

target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2046-06-19T19:11:04.270  
 Event type : Pt  
 : Titan occs: topocentric, not geocentric  
 : Not a ringed target  
 Gaia source ID : 4115636056162379136  
 2Mass ID (if available) : 17110012-2123201

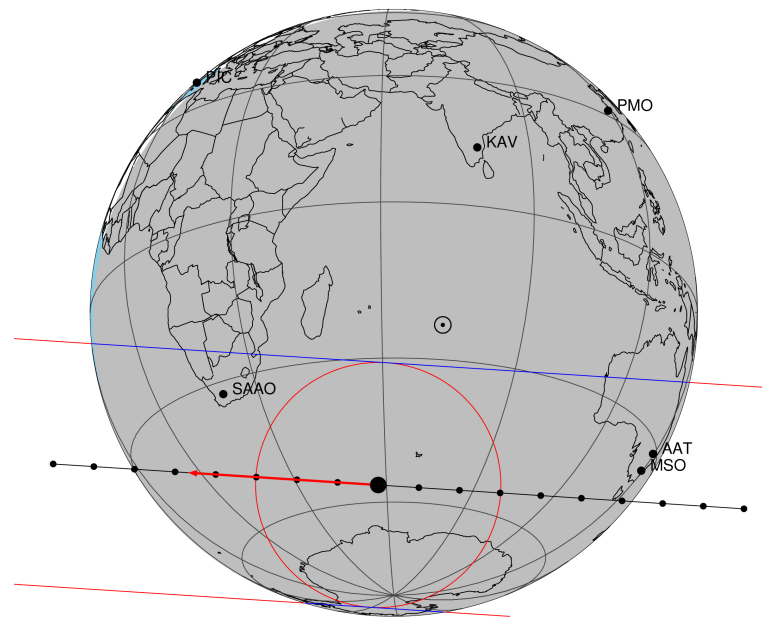
ICRS Star Coord at Epoch: 17h 11m 00.16756s -21:23:20.84140s  
 RUWE (>1.4 is poor) : 1.05  
 K magnitude : 14.726  
 G magnitude : 18.443  
 RP magnitude : 17.730  
 BP magnitude : 18.967  
 DUPflag : 0  
 Distance (au) : 9.038  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -14.25  
 Sun-Target sep (deg) : 170.44  
 Sun-Moon sep (deg) : 24.92  
 B (ring opening deg) : 26.49  
 PA of pole (deg) : 4.54  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.554  
 C/A sky separation (km) : 3632.9  
 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			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	+ +	JUN 19 19:01 - JUN 19 19:07	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 19 19:12 - JUN 19 19:17	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 19 19:01 - JUN 19 19:07	Pie

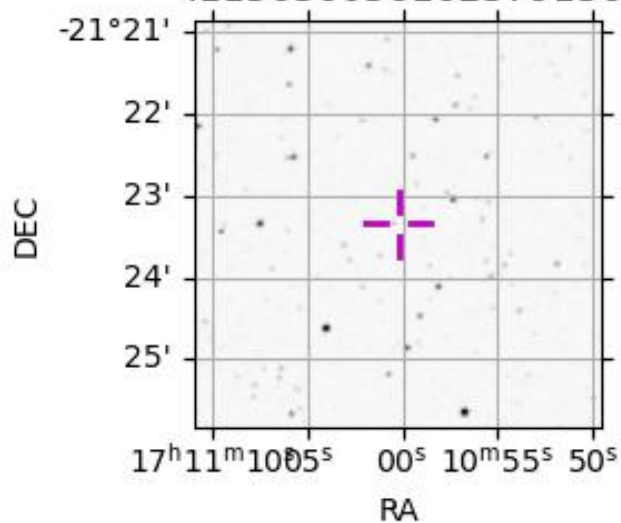
Titan 2046-06-19T19:11:04 K14.73 G18.44 dots 60.0 sec  
 Pt



2046-06-19T19:11:04.2700 cc: 17 11 00.1676 s: -21 23 20.841 C/A 0.554" PA 183.72 deg v\_sky -14.25 km/s D 09.04 AU

