

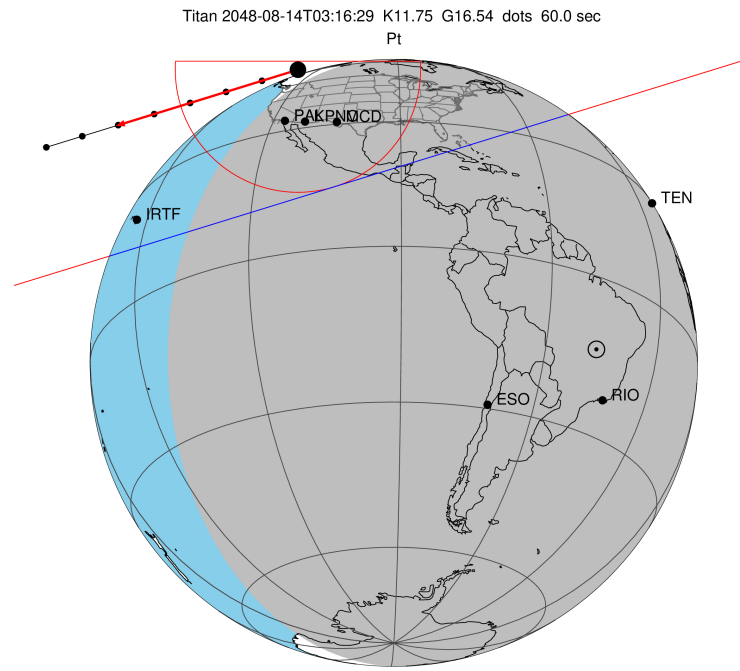
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2048-08-14T03:16:29.910  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4079197145618073984  
 2Mass ID (if available) : 18404865-2238036

ICRS Star Coord at Epoch: 18h 40m 48.60175s -22:38:03.47837s  
 RUWE (>1.4 is poor) : 0.00  
 K magnitude : 11.748  
 G magnitude : 16.542  
 RP magnitude : 0.000  
 BP magnitude : 0.000  
 DUPflag : 0  
 Distance (au) : 9.259  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -13.16  
 Sun-Target sep (deg) : 138.05  
 Sun-Moon sep (deg) : 85.08  
 B (ring opening deg) : 25.72  
 PA of pole (deg) : 6.36  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.961  
 C/A sky separation (km) : 6452.8  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk

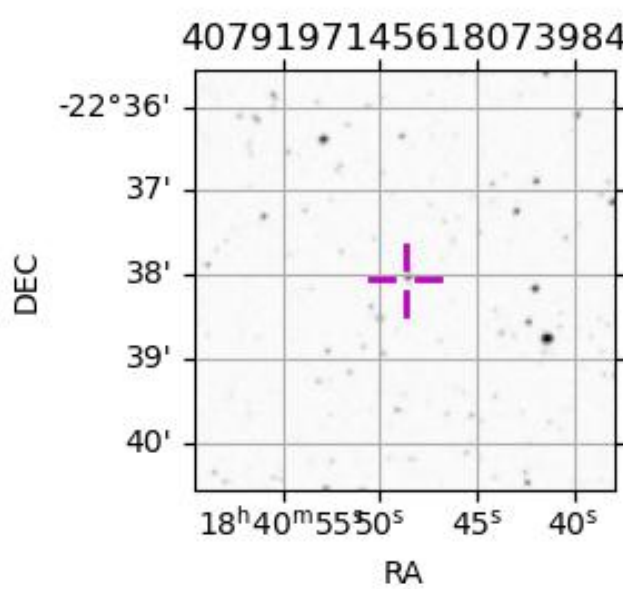
URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp

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	+ +	AUG 14 03:14 - AUG 14 03:20	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	AUG 14 03:13 - AUG 14 03:19	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	AUG 14 03:13 - AUG 14 03:18	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



2048-08-14T03:16:29.9100 cc: 18 40 48.6017 s -22 38 03.478 C/A 0.965" PA 342.84 deg v\_sky -13.16 km/s D 09.26 AU  
 Credit: Styled after SORA/Lucky Star



