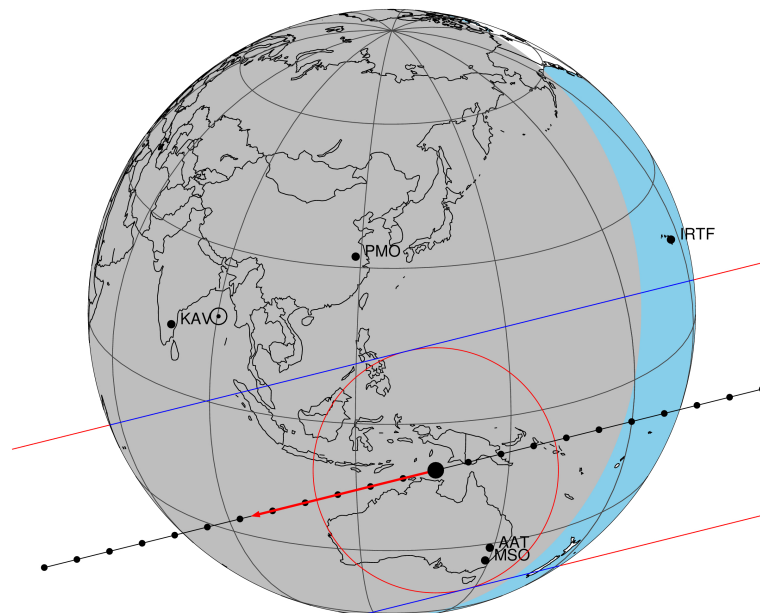


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2031-11-09T17:42:35.730
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 3414438252303024768
 2Mass ID (if available) : 05230680+2133021

ICRS Star Coord at Epoch: 05h 23m 06.80486s +21:33:02.14799s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 13.145
 G magnitude : 16.422
 RP magnitude : 15.446
 BP magnitude : 17.384
 DUPflag : 0
 Distance (au) : 8.203
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -11.77
 Sun-Target sep (deg) : 145.22
 Sun-Moon sep (deg) : 82.29
 B (ring opening deg) : -26.42
 PA of pole (deg) : -4.84
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.575
 C/A sky separation (km) : 3422.4
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

Titan 2031-11-09T17:42:35 K13.14 G16.42 dots 60.0 sec
 Pt

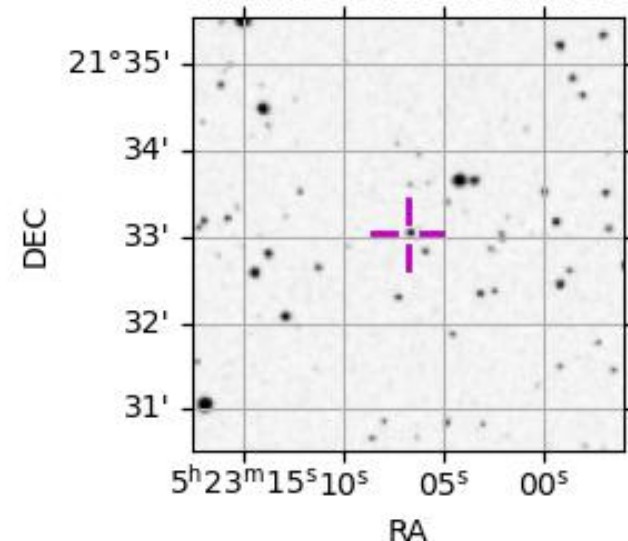


2031-11-09T17:42:35.7300 α: 05 23 06.8049 δ: +21 33 02.148 C/A 0.577" PA 166.02 deg v_sky -11.77 km/s D 08.20 AU
 Credit: Styled after SORA/Lucky Star

URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp
 Observable events with sun below -5 deg and altitude above 5 deg

