

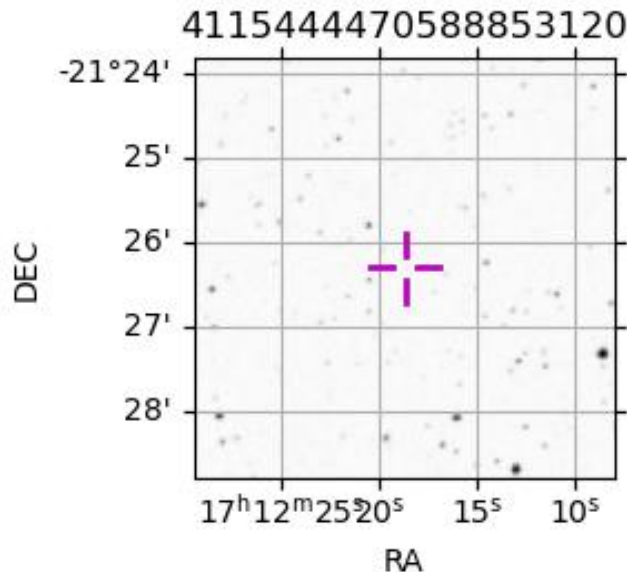
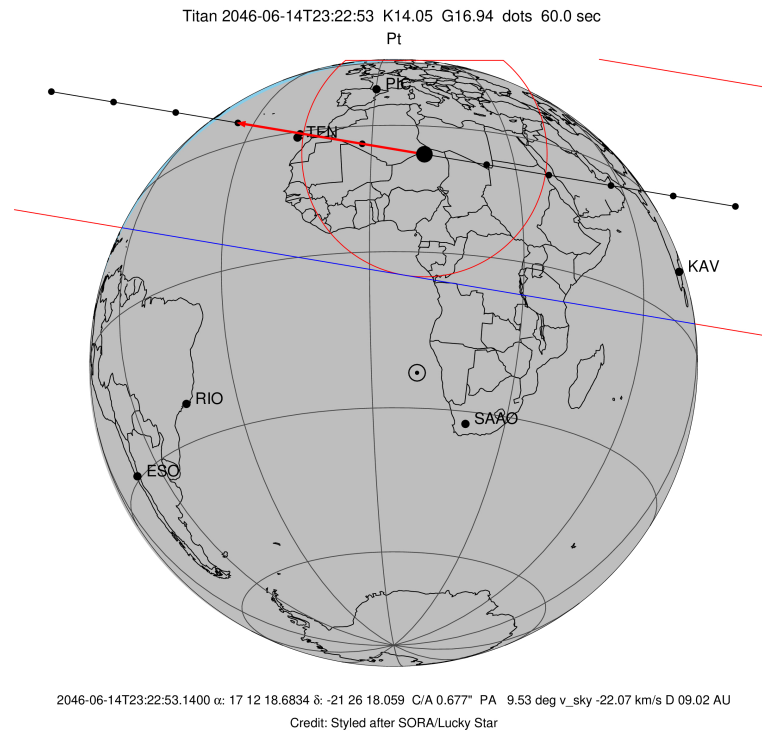
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-06-14T23:22:53.140
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4115444470588853120
 2Mass ID (if available) : 17121869-2126177

ICRS Star Coord at Epoch: 17h 12m 18.68337s -21:26:18.05859s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.047
 G magnitude : 16.937
 RP magnitude : 16.081
 BP magnitude : 17.698
 DUPflag : 0
 Distance (au) : 9.019
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -22.06
 Sun-Target sep (deg) : 175.22
 Sun-Moon sep (deg) : 41.89
 B (ring opening deg) : 26.51
 PA of pole (deg) : 4.58
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.678
 C/A sky separation (km) : 4436.5
 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	+ +	JUN 14 23:22 - JUN 14 23:25	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	+ +	JUN 14 23:23 - JUN 14 23:26	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 14 23:17 - JUN 14 23:20	Pie
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



