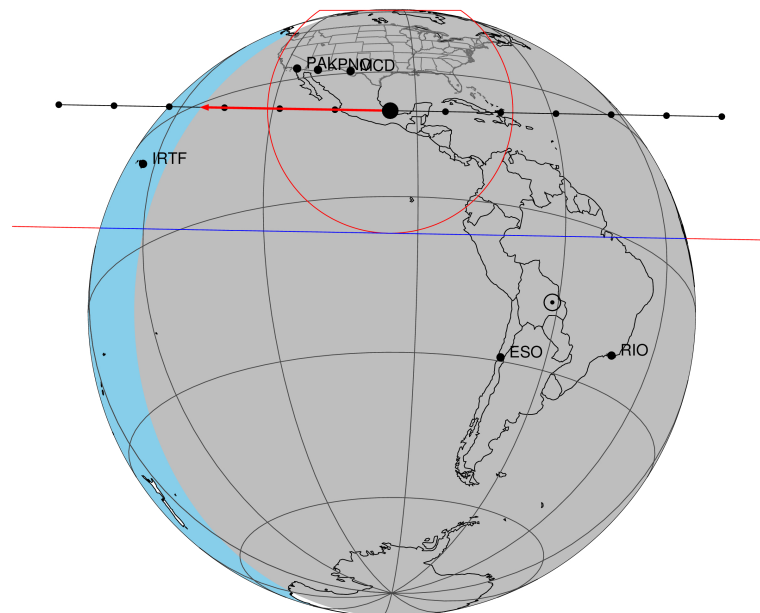


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-08-04T04:11:36.200
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4078527714836912256
 2Mass ID (if available) : 18423714-2235081

ICRS Star Coord at Epoch: 18h 42m 37.16160s -22:35:07.73902s
 RUWE (>1.4 is poor) : 1.15
 K magnitude : 13.783
 G magnitude : 18.480
 RP magnitude : 0.000
 BP magnitude : 0.000
 DUPflag : 0
 Distance (au) : 9.154
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -19.33
 Sun-Target sep (deg) : 148.02
 Sun-Moon sep (deg) : 150.07
 B (ring opening deg) : 25.63
 PA of pole (deg) : 6.38
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.641
 C/A sky separation (km) : 4255.7
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

Titan 2048-08-04T04:11:36 K13.78 G18.48 dots 60.0 sec
Pt

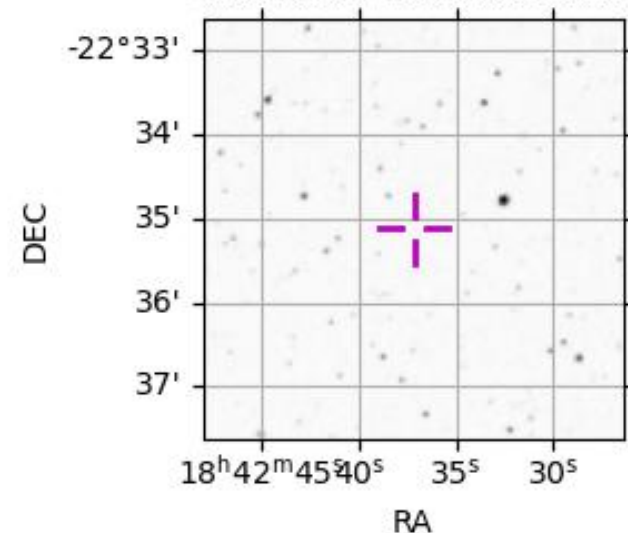


2048-08-04T04:11:36.2000 α: 18 42 37.1616 δ: -22 35 07.739 C/A 0.640" PA 1.04 deg v_sky -19.34 km/s D 09.15 AU
Credit: Styled after SORA/Lucky Star

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 04 04:11 - AUG 04 04:15	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	AUG 04 04:10 - AUG 04 04:15	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	AUG 04 04:10 - AUG 04 04:14	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