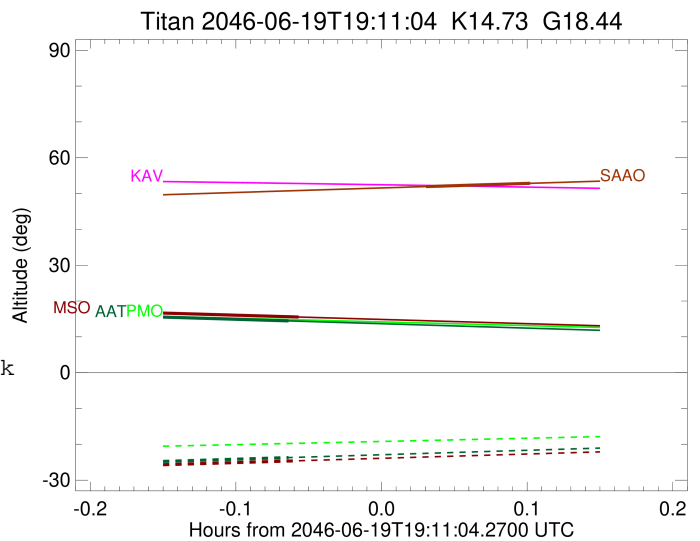
Credit: Styled after SORA/Lucky Star

4115636056162379136



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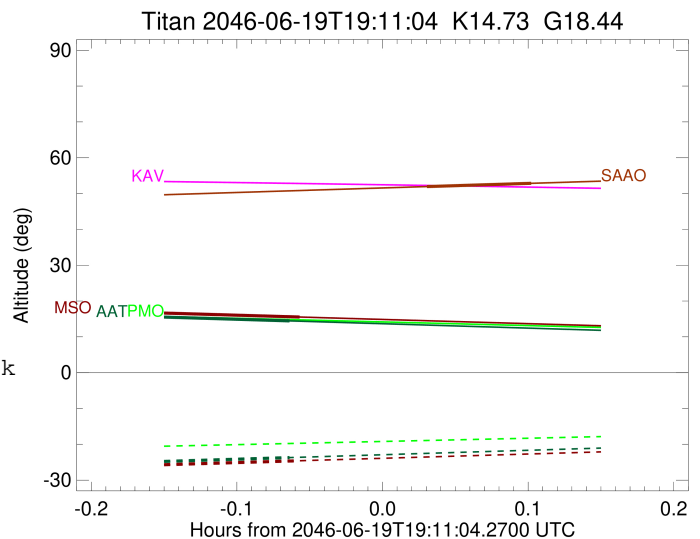
target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-06-19T19:04:32.070
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : AAT
Location             : Siding Spring (AAT)
Latitude (deg)       : -31.27703
E. Longitude (deg)   : 149.06608
Altitude (km)        : 1.164
Gaia source ID       : 4115636056162379136
2Mass ID (if available) : 17110012-2123201
ICRS Star Coord at Epoch: 17h 11m 00.16756s -21:23:20.84140s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 14.726
G magnitude           : 18.443
RP magnitude          : 17.730
BP magnitude          : 18.967
DUPflag              : 0
Distance (au)        : 9.038
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.25
Sun-Target sep (deg) : 170.44
Sun-Moon sep (deg)   : 24.21
B (ring opening deg) : 26.49
PA of pole (deg)     : 4.54
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.164
C/A sky separation (km): 1076.1
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	2046-06-19T19:01:48.435	15.57	-24.83	2575.1	21.76	21.77
Titan	E	2046-06-19T19:07:15.762	14.45	-23.70	2575.1	22.17	22.19

target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2046-06-19T19:15:02.510  
 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 : 4115636056162379136  
 2Mass ID (if available) : 17110012-2123201  
 ICRS Star Coord at Epoch: 17h 11m 00.16756s -21:23:20.84140s  
 RUWE (>1.4 is poor) : 1.05  
 K magnitude : 14.726  
 G magnitude : 18.443  
 RP magnitude : 17.730  
 BP magnitude : 18.967  
 DUPflag : 0  
 Distance (au) : 9.038  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -14.25  
 Sun-Target sep (deg) : 170.44  
 Sun-Moon sep (deg) : 25.67  
 B (ring opening deg) : 26.49  
 PA of pole (deg) : 4.54  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.268  
 C/A sky separation (km) : 1759.0  
 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	2046-06-19T19:12:53.156	51.94	-44.19	2575.1	36.63	36.65
Titan	E	2046-06-19T19:17:11.836	52.85	-45.10	2575.1	38.74	38.76

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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-06-19T19:04:47.470
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       : 4115636056162379136
2Mass ID (if available) : 17110012-2123201
ICRS Star Coord at Epoch: 17h 11m 00.16756s -21:23:20.84140s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 14.726
G magnitude          : 18.443
RP magnitude         : 17.730
BP magnitude         : 18.967
DUPflag             : 0
Distance (au)        : 9.038
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.25
Sun-Target sep (deg) : 170.44
Sun-Moon sep (deg)   : 24.25
B (ring opening deg) : 26.49
PA of pole (deg)     : 4.54
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.108
C/A sky separation (km): 705.3
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	2046-06-19T19:01:54.214	16.67	-25.73	2575.1	13.96	13.96
Titan	E	2046-06-19T19:07:40.793	15.53	-24.58	2575.1	14.42	14.43

