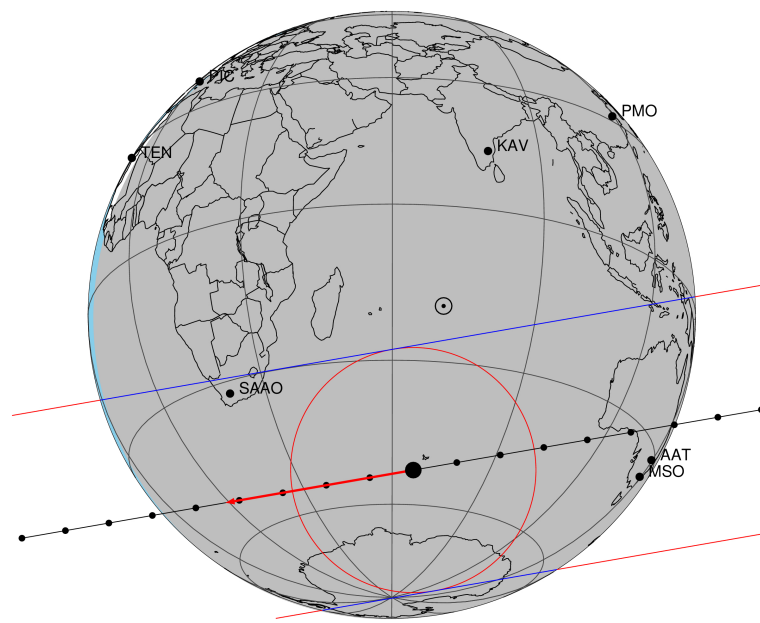


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2049-07-25T19:25:14.350
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 6772191216998319232
 2Mass ID (if available) : 19374706-2131223

ICRS Star Coord at Epoch: 19h 37m 47.06756s -21:31:22.27911s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 14.214
 G magnitude : 15.952
 RP magnitude : 15.279
 BP magnitude : 16.159
 DUPflag : 0
 Distance (au) : 9.008
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.45
 Sun-Target sep (deg) : 170.04
 Sun-Moon sep (deg) : 146.03
 B (ring opening deg) : 23.08
 PA of pole (deg) : 6.90
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.504
 C/A sky separation (km) : 3292.7
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

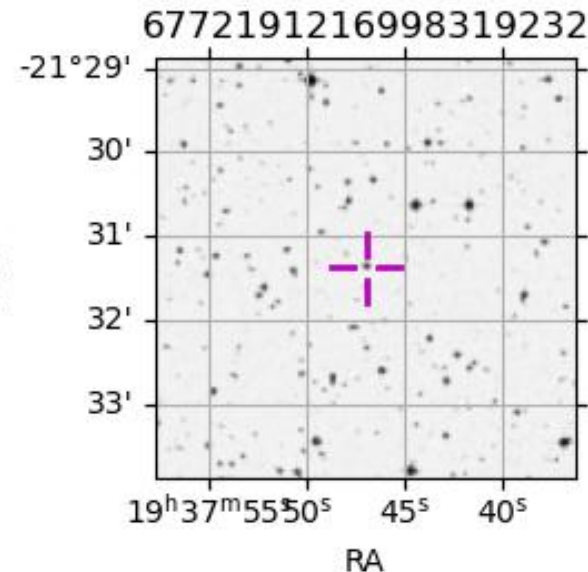
Titan 2049-07-25T19:25:14 K14.21 G15.95 dots 60.0 sec
 Pt



2049-07-25T19:25:14.35000 cc: 19 37 47.0676 & -21 31 22.279 C/A 0.504" PA 170.14 deg v_sky -15.45 km/s D 09.01 AU
 Credit: Styled after SORA/Lucky Star

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

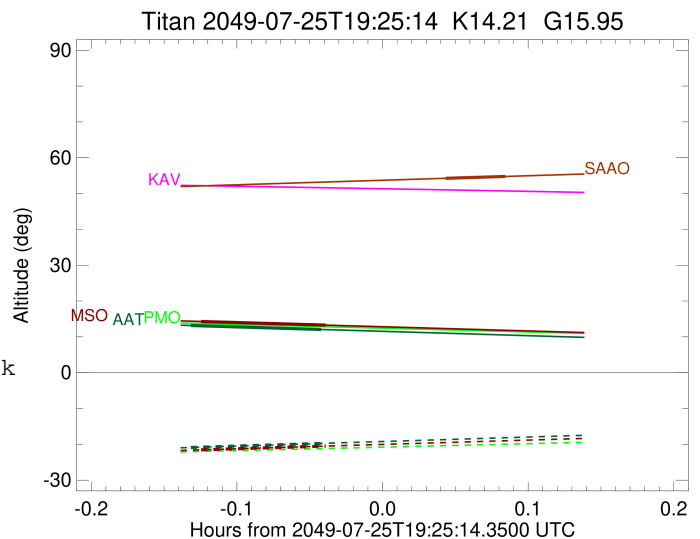
Obs	Location	lat	Elon	Target	Observed Events	Interval	OEcode
PIC	Pic du Midi	42.9	0.1				Pnn
PAL	Palomar Mt (200")	33.4	243.1				Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8				Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4				Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0				Pnn
TEN	Teide Obs./Tenerife	28.3	343.5				Pnn
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	+ +	JUL 25 19:17 - JUL 25 19:22		Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 25 19:27 - JUL 25 19:30		Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 25 19:17 - JUL 25 19:22		Pie



