

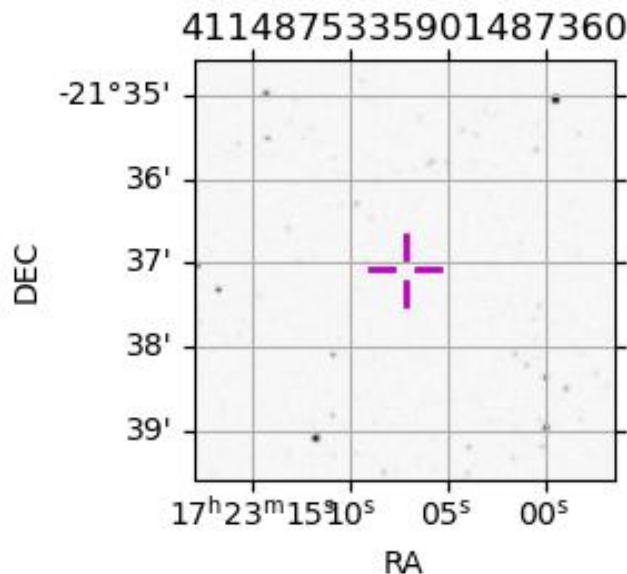
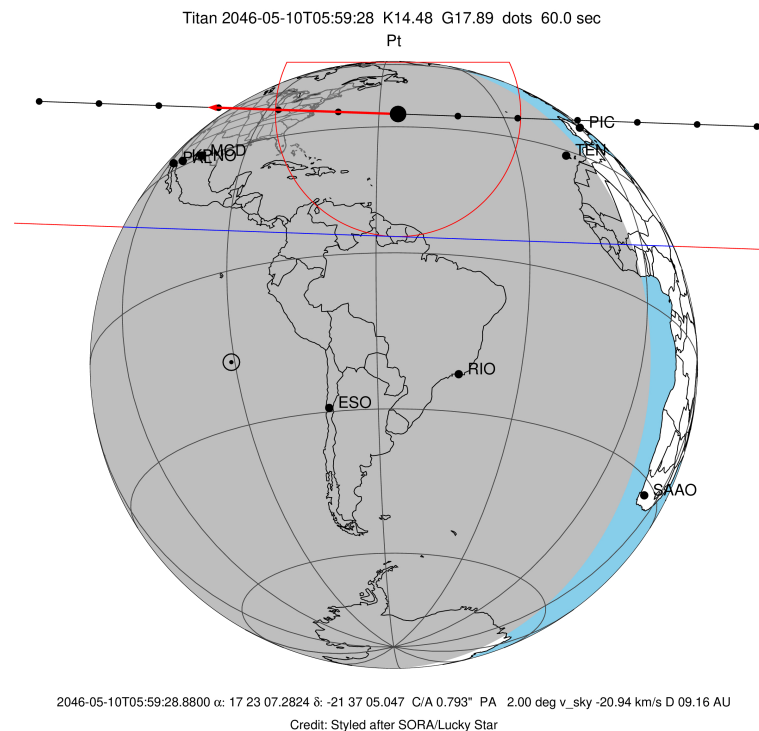
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-05-10T05:59:28.880
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4114875335901487360
 2Mass ID (if available) : 17230727-2137048

ICRS Star Coord at Epoch: 17h 23m 07.28244s -21:37:05.04742s
 RUWE (>1.4 is poor) : 0.96
 K magnitude : 14.485
 G magnitude : 17.890
 RP magnitude : 16.905
 BP magnitude : 18.941
 DUPflag : 0
 Distance (au) : 9.157
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -20.94
 Sun-Target sep (deg) : 147.66
 Sun-Moon sep (deg) : 162.33
 B (ring opening deg) : 26.48
 PA of pole (deg) : 4.84
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.793
 C/A sky separation (km) : 5267.1
 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	+ +	MAY 10 06:01 - MAY 10 06:05	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAY 10 06:01 - MAY 10 06:04	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAY 10 06:00 - MAY 10 06:04	Pie
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	MAY 10 05:54 - MAY 10 05:58	Pie
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



