

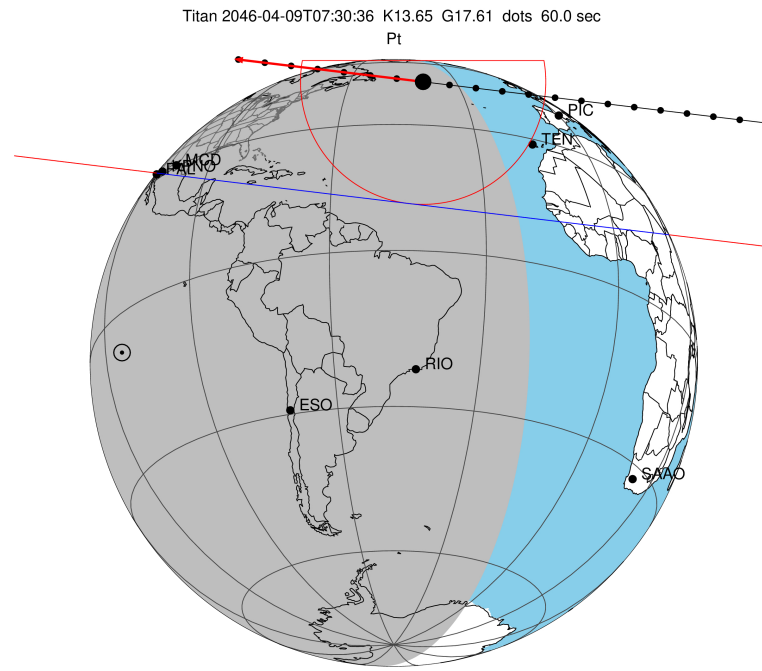
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2046-04-09T07:30:36.190  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4117826180245314688  
 2Mass ID (if available) : 17274900-2142400

ICRS Star Coord at Epoch: 17h 27m 48.98647s -21:42:40.20116s  
 RUWE (>1.4 is poor) : 1.03  
 K magnitude : 13.650  
 G magnitude : 17.613  
 RP magnitude : 16.528  
 BP magnitude : 18.832  
 DUPflag : 0  
 Distance (au) : 9.536  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -9.29  
 Sun-Target sep (deg) : 116.45  
 Sun-Moon sep (deg) : 147.67  
 B (ring opening deg) : 26.48  
 PA of pole (deg) : 4.95  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.859  
 C/A sky separation (km) : 5941.8  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk

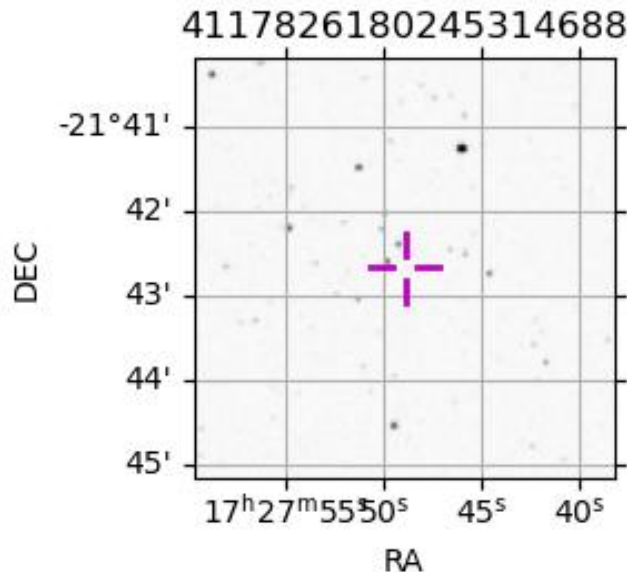
URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp

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 09 07:39 - APR 09 07:41	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	APR 09 07:38 - APR 09 07:41	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	APR 09 07:37 - APR 09 07:41	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



2046-04-09T07:30:36.1900 α: 17 27 48.9865 δ: -21 42 40.201 C/A 0.858" PA 6.87 deg v\_sky - 9.30 km/s D 09.54 AU  
 Credit: Styled after SORA/Lucky Star



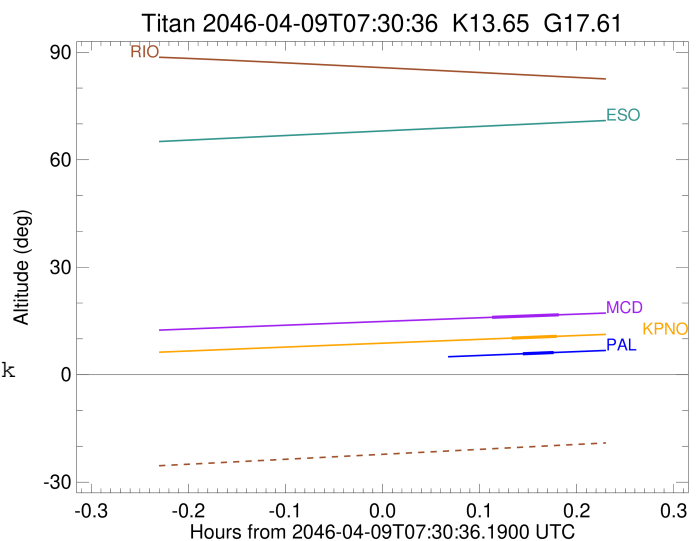
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-04-09T07:40:13.170
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       : 4117826180245314688
2Mass ID (if available) : 17274900-2142400
ICRS Star Coord at Epoch: 17h 27m 48.98647s -21:42:40.20116s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 13.650
G magnitude           : 17.613
RP magnitude          : 16.528
BP magnitude          : 18.832
DUPflag              : 0
Distance (au)         : 9.536
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.29
Sun-Target sep (deg) : 116.45
Sun-Moon sep (deg)   : 147.18
B (ring opening deg) : 26.48
PA of pole (deg)     : 4.95
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.363
C/A sky separation (km): 2512.3
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

