

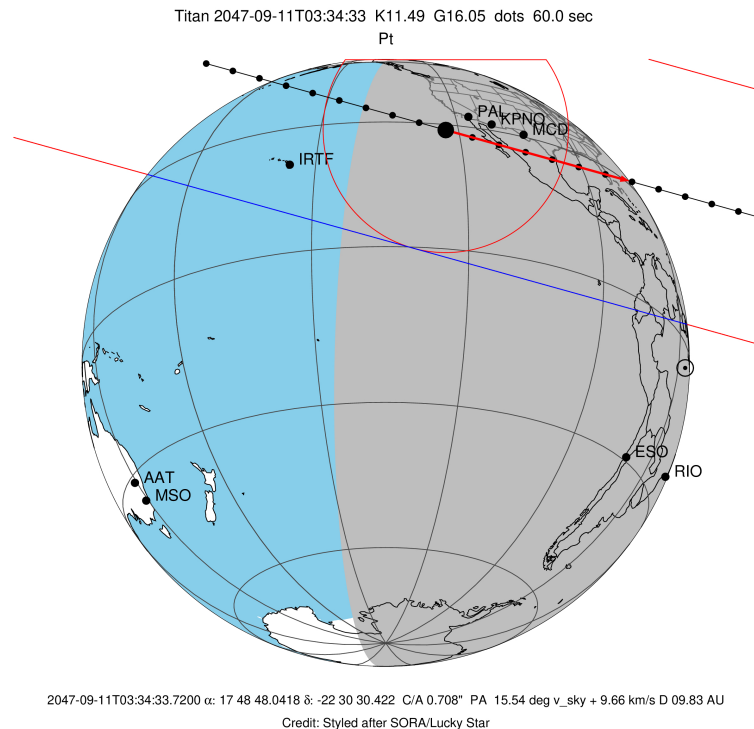
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2047-09-11T03:34:33.720  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4068970721220782080  
 2Mass ID (if available) : 17484805-2230301

ICRS Star Coord at Epoch: 17h 48m 48.04178s -22:30:30.42173s  
 RUWE (>1.4 is poor) : 1.02  
 K magnitude : 11.489  
 G magnitude : 16.048  
 RP magnitude : 14.799  
 BP magnitude : 17.535  
 DUPflag : 0  
 Distance (au) : 9.833  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 9.66  
 Sun-Target sep (deg) : 99.72  
 Sun-Moon sep (deg) : 155.43  
 B (ring opening deg) : 26.84  
 PA of pole (deg) : 5.45  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.712  
 C/A sky separation (km) : 5074.4  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk

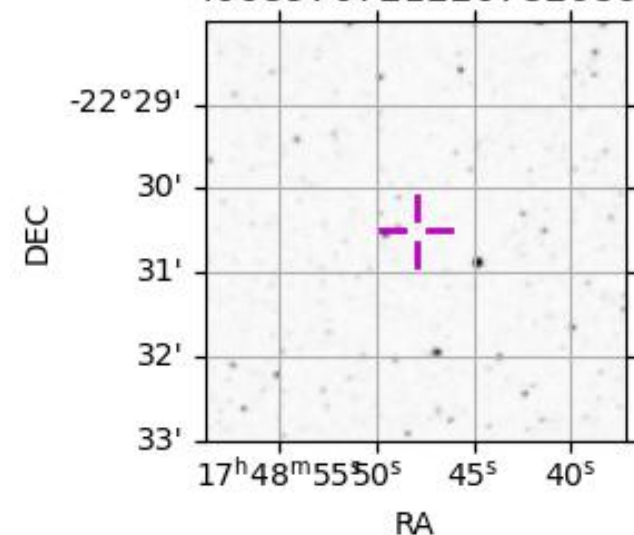
URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp

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	+ +	SEP 11 03:30 - SEP 11 03:39	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	SEP 11 03:31 - SEP 11 03:40	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	SEP 11 03:32 - SEP 11 03:41	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