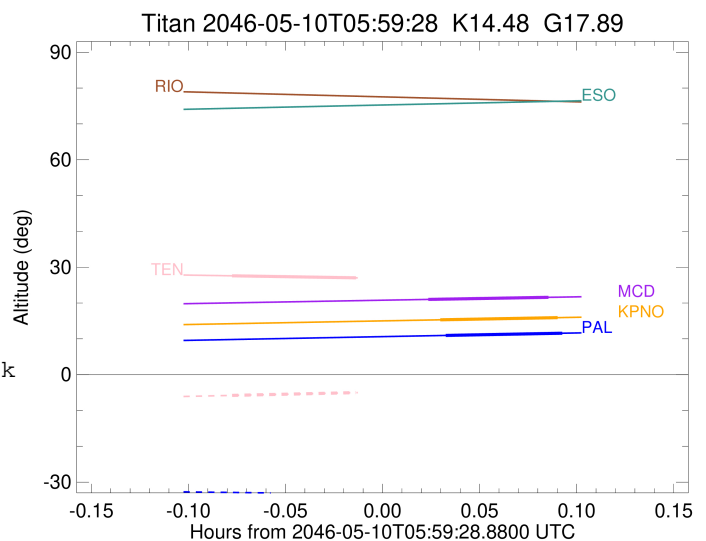
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-05-10T06:03:14.200
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4114875335901487360
2Mass ID (if available) : 17230727-2137048
ICRS Star Coord at Epoch: 17h 23m 07.28244s -21:37:05.04742s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 14.485
G magnitude           : 17.890
RP magnitude          : 16.905
BP magnitude          : 18.941
DUPflag              : 0
Distance (au)         : 9.157
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -20.94
Sun-Target sep (deg) : 147.66
Sun-Moon sep (deg)   : 163.18
B (ring opening deg) : 26.48
PA of pole (deg)     : 4.84
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.175
C/A sky separation (km): 1160.8
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	2046-05-10T06:01:25.463	10.95	-33.57	2575.1	-26.56	-26.57
Titan	E	2046-05-10T06:05:02.912	11.57	-33.94	2575.1	-21.01	-21.02



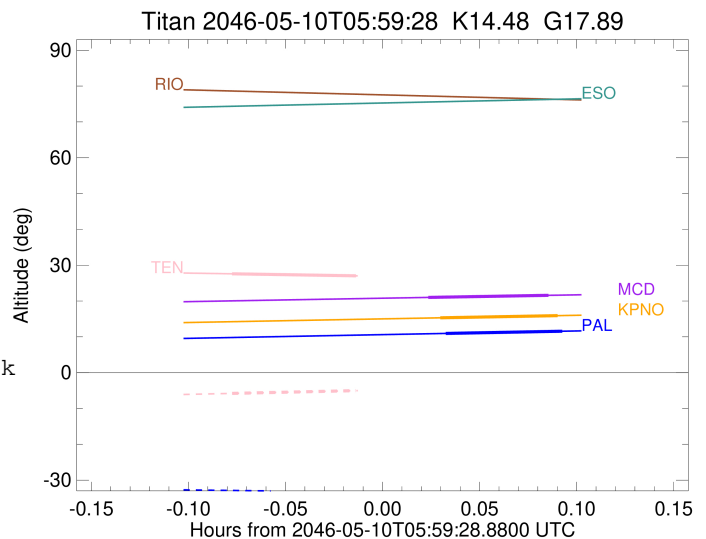
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-05-10T06:03:04.730
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       : 4114875335901487360
2Mass ID (if available) : 17230727-2137048
ICRS Star Coord at Epoch: 17h 23m 07.28244s -21:37:05.04742s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 14.485
G magnitude          : 17.890
RP magnitude         : 16.905
BP magnitude         : 18.941
DUPflag             : 0
Distance (au)        : 9.157
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -20.94
Sun-Target sep (deg) : 147.66
Sun-Moon sep (deg)  : 163.18
B (ring opening deg) : 26.48
PA of pole (deg)    : 4.84
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.167
C/A sky separation (km) : 1107.3
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	2046-05-10T06:01:14.927	15.31	-36.81	2575.1	-25.40	-25.41
Titan	E	2046-05-10T06:04:54.511	15.92	-37.13	2575.1	-19.86	-19.87