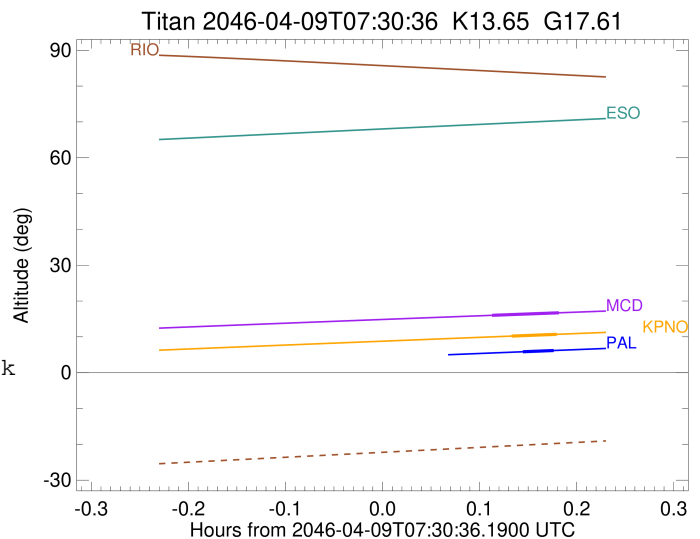
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2046-04-09T07:39:13.343	5.83	-49.08	2575.0	-60.40	-60.41
Titan	E	2046-04-09T07:41:12.996	6.19	-49.10	2575.1	-61.25	-61.26



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-04-09T07:39:59.010
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       : 4117826180245314688
2Mass ID (if available) : 17274900-2142400
ICRS Star Coord at Epoch: 17h 27m 48.98647s -21:42:40.20116s
RUWE (>1.4 is poor) : 1.03
K magnitude          : 13.650
G magnitude          : 17.613
RP magnitude         : 16.528
BP magnitude         : 18.832
DUPflag             : 0
Distance (au)        : 9.536
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.29
Sun-Target sep (deg) : 116.45
Sun-Moon sep (deg)  : 147.23
B (ring opening deg) : 26.48
PA of pole (deg)    : 4.95
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.353
C/A sky separation (km) : 2441.1
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

```

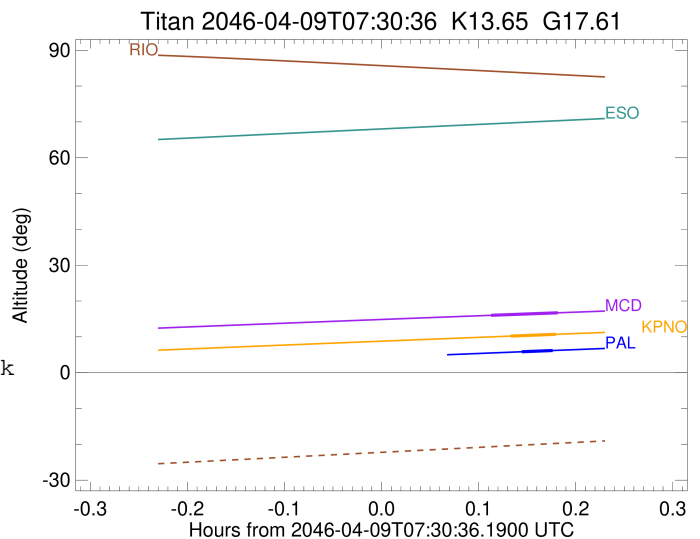


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2046-04-09T07:38:32.510	10.20	-50.45	2575.1	-57.47	-57.48
Titan	E	2046-04-09T07:41:25.487	10.71	-50.40	2575.1	-58.61	-58.62

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-04-09T07:39:26.580
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       : 4117826180245314688
2Mass ID (if available) : 17274900-2142400
ICRS Star Coord at Epoch: 17h 27m 48.98647s -21:42:40.20116s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 13.650
G magnitude           : 17.613
RP magnitude          : 16.528
BP magnitude          : 18.832
DUPflag              : 0
Distance (au)         : 9.536
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -9.29
Sun-Target sep (deg) : 116.45
Sun-Moon sep (deg)   : 147.32
B (ring opening deg) : 26.48
PA of pole (deg)     : 4.95
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.330
C/A sky separation (km) : 2282.6
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	2046-04-09T07:37:21.419	16.01	-50.64	2575.1	-51.77	-51.78
Titan	E	2046-04-09T07:41:31.693	16.71	-50.39	2575.1	-53.23	-53.25