4068970721220782080



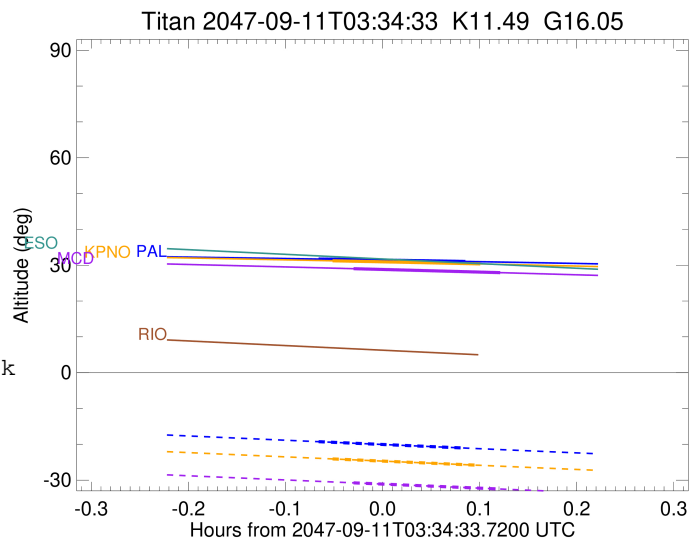
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-09-11T03:35:07.700
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)       : 1.706
Gaia source ID      : 4068970721220782080
2Mass ID (if available) : 17484805-2230301
ICRS Star Coord at Epoch: 17h 48m 48.04178s -22:30:30.42173s
RUWE (>1.4 is poor) : 1.02
K magnitude          : 11.489
G magnitude          : 16.048
RP magnitude         : 14.799
BP magnitude         : 17.535
DUPflag             : 0
Distance (au)       : 9.833
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 9.66
Sun-Target sep (deg) : 99.72
Sun-Moon sep (deg)  : 155.94
B (ring opening deg) : 26.84
PA of pole (deg)    : 5.45
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.050
C/A sky separation (km) : 356.2
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	2047-09-11T03:30:33.377	31.72	-19.25	2575.1	-2.19	-2.19
Titan	E	2047-09-11T03:39:42.011	31.04	-21.05	2575.1	16.31	16.32



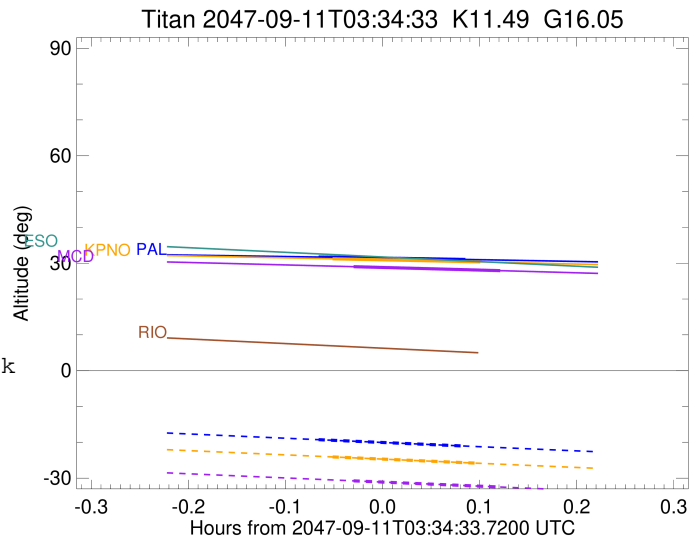
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-09-11T03:36:03.090
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        : 4068970721220782080
2Mass ID (if available) : 17484805-2230301
ICRS Star Coord at Epoch: 17h 48m 48.04178s -22:30:30.42173s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 11.489
G magnitude           : 16.048
RP magnitude          : 14.799
BP magnitude          : 17.535
DUPflag              : 0
Distance (au)         : 9.834
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 9.66
Sun-Target sep (deg) : 99.72
Sun-Moon sep (deg)   : 156.00
B (ring opening deg) : 26.84
PA of pole (deg)     : 5.45
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.047
C/A sky separation (km) : 332.2
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	2047-09-11T03:31:28.527	31.23	-24.08	2575.1	-2.58	-2.59
Titan	E	2047-09-11T03:40:37.621	30.35	-25.87	2575.1	15.75	15.76



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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-09-11T03:37:18.720
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       : 4068970721220782080
2Mass ID (if available) : 17484805-2230301
ICRS Star Coord at Epoch: 17h 48m 48.04178s -22:30:30.42173s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 11.489
G magnitude           : 16.048
RP magnitude          : 14.799
BP magnitude          : 17.535
DUPflag              : 0
Distance (au)        : 9.834
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 9.66
Sun-Target sep (deg) : 99.72
Sun-Moon sep (deg)   : 156.07
B (ring opening deg) : 26.84
PA of pole (deg)     : 5.45
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.042
C/A sky separation (km): 297.7
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

```

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	2047-09-11T03:32:44.130	29.03	-30.75	2575.2	-3.15	-3.15
Titan	E	2047-09-11T03:41:53.250	27.91	-32.49	2575.1	14.94	14.94