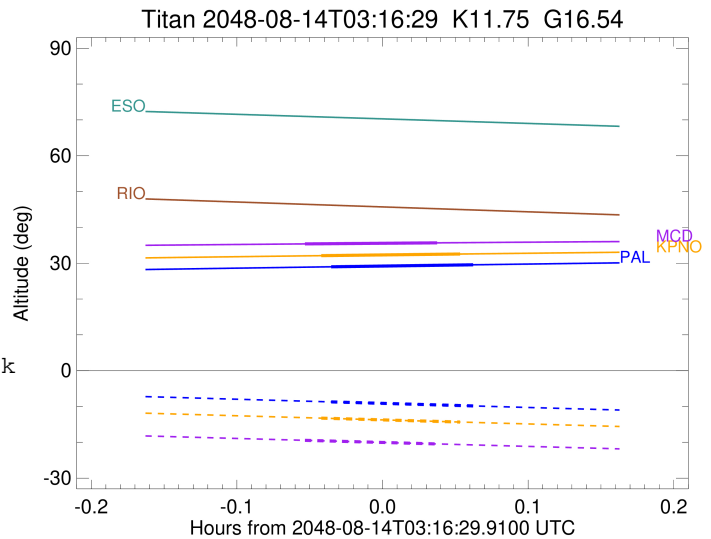
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-08-14T03:17:18.790
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4079197145618073984
2Mass ID (if available) : 18404865-2238036
ICRS Star Coord at Epoch: 18h 40m 48.60175s -22:38:03.47837s
RUWE (>1.4 is poor) : 0.00
K magnitude           : 11.748
G magnitude           : 16.542
RP magnitude          : 0.000
BP magnitude          : 0.000
DUPflag              : 0
Distance (au)         : 9.259
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.16
Sun-Target sep (deg) : 138.05
Sun-Moon sep (deg)   : 85.53
B (ring opening deg) : 25.72
PA of pole (deg)     : 6.36
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.139
C/A sky separation (km) : 931.0
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

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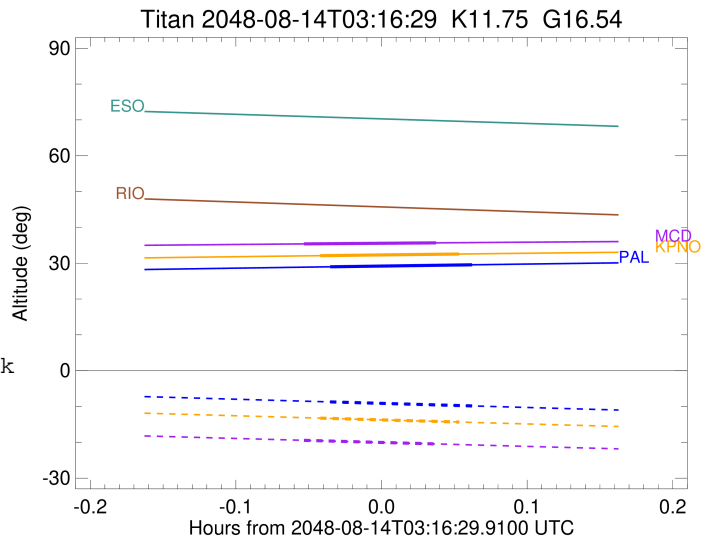
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2048-08-14T03:14:21.112	28.99	-8.71	2575.1	-39.18	-39.20
Titan	E	2048-08-14T03:20:16.406	29.55	-9.85	2575.2	1.91	1.92



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-08-14T03:16:49.160
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       : 4079197145618073984
2Mass ID (if available) : 18404865-2238036
ICRS Star Coord at Epoch: 18h 40m 48.60175s -22:38:03.47837s
RUWE (>1.4 is poor) : 0.00
K magnitude          : 11.748
G magnitude          : 16.542
RP magnitude         : 0.000
BP magnitude         : 0.000
DUPflag             : 0
Distance (au)        : 9.259
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.16
Sun-Target sep (deg) : 138.05
Sun-Moon sep (deg)   : 85.58
B (ring opening deg) : 25.72
PA of pole (deg)     : 6.36
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.160
C/A sky separation (km) : 1072.8
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	2048-08-14T03:13:56.108	32.10	-13.25	2575.1	-41.94	-41.95
Titan	E	2048-08-14T03:19:42.163	32.56	-14.34	2575.2	-1.24	-1.24

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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-08-14T03:16:01.820
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        : 4079197145618073984
2Mass ID (if available) : 18404865-2238036
ICRS Star Coord at Epoch: 18h 40m 48.60175s -22:38:03.47837s
RUWE (>1.4 is poor)  : 0.00
K magnitude           : 11.748
G magnitude           : 16.542
RP magnitude          : 0.000
BP magnitude          : 0.000
DUPflag              : 0
Distance (au)         : 9.259
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -13.16
Sun-Target sep (deg)  : 138.05
Sun-Moon sep (deg)    : 85.63
B (ring opening deg) : 25.72
PA of pole (deg)      : 6.36
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.190
C/A sky separation (km) : 1277.8
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	2048-08-14T03:13:16.703	35.38	-19.44	2575.1	-45.95	-45.96
Titan	E	2048-08-14T03:18:46.896	35.68	-20.46	2575.2	-5.94	-5.94

