

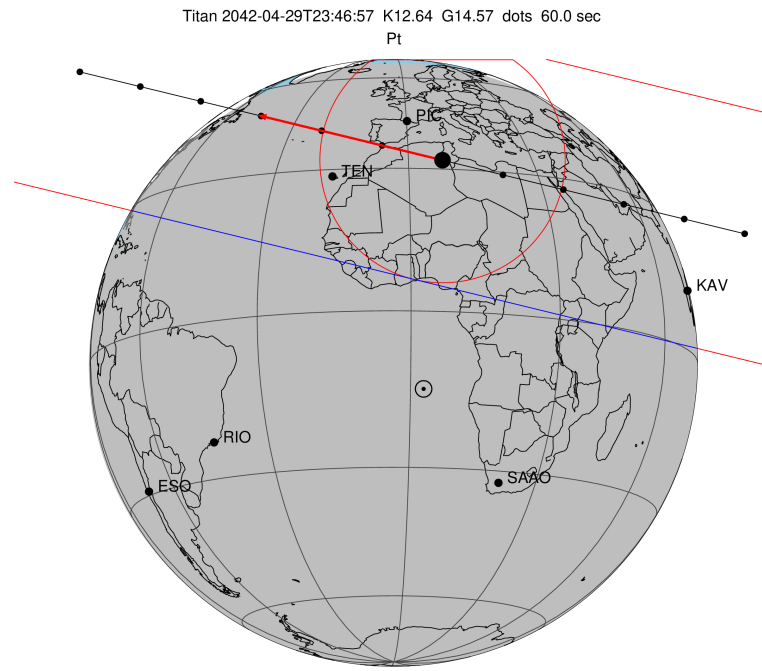
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2042-04-29T23:46:57.380
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 3614700177745384832
 2Mass ID (if available) : 14040165-0940166

ICRS Star Coord at Epoch: 14h 04m 01.64668s -09:40:16.75100s
 RUWE (>1.4 is poor) : 0.90
 K magnitude : 12.637
 G magnitude : 14.573
 RP magnitude : 13.938
 BP magnitude : 15.045
 DUPflag : 0
 Distance (au) : 8.784
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -21.76
 Sun-Target sep (deg) : 172.51
 Sun-Moon sep (deg) : 50.73
 B (ring opening deg) : 16.17
 PA of pole (deg) : -1.01
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.687
 C/A sky separation (km) : 4379.3
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

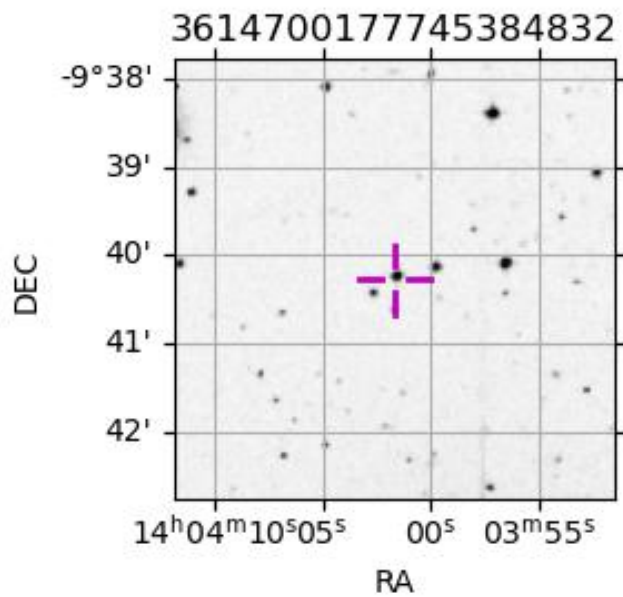
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

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	+ +	APR 29 23:45 - APR 29 23:49	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	+ +	APR 29 23:46 - APR 29 23:50	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	APR 29 23:41 - APR 29 23:44	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



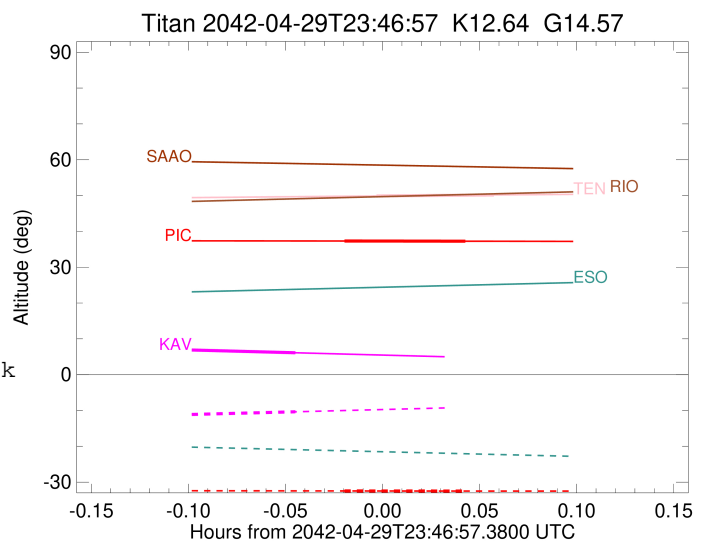
Titan 2042-04-29T23:46:57 K12.64 G14.57 dots 60.0 sec
 Pt
 2042-04-29T23:46:57.3800 α: 14 04 01.6467 δ: -09 40 16.751 C/A 0.687" PA 13.70 deg v_sky -21.77 km/s D 08.78 AU
 Credit: Styled after SORA/Lucky Star



