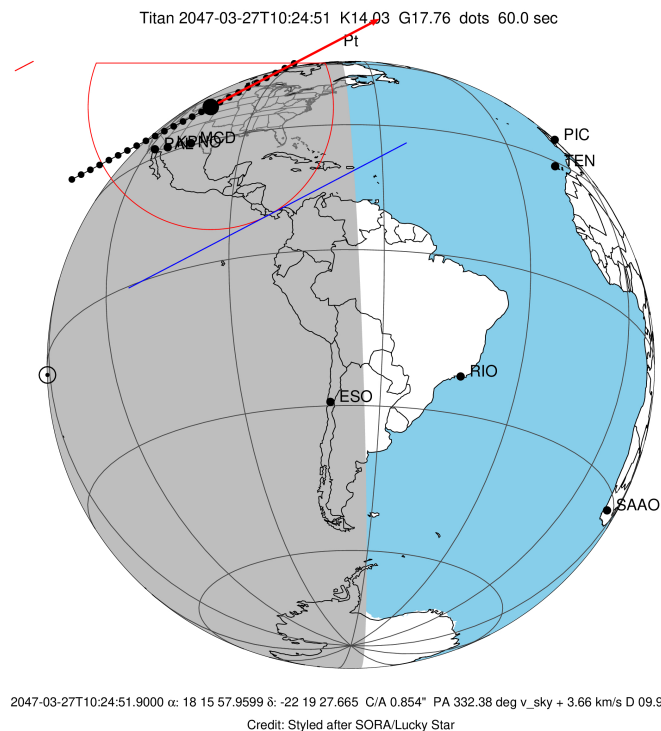


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-03-27T10:24:51.900
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4090522935712169088
 2Mass ID (if available) : 18155795-2219271

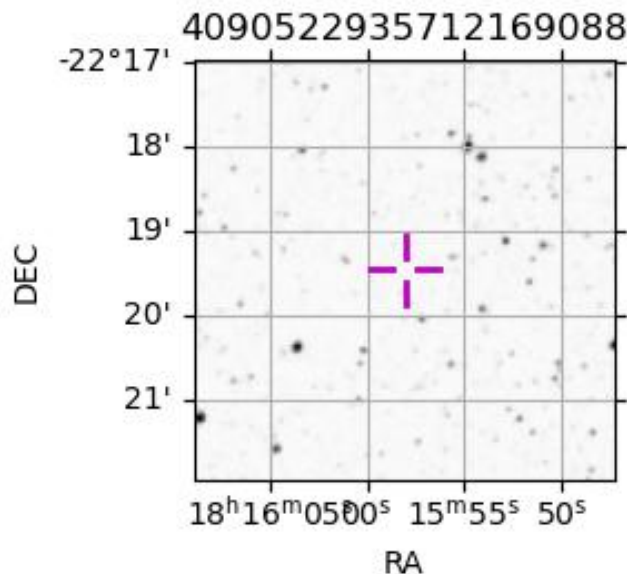
ICRS Star Coord at Epoch: 18h 15m 57.95986s -22:19:27.66533s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 14.028
 G magnitude : 17.762
 RP magnitude : 16.688
 BP magnitude : 18.912
 DUPflag : 0
 Distance (au) : 9.948
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 3.66
 Sun-Target sep (deg) : 92.33
 Sun-Moon sep (deg) : 102.51
 B (ring opening deg) : 26.03
 PA of pole (deg) : 5.95
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.848
 C/A sky separation (km) : 6116.4
 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	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	MAR 27 10:04 - MAR 27 10:29	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAR 27 10:05 - MAR 27 10:31	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAR 27 10:08 - MAR 27 10:33	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



