

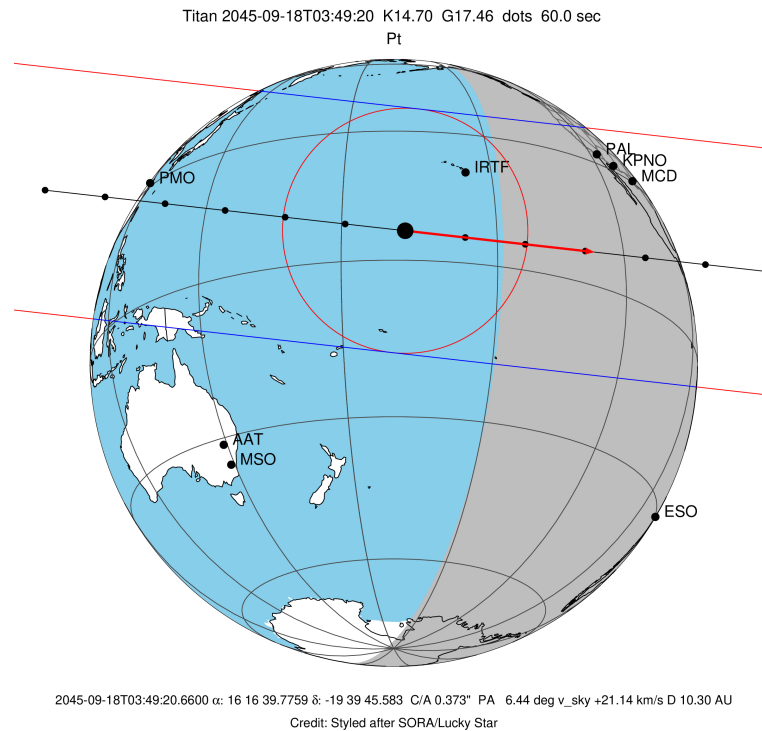
target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2045-09-18T03:49:20.660  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 6245524979789735936  
 2Mass ID (if available) : 16163977-1939452

ICRS Star Coord at Epoch: 16h 16m 39.77592s -19:39:45.58299s  
 RUWE (>1.4 is poor) : 1.31  
 K magnitude : 14.696  
 G magnitude : 17.459  
 RP magnitude : 16.633  
 BP magnitude : 18.091  
 DUPflag : 0  
 Distance (au) : 10.301  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 21.14  
 Sun-Target sep (deg) : 70.75  
 Sun-Moon sep (deg) : 21.19  
 B (ring opening deg) : 25.61  
 PA of pole (deg) : 3.04  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.372  
 C/A sky separation (km) : 2780.3  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk

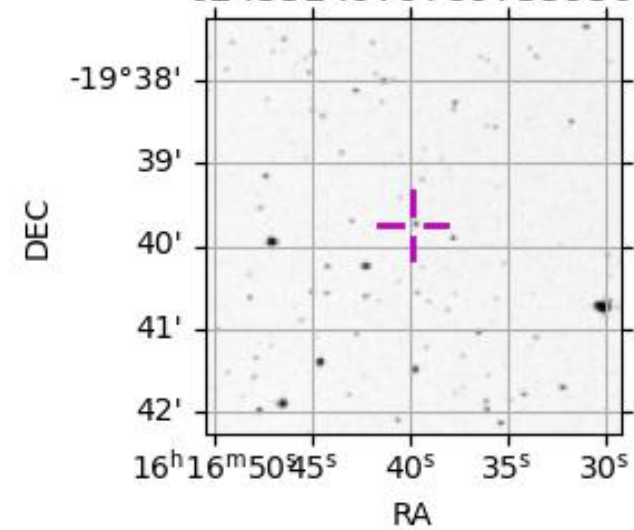
URKALLv1.spk  
 naif0012.tls  
 nep097.bsp  
 nep101.bsp  
 sat4401.bsp

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 18 03:51 - SEP 18 03:53	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	SEP 18 03:51 - SEP 18 03:54	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	SEP 18 03:51 - SEP 18 03:54	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