4078527714836912256



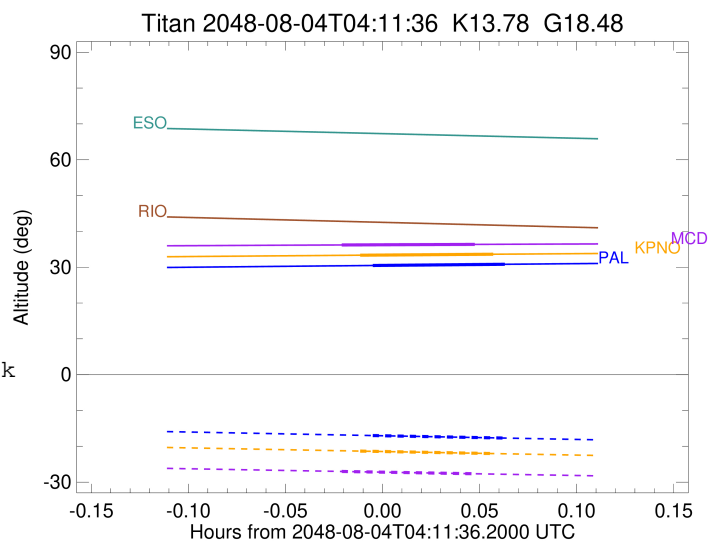
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-08-04T04:13:20.490
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       : 4078527714836912256
2Mass ID (if available) : 18423714-2235081
ICRS Star Coord at Epoch: 18h 42m 37.16160s -22:35:07.73902s
RUWE (>1.4 is poor) : 1.15
K magnitude          : 13.783
G magnitude          : 18.480
RP magnitude         : 0.000
BP magnitude         : 0.000
DUPflag             : 0
Distance (au)        : 9.154
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -19.33
Sun-Target sep (deg) : 148.02
Sun-Moon sep (deg)  : 150.13
B (ring opening deg) : 25.63
PA of pole (deg)    : 6.38
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.127
C/A sky separation (km) : 842.5
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

```

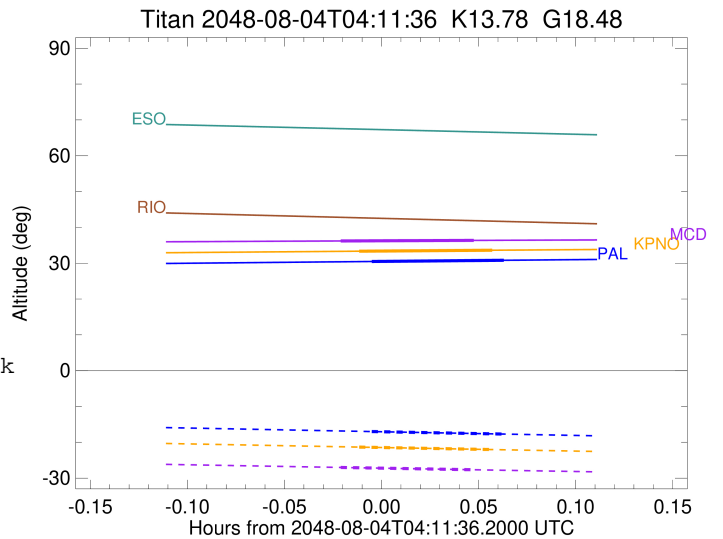
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2048-08-04T04:11:16.941	30.47	-16.99	2575.1	12.21	12.22
Titan	E	2048-08-04T04:15:24.044	30.81	-17.70	2575.1	22.06	22.07



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-08-04T04:12:58.170
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       : 4078527714836912256
2Mass ID (if available) : 18423714-2235081
ICRS Star Coord at Epoch: 18h 42m 37.16160s -22:35:07.73902s
RUWE (>1.4 is poor) : 1.15
K magnitude          : 13.783
G magnitude          : 18.480
RP magnitude         : 0.000
BP magnitude         : 0.000
DUPflag             : 0
Distance (au)        : 9.154
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -19.33
Sun-Target sep (deg) : 148.02
Sun-Moon sep (deg)   : 150.21
B (ring opening deg) : 25.63
PA of pole (deg)     : 6.38
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.123
C/A sky separation (km): 818.9
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	2048-08-04T04:10:54.319	33.34	-21.33	2575.1	11.74	11.75
Titan	E	2048-08-04T04:15:02.023	33.61	-22.02	2575.1	21.54	21.55

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-08-04T04:12:23.330
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       : 4078527714836912256
2Mass ID (if available) : 18423714-2235081
ICRS Star Coord at Epoch: 18h 42m 37.16160s -22:35:07.73902s
RUWE (>1.4 is poor) : 1.15
K magnitude          : 13.783
G magnitude          : 18.480
RP magnitude         : 0.000
BP magnitude         : 0.000
DUPflag             : 0
Distance (au)        : 9.154
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -19.33
Sun-Target sep (deg) : 148.02
Sun-Moon sep (deg)  : 150.31
B (ring opening deg) : 25.63
PA of pole (deg)    : 6.38
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.121
C/A sky separation (km) : 801.2
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	2048-08-04T04:10:19.303	36.20	-27.01	2575.1	11.42	11.43
Titan	E	2048-08-04T04:14:27.375	36.36	-27.66	2575.1	21.12	21.13