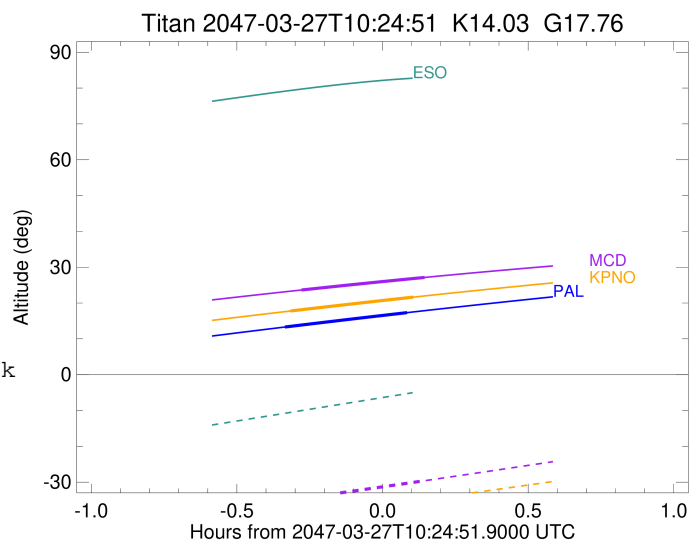
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-03-27T10:17:20.930
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       : 4090522935712169088
2Mass ID (if available) : 18155795-2219271
ICRS Star Coord at Epoch: 18h 15m 57.95986s -22:19:27.66533s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 14.028
G magnitude           : 17.762
RP magnitude         : 16.688
BP magnitude         : 18.912
DUPflag              : 0
Distance (au)        : 9.949
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 3.66
Sun-Target sep (deg) : 92.33
Sun-Moon sep (deg)   : 102.65
B (ring opening deg) : 26.03
PA of pole (deg)     : 5.95
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.027
C/A sky separation (km): 195.8
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	2047-03-27T10:04:44.627	13.29	-42.52	2575.1	25.95	25.96
Titan	E	2047-03-27T10:29:58.836	17.32	-38.43	2575.1	-33.72	-33.73



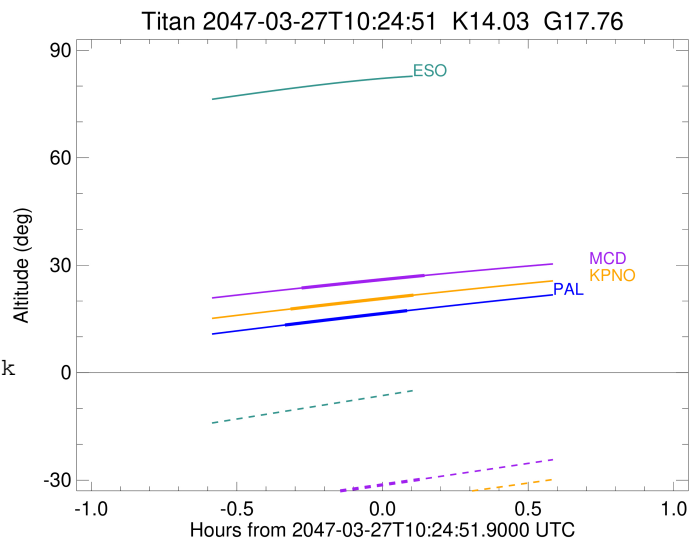
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-03-27T10:18:33.300
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       : 4090522935712169088
2Mass ID (if available) : 18155795-2219271
ICRS Star Coord at Epoch: 18h 15m 57.95986s -22:19:27.66533s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 14.028
G magnitude          : 17.762
RP magnitude         : 16.688
BP magnitude         : 18.912
DUPflag             : 0
Distance (au)        : 9.948
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 3.66
Sun-Target sep (deg) : 92.33
Sun-Moon sep (deg)  : 102.72
B (ring opening deg) : 26.03
PA of pole (deg)    : 5.95
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.039
C/A sky separation (km) : 278.9
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	2047-03-27T10:05:53.588	17.77	-39.77	2575.1	24.66	24.67
Titan	E	2047-03-27T10:31:14.329	21.64	-35.25	2575.1	-35.61	-35.62



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-03-27T10:20:50.970
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       : 4090522935712169088
2Mass ID (if available) : 18155795-2219271
ICRS Star Coord at Epoch: 18h 15m 57.95986s -22:19:27.66533s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 14.028
G magnitude           : 17.762
RP magnitude          : 16.688
BP magnitude          : 18.912
DUPflag              : 0
Distance (au)         : 9.948
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 3.66
Sun-Target sep (deg) : 92.33
Sun-Moon sep (deg)   : 102.81
B (ring opening deg) : 26.03
PA of pole (deg)     : 5.95
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.059
C/A sky separation (km) : 426.5
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	2047-03-27T10:08:10.542	23.63	-34.53	2575.1	22.26	22.27
Titan	E	2047-03-27T10:33:32.170	27.14	-29.60	2575.1	-38.86	-38.87