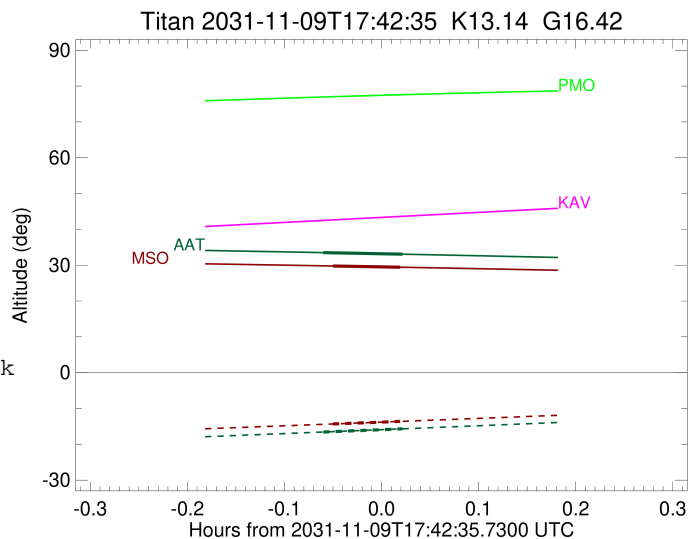
Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	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	+ +	NOV 09 17:38 - NOV 09 17:43	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	NOV 09 17:39 - NOV 09 17:43	Pie

3414438252303024768



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2031-11-09T17:41:27.150
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        : 3414438252303024768
2Mass ID (if available) : 05230680+2133021
ICRS Star Coord at Epoch: 05h 23m 06.80486s +21:33:02.14799s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 13.145
G magnitude           : 16.422
RP magnitude          : 15.446
BP magnitude          : 17.384
DUPflag              : 0
Distance (au)         : 8.203
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -11.77
Sun-Target sep (deg) : 145.22
Sun-Moon sep (deg)   : 82.75
B (ring opening deg) : -26.42
PA of pole (deg)     : -4.84
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.310
C/A sky separation (km) : 1844.7
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
    
```



```

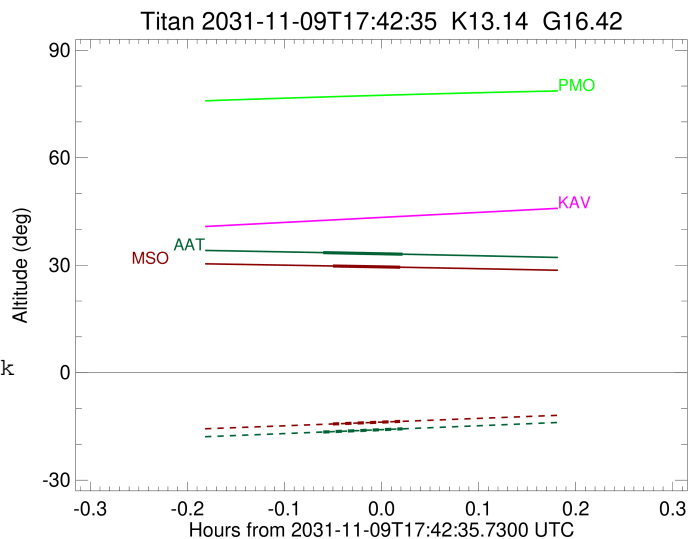
x: target alt < 5.0 deg or sun > -5.0 deg

```

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2031-11-09T17:38:59.208	33.51	-16.57	2575.1	-46.98	-46.99
Titan	E	2031-11-09T17:43:55.157	33.07	-15.67	2575.1	-32.43	-32.44

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2031-11-09T17:41:40.070
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       : 3414438252303024768
2Mass ID (if available) : 05230680+2133021
ICRS Star Coord at Epoch: 05h 23m 06.80486s +21:33:02.14799s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 13.145
G magnitude          : 16.422
RP magnitude         : 15.446
BP magnitude         : 17.384
DUPflag             : 0
Distance (au)        : 8.203
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -11.77
Sun-Target sep (deg) : 145.22
Sun-Moon sep (deg)  : 82.70
B (ring opening deg) : -26.42
PA of pole (deg)    : -4.84
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.350
C/A sky separation (km) : 2079.4
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	2031-11-09T17:39:34.814	29.77	-14.32	2575.1	-52.82	-52.83
Titan	E	2031-11-09T17:43:45.368	29.43	-13.60	2575.1	-39.19	-39.20