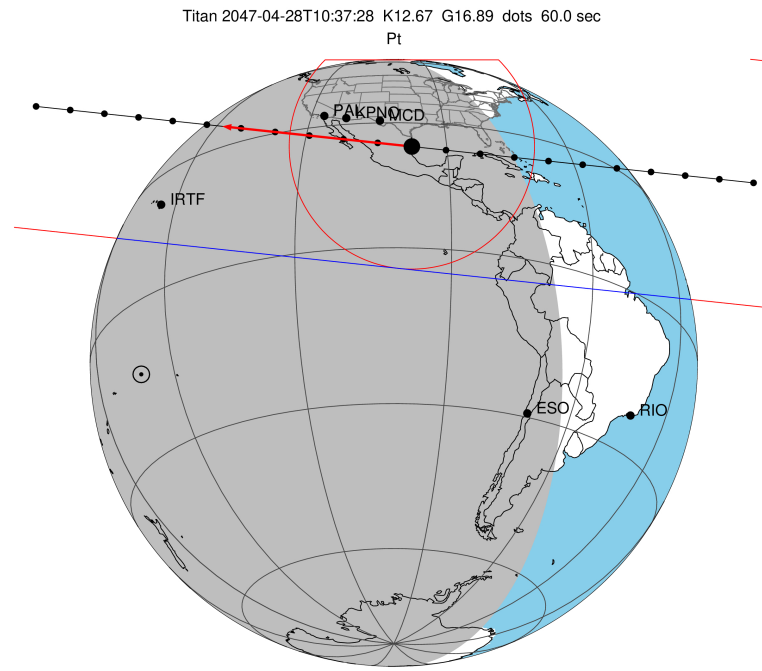


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-04-28T10:37:28.840
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4090524310098505856
 2Mass ID (if available) : 18161048-2218226

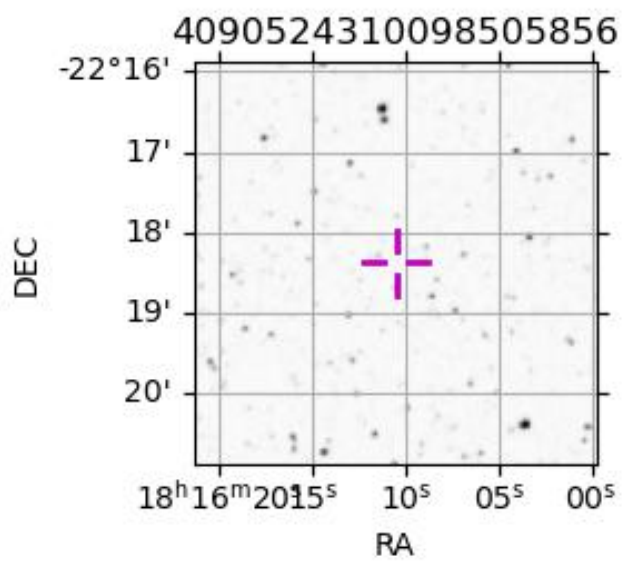
ICRS Star Coord at Epoch: 18h 16m 10.48326s -22:18:22.71497s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 12.666
 G magnitude : 16.886
 RP magnitude : 15.724
 BP magnitude : 18.204
 DUPflag : 0
 Distance (au) : 9.446
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.02
 Sun-Target sep (deg) : 123.68
 Sun-Moon sep (deg) : 158.93
 B (ring opening deg) : 26.01
 PA of pole (deg) : 5.96
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.667
 C/A sky separation (km) : 4572.8
 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	+ +	APR 28 10:36 - APR 28 10:43	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	APR 28 10:36 - APR 28 10:42	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	APR 28 10:35 - APR 28 10:41	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	APR 28 10:41 - APR 28 10:47	Pie
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



2047-04-28T10:37:28.8400 α: 18 16 10.4833 δ: -22 18 22.715 C/A 0.666" PA 6.09 deg v_sky -12.02 km/s D 09.45 AU
 Credit: Styled after SORA/Lucky Star



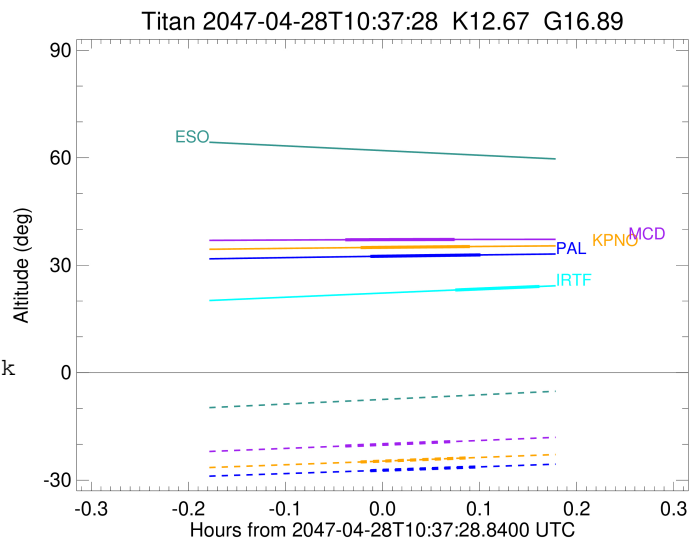
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-04-28T10:40:08.070
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        : 4090524310098505856
2Mass ID (if available) : 18161048-2218226
ICRS Star Coord at Epoch: 18h 16m 10.48326s -22:18:22.71497s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 12.666
G magnitude           : 16.886
RP magnitude          : 15.724
BP magnitude          : 18.204
DUPflag              : 0
Distance (au)         : 9.446
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.02
Sun-Target sep (deg)  : 123.68
Sun-Moon sep (deg)   : 159.05
B (ring opening deg) : 26.01
PA of pole (deg)     : 5.96
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.064
C/A sky separation (km) : 438.4
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