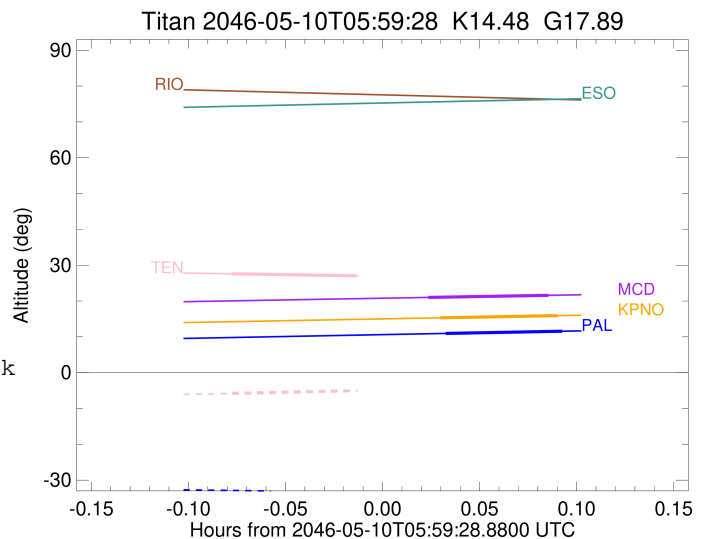
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-05-10T06:02:45.810
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     : 4114875335901487360
2Mass ID (if available) : 17230727-2137048
ICRS Star Coord at Epoch: 17h 23m 07.28244s -21:37:05.04742s
RUWE (>1.4 is poor) : 0.96
K magnitude         : 14.485
G magnitude         : 17.890
RP magnitude        : 16.905
BP magnitude        : 18.941
DUPflag            : 0
Distance (au)      : 9.157
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -20.94
Sun-Target sep (deg) : 147.66
Sun-Moon sep (deg)  : 163.16
B (ring opening deg) : 26.48
PA of pole (deg)   : 4.84
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.149
C/A sky separation (km) : 988.8
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	2046-05-10T06:00:53.750	21.00	-40.25	2575.1	-22.86	-22.87
Titan	E	2046-05-10T06:04:37.860	21.59	-40.46	2575.1	-17.33	-17.34



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-05-10T05:56:44.570
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : TEN
Location             : Teide Obs./Tenerife
Latitude (deg)       : 28.30050
E. Longitude (deg)   : 343.48909
Altitude (km)        : 2.395
Gaia source ID       : 4114875335901487360
2Mass ID (if available) : 17230727-2137048
ICRS Star Coord at Epoch: 17h 23m 07.28244s -21:37:05.04742s
RUWE (>1.4 is poor) : 0.96
K magnitude          : 14.485
G magnitude          : 17.890
RP magnitude         : 16.905
BP magnitude         : 18.941
DUPflag             : 0
Distance (au)        : 9.157
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -20.94
Sun-Target sep (deg) : 147.66
Sun-Moon sep (deg)   : 162.12
B (ring opening deg) : 26.48
PA of pole (deg)     : 4.84
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.115
C/A sky separation (km) : 765.1
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	2046-05-10T05:54:48.934	27.60	-5.79	2575.1	-17.73	-17.74
Titan	E	2046-05-10T05:58:40.220	27.03	-5.01	2575.1	-13.11	-13.12

