

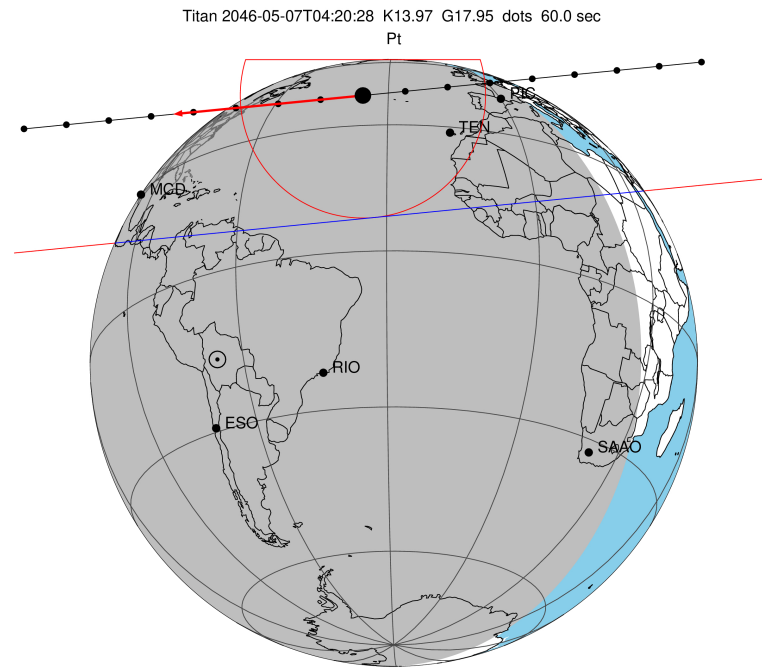
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-05-07T04:20:28.660
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4114864405153814656
 2Mass ID (if available) : 17235971-2136416

ICRS Star Coord at Epoch: 17h 23m 59.69340s -21:36:42.07508s
 RUWE (>1.4 is poor) : 1.06
 K magnitude : 13.971
 G magnitude : 17.948
 RP magnitude : 16.874
 BP magnitude : 19.192
 DUPflag : 0
 Distance (au) : 9.193
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.89
 Sun-Target sep (deg) : 144.50
 Sun-Moon sep (deg) : 156.11
 B (ring opening deg) : 26.46
 PA of pole (deg) : 4.86
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.846
 C/A sky separation (km) : 5638.4
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

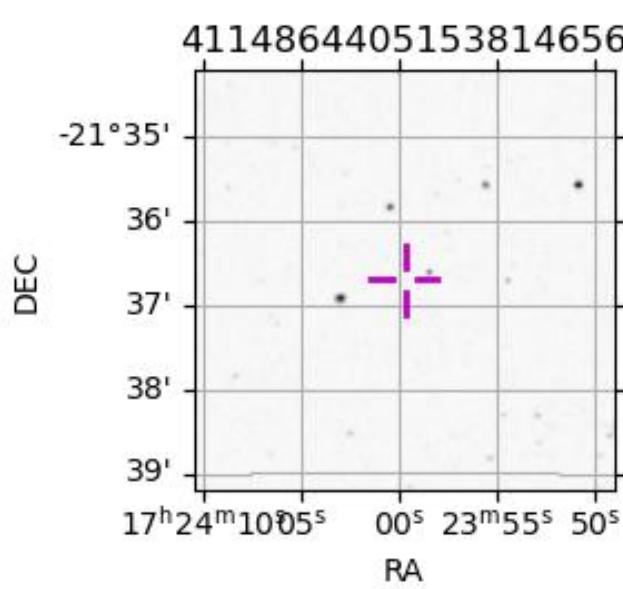
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +	MAY 07 04:14 - MAY 07 04:20	Pie
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	MAY 07 04:16 - MAY 07 04:21	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



2046-05-07T04:20:28.6600 cc: 17 23 59.6934 & -21 36 42.075 C/A 0.848" PA 354.36 deg v_sky -14.89 km/s D 09.19 AU
 Credit: Styled after SORA/Lucky Star



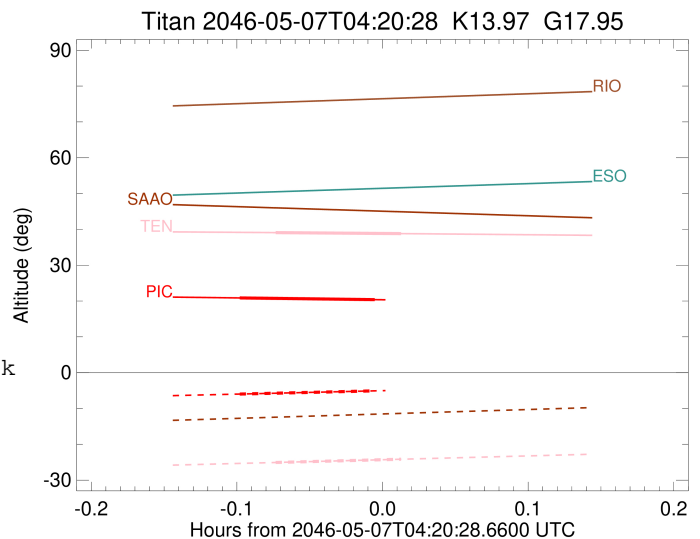
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-05-07T04:17:23.370
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : PIC
Location              : Pic du Midi
Latitude (deg)        : 42.93656
E. Longitude (deg)    : 0.14231
Altitude (km)         : 2.890
Gaia source ID        : 4114864405153814656
2Mass ID (if available) : 17235971-2136416
ICRS Star Coord at Epoch: 17h 23m 59.69340s -21:36:42.07508s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 13.971
G magnitude           : 17.948
RP magnitude          : 16.874
BP magnitude          : 19.192
DUPflag              : 0
Distance (au)         : 9.193
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.89
Sun-Target sep (deg)  : 144.50
Sun-Moon sep (deg)   : 156.68
B (ring opening deg) : 26.46
PA of pole (deg)     : 4.86
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.053
C/A sky separation (km) : 351.0
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	2046-05-07T04:14:35.281	20.86	-5.97	2575.1	-16.06	-16.07
Titan	E	2046-05-07T04:20:11.437	20.38	-5.07	2575.2	2.08	2.08



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-05-07T04:18:38.910
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       : 4114864405153814656
2Mass ID (if available) : 17235971-2136416
ICRS Star Coord at Epoch: 17h 23m 59.69340s -21:36:42.07508s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 13.971
G magnitude           : 17.948
RP magnitude         : 16.874
BP magnitude         : 19.192
DUPflag              : 0
Distance (au)        : 9.193
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.89
Sun-Target sep (deg) : 144.50
Sun-Moon sep (deg)  : 156.62
B (ring opening deg) : 26.46
PA of pole (deg)    : 4.86
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.143
C/A sky separation (km) : 955.8
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	2046-05-07T04:16:02.439	39.09	-25.08	2575.1	-28.34	-28.35
Titan	E	2046-05-07T04:21:15.355	38.81	-24.16	2575.2	-10.34	-10.34