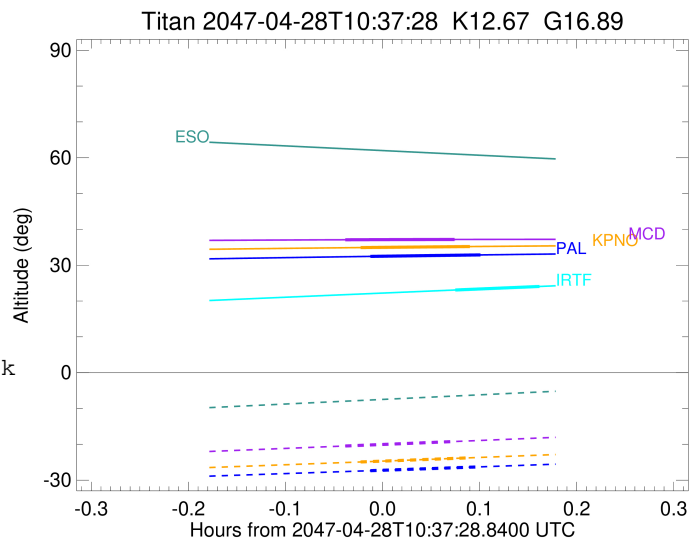
```

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	2047-04-28T10:36:43.290	32.45	-27.36	2575.1	8.60	8.60
Titan	E	2047-04-28T10:43:32.835	32.87	-26.28	2575.1	8.99	8.99



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-04-28T10:39:30.530
 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 : 4090524310098505856
 2Mass ID (if available) : 18161048-2218226
 ICRS Star Coord at Epoch: 18h 16m 10.48326s -22:18:22.71497s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 12.666
 G magnitude : 16.886
 RP magnitude : 15.724
 BP magnitude : 18.204
 DUPflag : 0
 Distance (au) : 9.446
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.02
 Sun-Target sep (deg) : 123.68
 Sun-Moon sep (deg) : 159.12
 B (ring opening deg) : 26.01
 PA of pole (deg) : 5.96
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.063
 C/A sky separation (km) : 435.0
 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

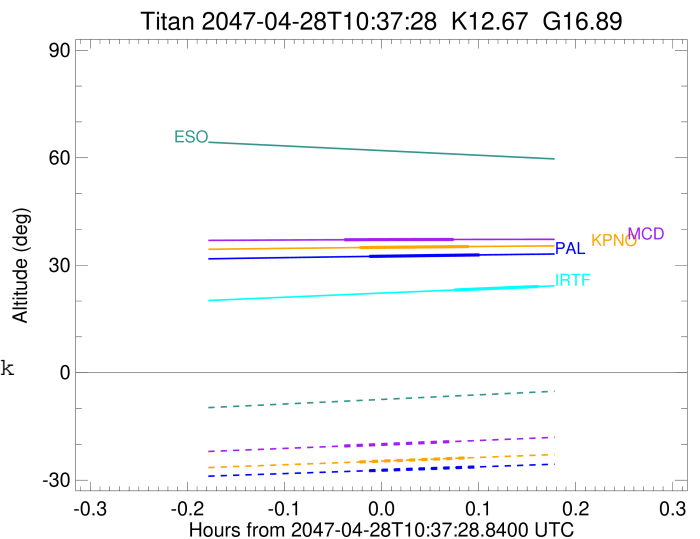


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-04-28T10:36:05.949	34.91	-24.93	2575.1	8.57	8.57
Titan	E	2047-04-28T10:42:55.105	35.20	-23.76	2575.1	8.87	8.87

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-04-28T10:38:33.380
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       : 4090524310098505856
2Mass ID (if available) : 18161048-2218226
ICRS Star Coord at Epoch: 18h 16m 10.48326s -22:18:22.71497s
RUWE (>1.4 is poor) : 0.99
K magnitude          : 12.666
G magnitude          : 16.886
RP magnitude         : 15.724
BP magnitude         : 18.204
DUPflag             : 0
Distance (au)        : 9.446
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.02
Sun-Target sep (deg) : 123.68
Sun-Moon sep (deg)   : 159.22
B (ring opening deg) : 26.01
PA of pole (deg)     : 5.96
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.066
C/A sky separation (km) : 449.2
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	2047-04-28T10:35:09.217	37.09	-20.47	2575.1	8.93	8.93
Titan	E	2047-04-28T10:41:57.545	37.18	-19.21	2575.1	9.08	9.08

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-04-28T10:44:34.430
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : IRTF
Location             : Mauna Kea/IRTF
Latitude (deg)       : 19.82622
E. Longitude (deg)   : 204.52800
Altitude (km)        : 4.168
Gaia source ID       : 4090524310098505856
2Mass ID (if available) : 18161048-2218226
ICRS Star Coord at Epoch: 18h 16m 10.48326s -22:18:22.71497s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 12.666
G magnitude           : 16.886
RP magnitude          : 15.724
BP magnitude          : 18.204
DUPflag              : 0
Distance (au)         : 9.446
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.02
Sun-Target sep (deg) : 123.68
Sun-Moon sep (deg)   : 158.51
B (ring opening deg) : 26.01
PA of pole (deg)     : 5.96
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.249
C/A sky separation (km): 1704.0
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	2047-04-28T10:41:57.113	23.07	-55.64	2575.1	-36.99	-37.00
Titan	E	2047-04-28T10:47:11.709	24.06	-55.41	2575.1	-36.00	-36.02

