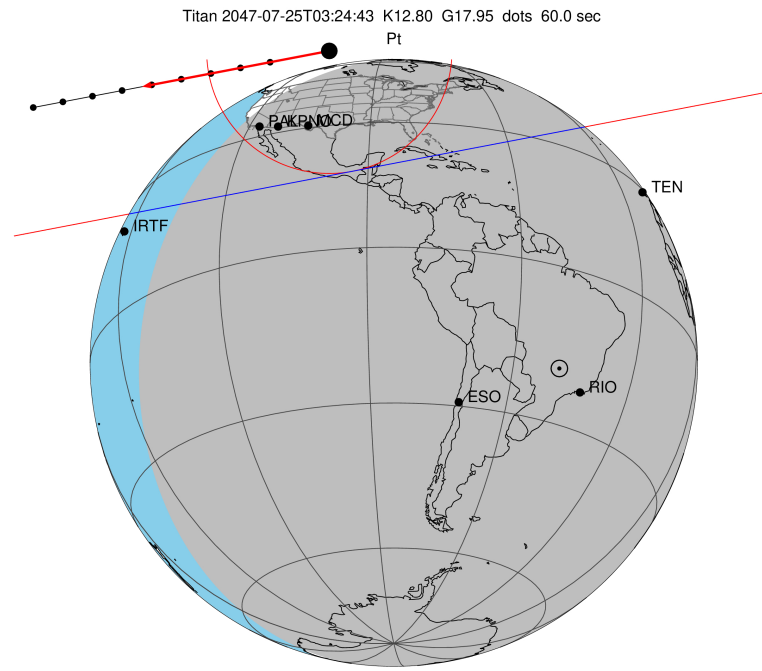


target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2047-07-25T03:24:43.130  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4070255844032205696  
 2Mass ID (if available) : 17532456-2223475

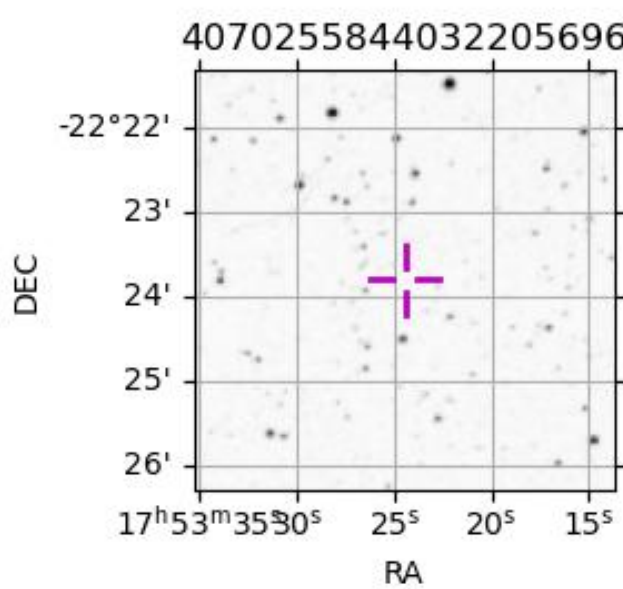
ICRS Star Coord at Epoch: 17h 53m 24.53273s -22:23:48.03958s  
 RUWE (>1.4 is poor) : 1.66  
 K magnitude : 12.797  
 G magnitude : 17.947  
 RP magnitude : 16.152  
 BP magnitude : 19.106  
 DUPflag : 0  
 Distance (au) : 9.186  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -10.55  
 Sun-Target sep (deg) : 146.96  
 Sun-Moon sep (deg) : 119.59  
 B (ring opening deg) : 26.62  
 PA of pole (deg) : 5.53  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 1.001  
 C/A sky separation (km) : 6671.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk



2047-07-25T03:24:43.1300 cc: 17 53 24.5327 & -22 23 48.040 C/A 1.004" PA 349.18 deg v\_sky -10.54 km/s D 09.19 AU  
 Credit: Styled after SORA/Lucky Star

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	+ +	JUL 25 03:24 - JUL 25 03:30	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUL 25 03:23 - JUL 25 03:30	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUL 25 03:22 - JUL 25 03:29	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