6245524979789735936



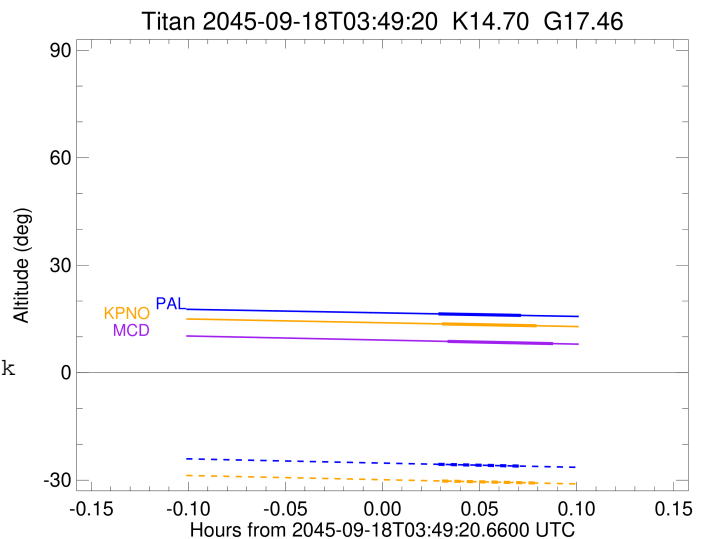
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2045-09-18T03:52:21.510
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 6245524979789735936
2Mass ID (if available) : 16163977-1939452
ICRS Star Coord at Epoch: 16h 16m 39.77592s -19:39:45.58299s
RUWE (>1.4 is poor) : 1.31
K magnitude          : 14.696
G magnitude          : 17.459
RP magnitude         : 16.633
BP magnitude         : 18.091
DUPflag             : 0
Distance (au)        : 10.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 21.14
Sun-Target sep (deg) : 70.75
Sun-Moon sep (deg)   : 21.04
B (ring opening deg) : 25.61
PA of pole (deg)     : 3.04
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.268
C/A sky separation (km): 2005.0
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	2045-09-18T03:51:04.212	16.41	-25.58	2575.1	42.04	42.06
Titan	E	2045-09-18T03:53:38.795	15.98	-26.08	2575.1	47.09	47.10



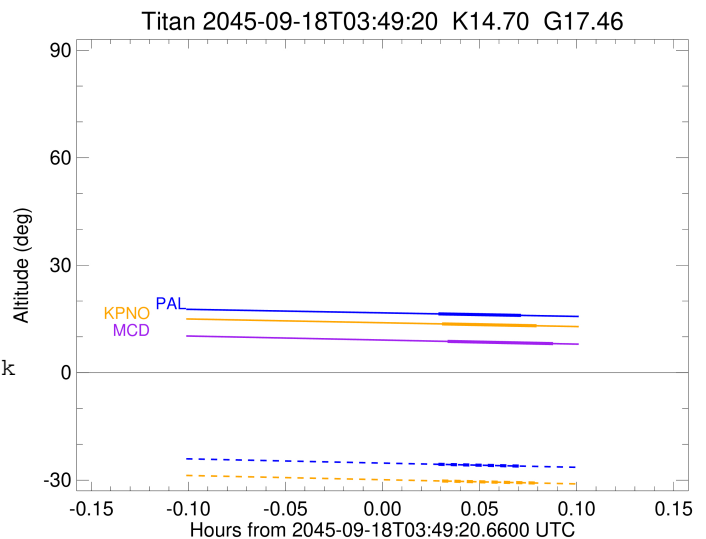
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2045-09-18T03:52:39.030
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        : 6245524979789735936
2Mass ID (if available) : 16163977-1939452
ICRS Star Coord at Epoch: 16h 16m 39.77592s -19:39:45.58299s
RUWE (>1.4 is poor) : 1.31
K magnitude           : 14.696
G magnitude           : 17.459
RP magnitude          : 16.633
BP magnitude          : 18.091
DUPflag              : 0
Distance (au)         : 10.301
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 21.14
Sun-Target sep (deg)  : 70.75
Sun-Moon sep (deg)   : 20.97
B (ring opening deg) : 25.61
PA of pole (deg)     : 3.04
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.240
C/A sky separation (km) : 1795.7
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	2045-09-18T03:51:10.853	13.61	-30.24	2575.1	36.33	36.34
Titan	E	2045-09-18T03:54:07.189	13.09	-30.81	2575.1	41.56	41.57



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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2045-09-18T03:52:59.310
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       : 6245524979789735936
2Mass ID (if available) : 16163977-1939452
ICRS Star Coord at Epoch: 16h 16m 39.77592s -19:39:45.58299s
RUWE (>1.4 is poor) : 1.31
K magnitude          : 14.696
G magnitude          : 17.459
RP magnitude         : 16.633
BP magnitude         : 18.091
DUPflag             : 0
Distance (au)        : 10.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 21.14
Sun-Target sep (deg) : 70.75
Sun-Moon sep (deg)  : 20.87
B (ring opening deg) : 25.61
PA of pole (deg)    : 3.04
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.203
C/A sky separation (km) : 1516.7
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	2045-09-18T03:51:20.092	8.73	-36.65	2575.1	29.39	29.41
Titan	E	2045-09-18T03:54:38.501	8.10	-37.27	2575.1	34.74	34.75

