

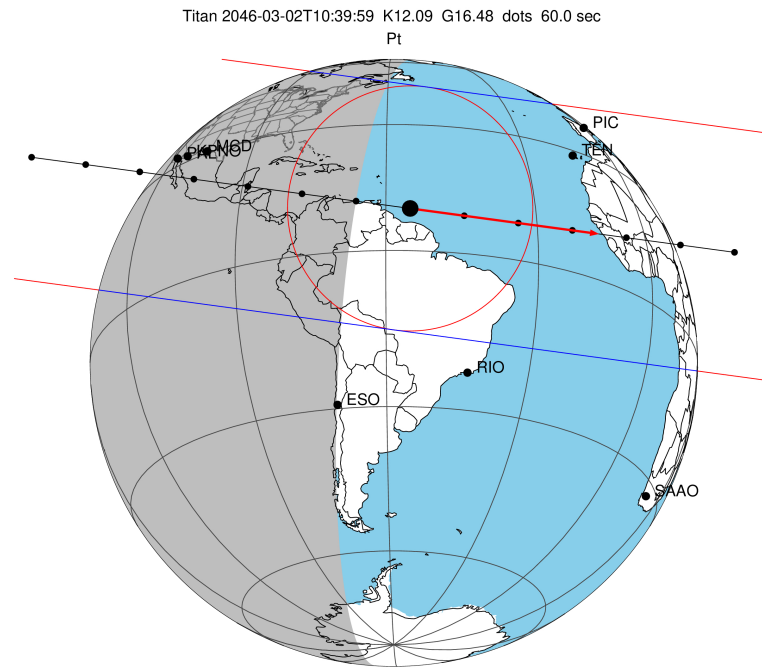
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-03-02T10:39:59.580
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4120817126745481600
 2Mass ID (if available) : 17245815-2141290

ICRS Star Coord at Epoch: 17h 24m 58.10516s -21:41:29.44594s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 12.091
 G magnitude : 16.483
 RP magnitude : 15.378
 BP magnitude : 17.653
 DUPflag : 0
 Distance (au) : 10.165
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 19.09
 Sun-Target sep (deg) : 79.50
 Sun-Moon sep (deg) : 21.94
 B (ring opening deg) : 26.52
 PA of pole (deg) : 4.89
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.443
 C/A sky separation (km) : 3267.7
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

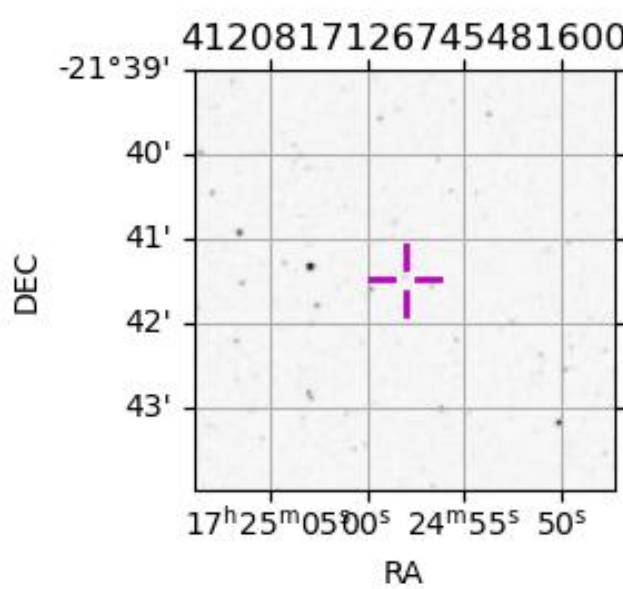
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

Observable events with sun below -5 deg and altitude above 5 deg

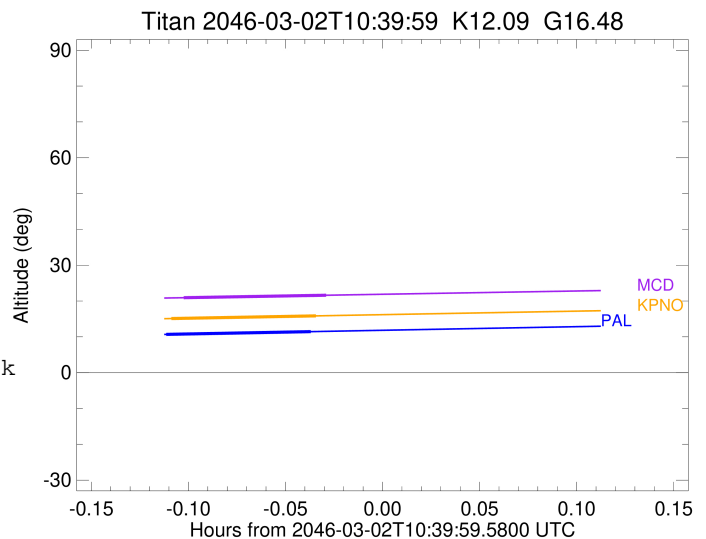
Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	MAR 02 10:33 - MAR 02 10:37	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAR 02 10:33 - MAR 02 10:37	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAR 02 10:33 - MAR 02 10:38	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



Titan 2046-03-02T10:39:59 K12.09 G16.48 dots 60.0 sec
 Pt
 2046-03-02T10:39:59.5800 α: 17 24 58.1052 δ: -21 41 29.446 C/A 0.442" PA 7.72 deg v_sky +19.09 km/s D 10.16 AU
 Credit: Styled after SORA/Lucky Star