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2042-04-29T23:47:38.830
 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 : 3614700177745384832
 2Mass ID (if available) : 14040165-0940166
 ICRS Star Coord at Epoch: 14h 04m 01.64668s -09:40:16.75100s
 RUWE (>1.4 is poor) : 0.90
 K magnitude : 12.637
 G magnitude : 14.573
 RP magnitude : 13.938
 BP magnitude : 15.045
 DUPflag : 0
 Distance (au) : 8.784
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -21.76
 Sun-Target sep (deg) : 172.51
 Sun-Moon sep (deg) : 51.01
 B (ring opening deg) : 16.17
 PA of pole (deg) : -1.01
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.096
 C/A sky separation (km) : 608.8
 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

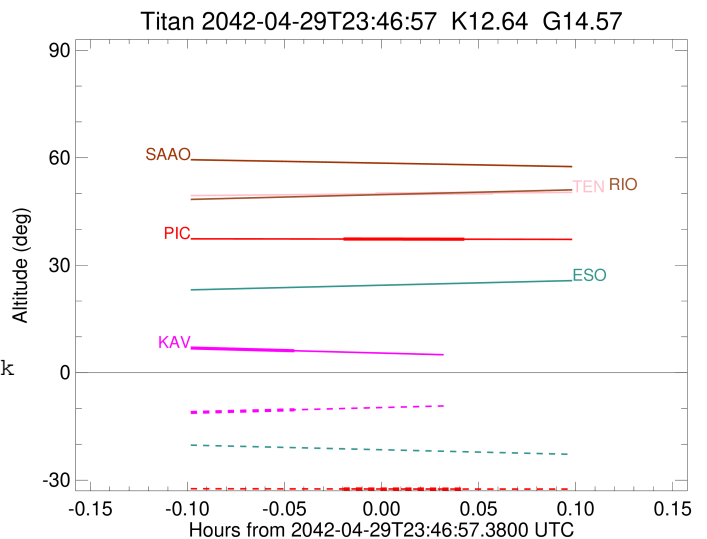
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2042-04-29T23:45:45.602	37.31	-32.46	2575.1	26.97	26.98
Titan	E	2042-04-29T23:49:32.043	37.25	-32.49	2575.2	-0.80	-0.80



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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2042-04-29T23:48:35.400
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       : 3614700177745384832
2Mass ID (if available) : 14040165-0940166
ICRS Star Coord at Epoch: 14h 04m 01.64668s -09:40:16.75100s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 12.637
G magnitude           : 14.573
RP magnitude          : 13.938
BP magnitude          : 15.045
DUPflag              : 0
Distance (au)        : 8.784
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -21.76
Sun-Target sep (deg) : 172.51
Sun-Moon sep (deg)   : 51.03
B (ring opening deg) : 16.17
PA of pole (deg)     : -1.01
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.138
C/A sky separation (km) : 879.7
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	2042-04-29T23:46:46.146	49.88	-43.30	2575.1	-5.33	-5.34
Titan	E	2042-04-29T23:50:24.636	50.16	-43.64	2575.1	-32.85	-32.87

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2042-04-29T23:42:38.950
 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 : 3614700177745384832
 2Mass ID (if available) : 14040165-0940166
 ICRS Star Coord at Epoch: 14h 04m 01.64668s -09:40:16.75100s
 RUWE (>1.4 is poor) : 0.90
 K magnitude : 12.637
 G magnitude : 14.573
 RP magnitude : 13.938
 BP magnitude : 15.045
 DUPflag : 0
 Distance (au) : 8.784
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -21.76
 Sun-Target sep (deg) : 172.51
 Sun-Moon sep (deg) : 51.26
 B (ring opening deg) : 16.17
 PA of pole (deg) : -1.01
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.228
 C/A sky separation (km) : 1452.4
 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	2042-04-29T23:41:01.621	6.89	-11.11	2575.2	-18.67	-18.68
Titan	E	2042-04-29T23:44:16.291	6.11	-10.36	2575.1	-46.63	-46.64

