP magnitude : 16.373  
 DUPflag : 0  
 Distance (au) : 9.582  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 10.42  
 Sun-Target sep (deg) : 98.23  
 Sun-Moon sep (deg) : 100.29  
 B (ring opening deg) : 17.65  
 PA of pole (deg) : -0.61  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.809  
 C/A sky separation (km) : 5620.2  
 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	+ +	FEB 03 10:08 - FEB 03 10:15	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	FEB 03 10:09 - FEB 03 10:16	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	FEB 03 10:09 - FEB 03 10:16	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



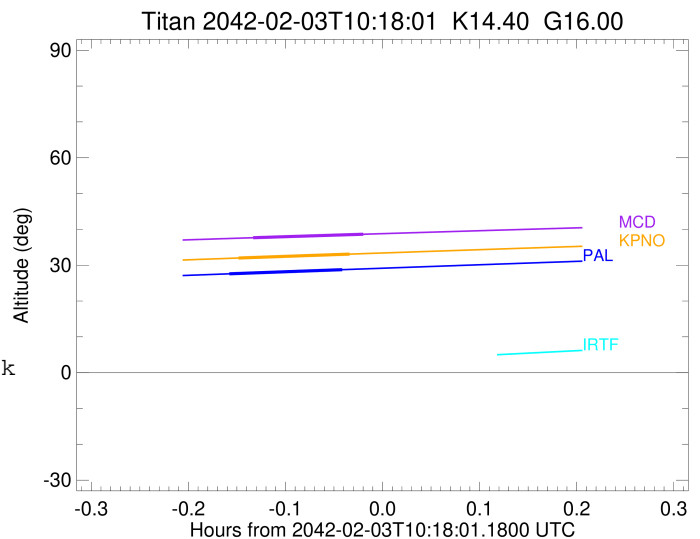
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2042-02-03T10:12:01.860
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 6304637851633078016
2Mass ID (if available) : 14174479-1106054
ICRS Star Coord at Epoch: 14h 17m 44.80533s -11:06:05.50828s
RUWE (>1.4 is poor) : 1.02
K magnitude          : 14.400
G magnitude          : 16.004
RP magnitude         : 15.458
BP magnitude         : 16.373
DUPflag             : 0
Distance (au)        : 9.582
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.42
Sun-Target sep (deg) : 98.23
Sun-Moon sep (deg)  : 100.88
B (ring opening deg) : 17.65
PA of pole (deg)    : -0.61
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.207
C/A sky separation (km): 1438.6
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	2042-02-03T10:08:31.464	27.59	-56.79	2575.1	-32.79	-32.80
Titan	E	2042-02-03T10:15:32.334	28.75	-55.43	2575.1	-31.54	-31.55



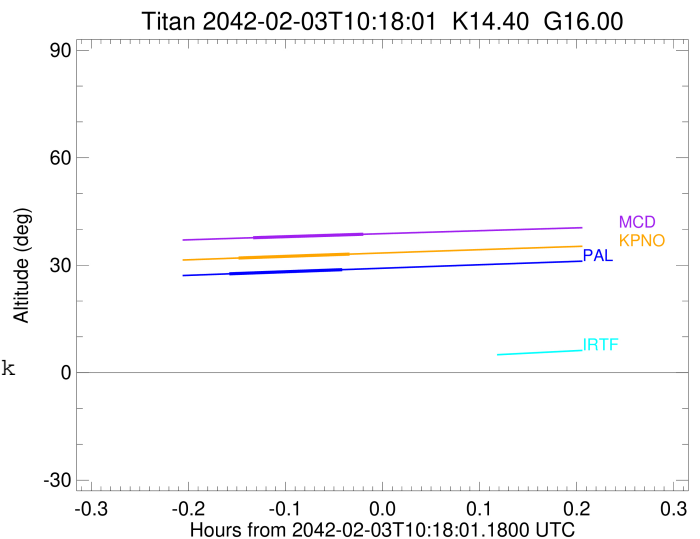
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2042-02-03T10:12:32.190
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        : 6304637851633078016
2Mass ID (if available) : 14174479-1106054
ICRS Star Coord at Epoch: 14h 17m 44.80533s -11:06:05.50828s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.400
G magnitude           : 16.004
RP magnitude          : 15.458
BP magnitude          : 16.373
DUPflag              : 0
Distance (au)         : 9.582
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.42
Sun-Target sep (deg) : 98.23
Sun-Moon sep (deg)   : 100.92
B (ring opening deg) : 17.65
PA of pole (deg)     : -0.61
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.214
C/A sky separation (km) : 1489.0
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	2042-02-03T10:09:04.628	31.99	-52.94	2575.1	-34.03	-34.05
Titan	E	2042-02-03T10:15:59.822	33.09	-51.51	2575.1	-32.84	-32.85



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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2042-02-03T10:13:25.640
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       : 6304637851633078016
2Mass ID (if available) : 14174479-1106054
ICRS Star Coord at Epoch: 14h 17m 44.80533s -11:06:05.50828s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.400
G magnitude           : 16.004
RP magnitude          : 15.458
BP magnitude          : 16.373
DUPflag              : 0
Distance (au)         : 9.582
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.42
Sun-Target sep (deg) : 98.23
Sun-Moon sep (deg)   : 100.98
B (ring opening deg) : 17.65
PA of pole (deg)     : -0.61
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.218
C/A sky separation (km) : 1515.8
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	2042-02-03T10:09:59.239	37.66	-46.67	2575.1	-34.67	-34.69
Titan	E	2042-02-03T10:16:52.099	38.64	-45.20	2575.1	-33.56	-33.58

