

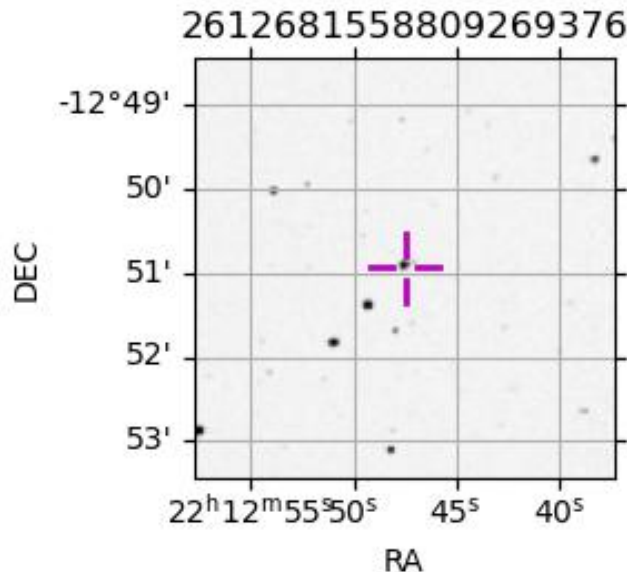
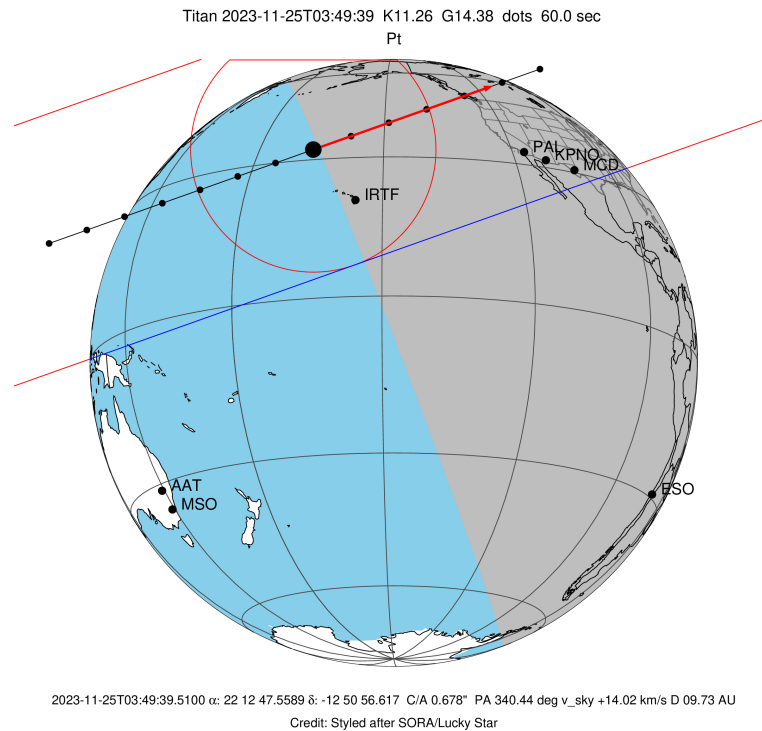
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2023-11-25T03:49:39.510
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 2612681558809269376
 2Mass ID (if available) : 22124761-1250559

ICRS Star Coord at Epoch: 22h 12m 47.55892s -12:50:56.61747s
 RUWE (>1.4 is poor) : 1.08
 K magnitude : 11.259
 G magnitude : 14.377
 RP magnitude : 13.383
 BP magnitude : 15.384
 DUPflag : 0
 Distance (au) : 9.732
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 14.02
 Sun-Target sep (deg) : 88.25
 Sun-Moon sep (deg) : 63.45
 B (ring opening deg) : 10.14
 PA of pole (deg) : 6.11
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.677
 C/A sky separation (km) : 4780.3
 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	+ +	NOV 25 03:52 - NOV 25 03:57	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	NOV 25 03:52 - NOV 25 03:57	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	NOV 25 03:54 - NOV 25 03:56	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