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-03-02T10:35:32.030
 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 : 4120817126745481600
 2Mass ID (if available) : 17245815-2141290
 ICRS Star Coord at Epoch: 17h 24m 58.10516s -21:41:29.44594s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 12.091
 G magnitude : 16.483
 RP magnitude : 15.378
 BP magnitude : 17.653
 DUPflag : 0
 Distance (au) : 10.165
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 19.09
 Sun-Target sep (deg) : 79.50
 Sun-Moon sep (deg) : 22.73
 B (ring opening deg) : 26.52
 PA of pole (deg) : 4.89
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.047
 C/A sky separation (km) : 344.9
 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

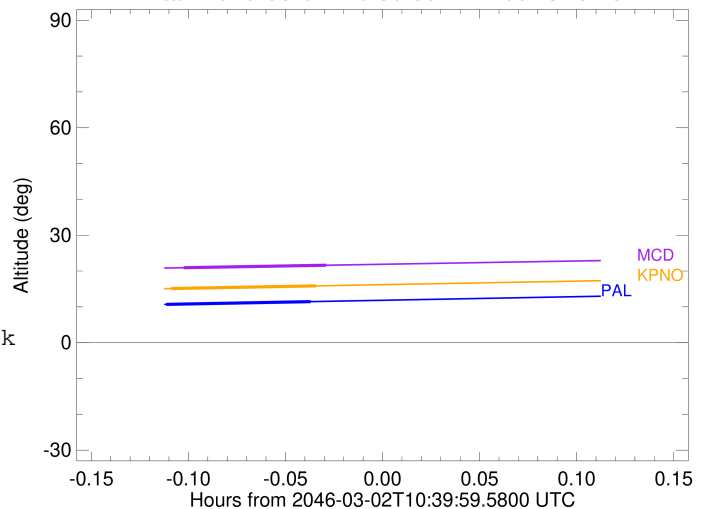
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2046-03-02T10:33:17.172	10.68	-45.85	2575.2	3.97	3.97
Titan	E	2046-03-02T10:37:46.934	11.45	-45.02	2575.1	9.80	9.80

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-03-02T10:35:42.150
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        : 4120817126745481600
2Mass ID (if available) : 17245815-2141290
ICRS Star Coord at Epoch: 17h 24m 58.10516s -21:41:29.44594s
RUWE (>1.4 is poor)  : 0.97
K magnitude           : 12.091
G magnitude           : 16.483
RP magnitude          : 15.378
BP magnitude          : 17.653
DUPflag              : 0
Distance (au)         : 10.165
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 19.09
Sun-Target sep (deg)  : 79.50
Sun-Moon sep (deg)    : 22.74
B (ring opening deg) : 26.52
PA of pole (deg)      : 4.89
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.057
C/A sky separation (km) : 421.5
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

```

Titan 2046-03-02T10:39:59 K12.09 G16.48



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

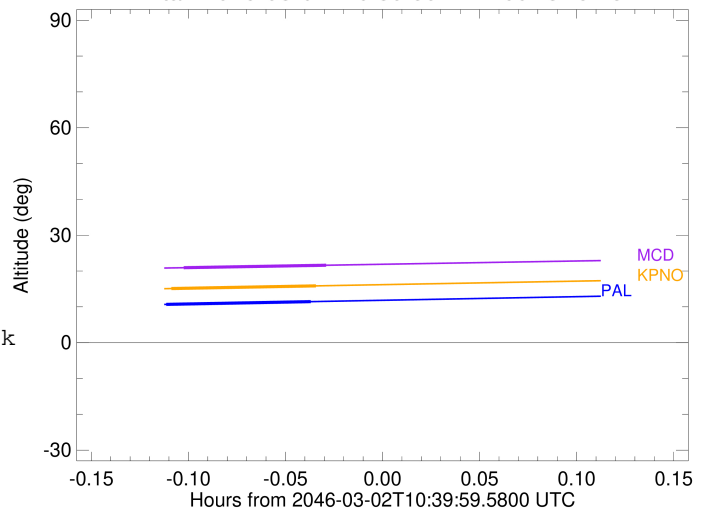
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2046-03-02T10:33:27.657	15.11	-42.36	2575.1	5.50	5.50
Titan	E	2046-03-02T10:37:56.694	15.85	-41.47	2575.1	11.32	11.33

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-03-02T10:36:02.520
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       : 4120817126745481600
2Mass ID (if available) : 17245815-2141290
ICRS Star Coord at Epoch: 17h 24m 58.10516s -21:41:29.44594s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 12.091
G magnitude          : 16.483
RP magnitude         : 15.378
BP magnitude         : 17.653
DUPflag             : 0
Distance (au)        : 10.165
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 19.09
Sun-Target sep (deg) : 79.50
Sun-Moon sep (deg)  : 22.72
B (ring opening deg) : 26.52
PA of pole (deg)    : 4.89
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.079
C/A sky separation (km): 584.7
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

```

Titan 2046-03-02T10:39:59 K12.09 G16.48



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	2046-03-02T10:33:49.421	20.92	-36.53	2575.1	8.83	8.83
Titan	E	2046-03-02T10:38:15.655	21.61	-35.61	2575.1	14.61	14.62