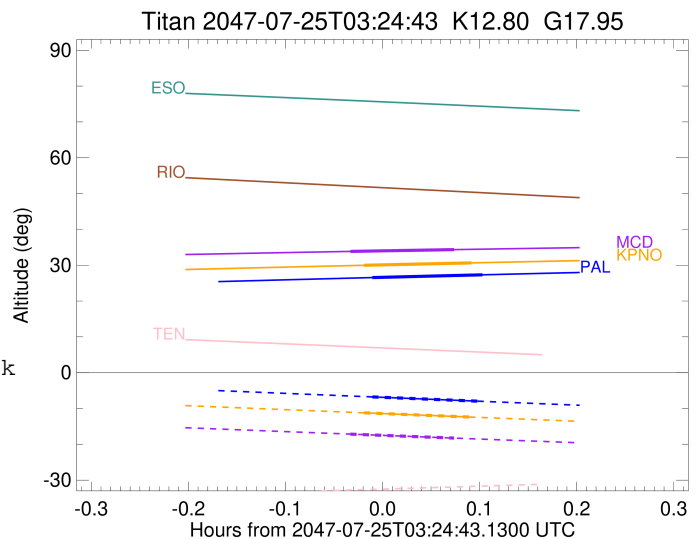
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-25T03:27:30.110
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       : 4070255844032205696
2Mass ID (if available) : 17532456-2223475
ICRS Star Coord at Epoch: 17h 53m 24.53273s -22:23:48.03958s
RUWE (>1.4 is poor) : 1.66
K magnitude           : 12.797
G magnitude           : 17.947
RP magnitude          : 16.152
BP magnitude          : 19.106
DUPflag              : 0
Distance (au)        : 9.186
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.55
Sun-Target sep (deg) : 146.96
Sun-Moon sep (deg)   : 120.16
B (ring opening deg) : 26.62
PA of pole (deg)     : 5.53
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.190
C/A sky separation (km) : 1268.0
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	2047-07-25T03:24:04.200	26.54	-6.76	2575.1	-39.96	-39.97
Titan	E	2047-07-25T03:30:55.939	27.31	-8.01	2575.2	-11.67	-11.67



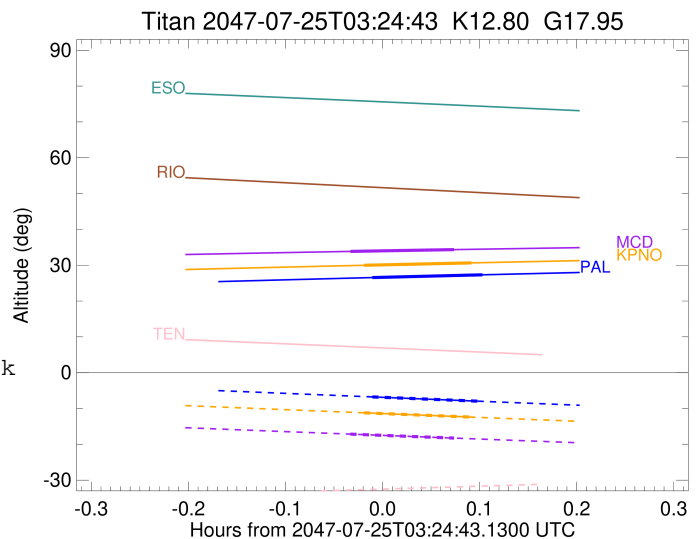
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-25T03:26:54.590
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       : 4070255844032205696
2Mass ID (if available) : 17532456-2223475
ICRS Star Coord at Epoch: 17h 53m 24.53273s -22:23:48.03958s
RUWE (>1.4 is poor) : 1.66
K magnitude          : 12.797
G magnitude          : 17.947
RP magnitude         : 16.152
BP magnitude         : 19.106
DUPflag             : 0
Distance (au)        : 9.186
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -10.55
Sun-Target sep (deg) : 146.96
Sun-Moon sep (deg)  : 120.17
B (ring opening deg) : 26.62
PA of pole (deg)    : 5.53
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.202
C/A sky separation (km) : 1345.6
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	2047-07-25T03:23:33.248	29.97	-11.20	2575.1	-41.51	-41.53
Titan	E	2047-07-25T03:30:15.872	30.64	-12.41	2575.2	-13.52	-13.53



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-07-25T03:25:56.670
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        : 4070255844032205696
2Mass ID (if available) : 17532456-2223475
ICRS Star Coord at Epoch: 17h 53m 24.53273s -22:23:48.03958s
RUWE (>1.4 is poor) : 1.66
K magnitude           : 12.797
G magnitude           : 17.947
RP magnitude          : 16.152
BP magnitude          : 19.106
DUPflag              : 0
Distance (au)         : 9.186
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -10.55
Sun-Target sep (deg) : 146.96
Sun-Moon sep (deg)   : 120.17
B (ring opening deg) : 26.62
PA of pole (deg)     : 5.53
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.218
C/A sky separation (km) : 1450.1
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	2047-07-25T03:22:41.887	33.84	-17.15	2575.1	-43.62	-43.63
Titan	E	2047-07-25T03:29:11.397	34.35	-18.27	2575.1	-16.07	-16.08