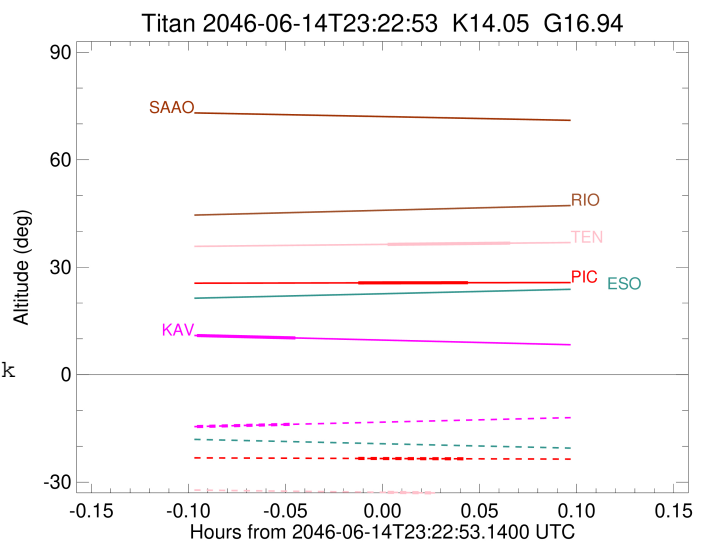
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-06-14T23:23:50.200
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 4115444470588853120
2Mass ID (if available) : 17121869-2126177
ICRS Star Coord at Epoch: 17h 12m 18.68337s -21:26:18.05859s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 14.047
G magnitude           : 16.937
RP magnitude          : 16.081
BP magnitude          : 17.698
DUPflag              : 0
Distance (au)        : 9.019
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -22.06
Sun-Target sep (deg) : 175.22
Sun-Moon sep (deg)   : 42.19
B (ring opening deg) : 26.51
PA of pole (deg)     : 4.58
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.178
C/A sky separation (km) : 1166.6
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

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x: target alt < 5.0 deg or sun > -5.0 deg

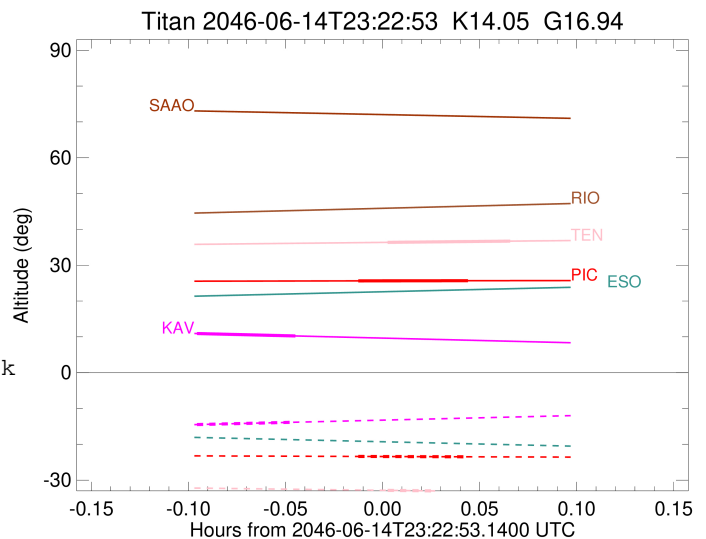
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2046-06-14T23:22:07.714	25.62	-23.38	2575.1	28.07	28.09
Titan	E	2046-06-14T23:25:32.701	25.67	-23.48	2575.1	19.71	19.72



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-06-14T23:24:56.050
 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 : 4115444470588853120
 2Mass ID (if available) : 17121869-2126177
 ICRS Star Coord at Epoch: 17h 12m 18.68337s -21:26:18.05859s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.047
 G magnitude : 16.937
 RP magnitude : 16.081
 BP magnitude : 17.698
 DUPflag : 0
 Distance (au) : 9.019
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -22.06
 Sun-Target sep (deg) : 175.22
 Sun-Moon sep (deg) : 42.10
 B (ring opening deg) : 26.51
 PA of pole (deg) : 4.58
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.014
 C/A sky separation (km) : 90.9
 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	2046-06-14T23:23:01.336	36.37	-32.85	2575.1	2.37	2.37
Titan	E	2046-06-14T23:26:50.770	36.71	-33.25	2575.1	-5.98	-5.99



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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-06-14T23:18:40.330
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : KAV
Location              : Kavalur Observatory
Latitude (deg)        : 12.57556
E. Longitude (deg)    : 78.83167
Altitude (km)         : 0.722
Gaia source ID        : 4115444470588853120
2Mass ID (if available) : 17121869-2126177
ICRS Star Coord at Epoch: 17h 12m 18.68337s -21:26:18.05859s
RUWE (>1.4 is poor)  : 0.97
K magnitude           : 14.047
G magnitude           : 16.937
RP magnitude          : 16.081
BP magnitude          : 17.698
DUPflag              : 0
Distance (au)         : 9.019
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -22.06
Sun-Target sep (deg)  : 175.22
Sun-Moon sep (deg)    : 42.69
B (ring opening deg)  : 26.51
PA of pole (deg)      : 4.58
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.238
C/A sky separation (km) : 1558.7
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	2046-06-14T23:17:08.127	10.93	-14.49	2575.1	-28.26	-28.28
Titan	E	2046-06-14T23:20:12.556	10.24	-13.83	2575.1	-37.24	-37.26