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2049-07-25T19:20:00.640
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Observer code : AAT
 Location : Siding Spring (AAT)
 Latitude (deg) : -31.27703
 E. Longitude (deg) : 149.06608
 Altitude (km) : 1.164
 Gaia source ID : 6772191216998319232
 2Mass ID (if available) : 19374706-2131223
 ICRS Star Coord at Epoch: 19h 37m 47.06756s -21:31:22.27911s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 14.214
 G magnitude : 15.952
 RP magnitude : 15.279
 BP magnitude : 16.159
 DUPflag : 0
 Distance (au) : 9.008
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.45
 Sun-Target sep (deg) : 170.04
 Sun-Moon sep (deg) : 146.72
 B (ring opening deg) : 23.08
 PA of pole (deg) : 6.90
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.094
 C/A sky separation (km) : 611.1
 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

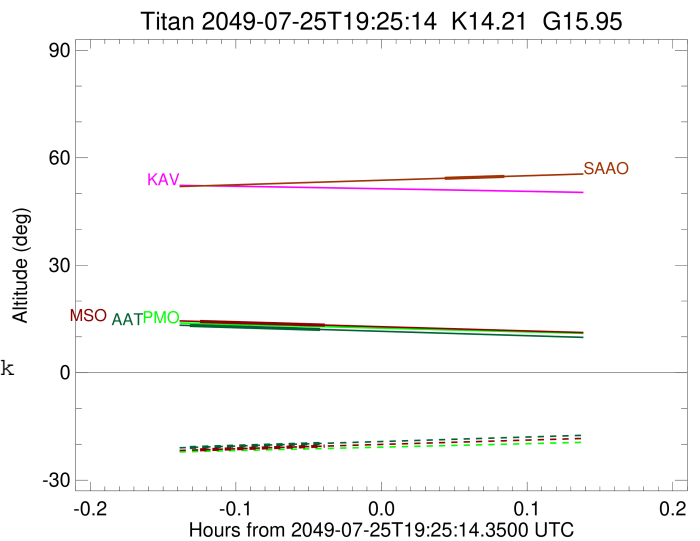
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2049-07-25T19:17:18.707	13.16	-20.89	2575.1	-27.32	-27.34
Titan	E	2049-07-25T19:22:42.653	12.06	-19.75	2575.2	2.29	2.30



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2049-07-25T19:29:04.590
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : SAAO
Location               : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)        : -32.37953
E. Longitude (deg)    : 20.81070
Altitude (km)         : 1.768
Gaia source ID        : 6772191216998319232
2Mass ID (if available) : 19374706-2131223
ICRS Star Coord at Epoch: 19h 37m 47.06756s -21:31:22.27911s
RUWE (>1.4 is poor)  : 1.02
K magnitude           : 14.214
G magnitude           : 15.952
RP magnitude          : 15.279
BP magnitude          : 16.159
DUPflag              : 0
Distance (au)         : 9.008
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.45
Sun-Target sep (deg)  : 170.04
Sun-Moon sep (deg)    : 146.01
B (ring opening deg) : 23.08
PA of pole (deg)      : 6.90
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.351
C/A sky separation (km) : 2289.9
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	2049-07-25T19:27:49.874	54.25	-44.61	2575.1	41.33	41.35
Titan	E	2049-07-25T19:30:19.292	54.77	-45.13	2575.1	64.83	64.84

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2049-07-25T19:20:20.180
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : MSO
Location             : Mt. Stromlo Observatory
Latitude (deg)       : -35.32000
E. Longitude (deg)  : 149.00833
Altitude (km)        : 0.770
Gaia source ID       : 6772191216998319232
2Mass ID (if available) : 19374706-2131223
ICRS Star Coord at Epoch: 19h 37m 47.06756s -21:31:22.27911s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.214
G magnitude           : 15.952
RP magnitude         : 15.279
BP magnitude         : 16.159
DUPflag              : 0
Distance (au)        : 9.008
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.45
Sun-Target sep (deg) : 170.04
Sun-Moon sep (deg)   : 146.69
B (ring opening deg) : 23.08
PA of pole (deg)     : 6.90
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.140
C/A sky separation (km) : 915.0
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	2049-07-25T19:17:44.362	14.29	-21.54	2575.1	-33.66	-33.67
Titan	E	2049-07-25T19:22:56.069	13.27	-20.49	2575.2	-4.20	-4.21