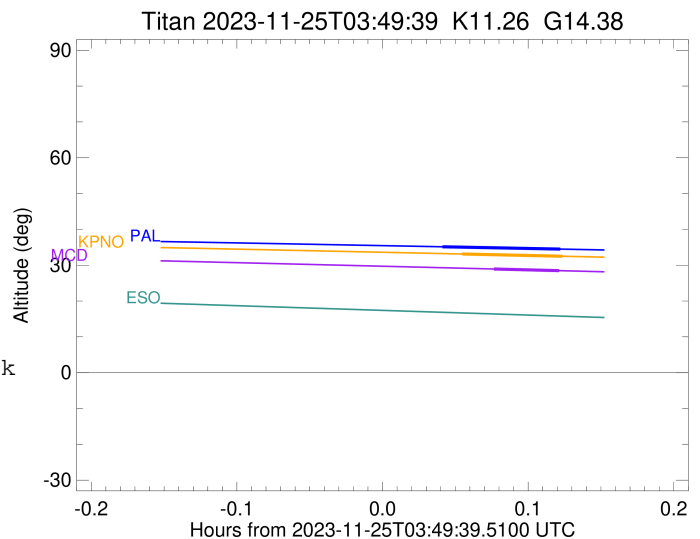
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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2023-11-25T03:54:33.940
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : PAL
Location              : Palomar Mt (200")
Latitude (deg)        : 33.35622
E. Longitude (deg)   : 243.13601
Altitude (km)         : 1.706
Gaia source ID        : 2612681558809269376
2Mass ID (if available) : 22124761-1250559
ICRS Star Coord at Epoch: 22h 12m 47.55892s -12:50:56.61747s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 11.259
G magnitude           : 14.377
RP magnitude          : 13.383
BP magnitude          : 15.384
DUPflag              : 0
Distance (au)         : 9.732
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 14.02
Sun-Target sep (deg) : 88.25
Sun-Moon sep (deg)   : 63.68
B (ring opening deg) : 10.14
PA of pole (deg)     : 6.11
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.225
C/A sky separation (km): 1589.8
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	2023-11-25T03:52:06.420	35.14	-39.52	2575.2	-11.63	-11.63
Titan	E	2023-11-25T03:57:01.395	34.49	-40.55	2575.1	-62.61	-62.63



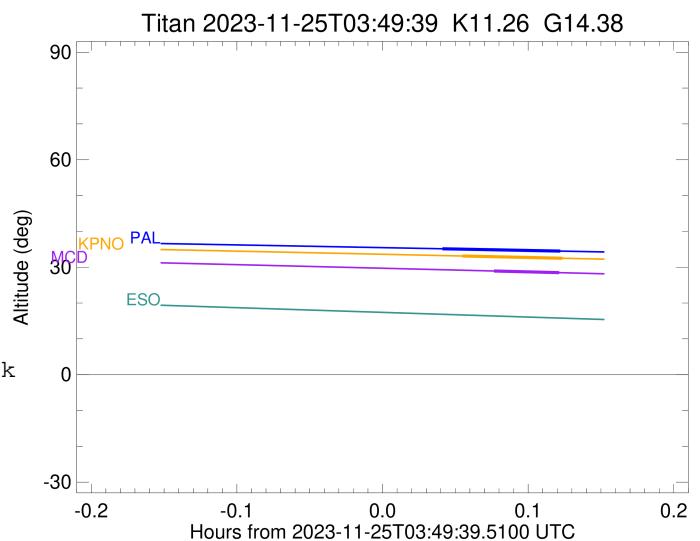
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2023-11-25T03:55:00.490
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       : 2612681558809269376
2Mass ID (if available) : 22124761-1250559
ICRS Star Coord at Epoch: 22h 12m 47.55892s -12:50:56.61747s
RUWE (>1.4 is poor) : 1.08
K magnitude           : 11.259
G magnitude           : 14.377
RP magnitude         : 13.383
BP magnitude         : 15.384
DUPflag              : 0
Distance (au)        : 9.732
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 14.02
Sun-Target sep (deg) : 88.25
Sun-Moon sep (deg)  : 63.63
B (ring opening deg) : 10.14
PA of pole (deg)    : 6.11
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.271
C/A sky separation (km) : 1909.6
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	2023-11-25T03:52:54.846	33.12	-44.14	2575.2	-21.20	-21.21
Titan	E	2023-11-25T03:57:06.081	32.49	-45.03	2575.2	-71.27	-71.28



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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2023-11-25T03:55:35.400
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       : 2612681558809269376
2Mass ID (if available) : 22124761-1250559
ICRS Star Coord at Epoch: 22h 12m 47.55892s -12:50:56.61747s
RUWE (>1.4 is poor) : 1.08
K magnitude          : 11.259
G magnitude          : 14.377
RP magnitude         : 13.383
BP magnitude         : 15.384
DUPflag             : 0
Distance (au)        : 9.732
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 14.02
Sun-Target sep (deg) : 88.25
Sun-Moon sep (deg)   : 63.54
B (ring opening deg) : 10.14
PA of pole (deg)     : 6.11
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.328
C/A sky separation (km) : 2312.9
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	2023-11-25T03:54:13.275	28.94	-50.96	2575.2	-36.93	-36.94
Titan	E	2023-11-25T03:56:57.506	28.47	-51.55	2575.2	-79.86	-79.86

