

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-07-26T07:38:57.520
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4078540943361442048
 2Mass ID (if available) : 18451141-2229527

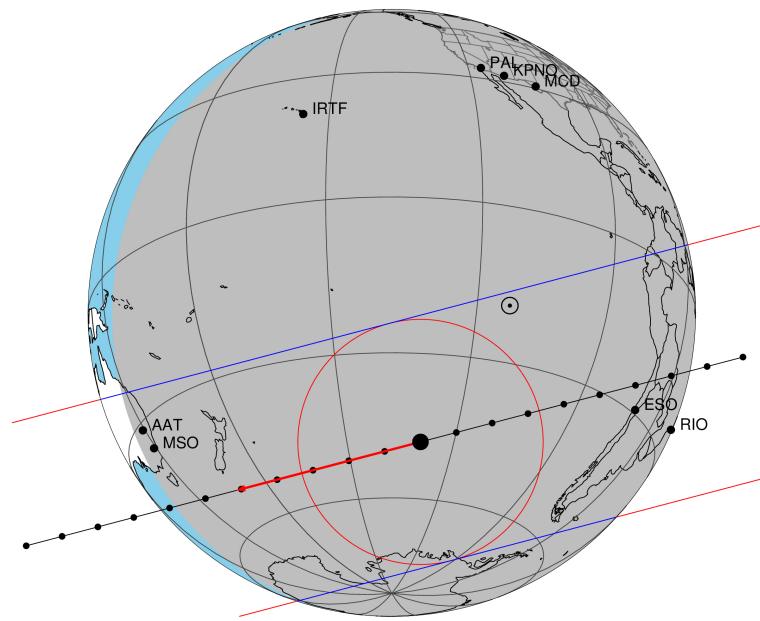
ICRS Star Coord at Epoch: 18h 45m 11.40161s -22:29:52.92927s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 13.563
 G magnitude : 16.420
 RP magnitude : 15.570
 BP magnitude : 17.178
 DUPflag : 0
 Distance (au) : 9.099
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.97
 Sun-Target sep (deg) : 157.09
 Sun-Moon sep (deg) : 35.60
 B (ring opening deg) : 25.47
 PA of pole (deg) : 6.42
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.424
 C/A sky separation (km) : 2796.7
 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			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	+ +	JUL 26 07:29 - JUL 26 07:35	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUL 26 07:30 - JUL 26 07:36	Pie
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUL 26 07:48 - JUL 26 07:48	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 26 07:43 - JUL 26 07:48	Pie

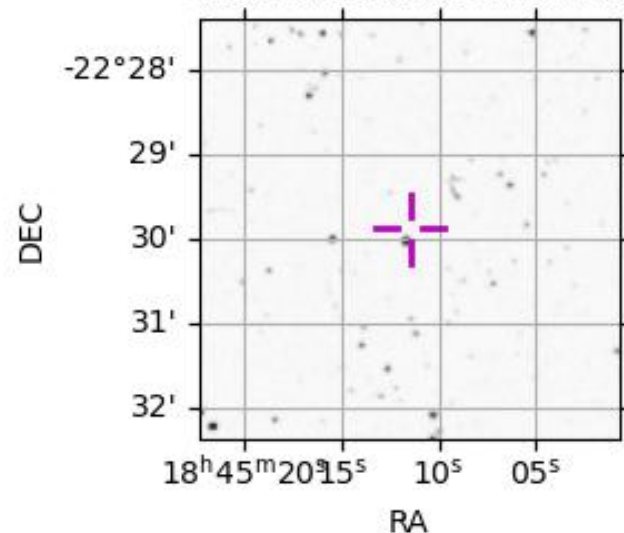
Titan 2048-07-26T07:38:57 K13.56 G16.42 dots 60.0 sec
 Pt



2048-07-26T07:38:57.5200 cc: 18 45 11.4016 d: -22 29 52.929 C/A 0.421" PA 165.24 deg v_sky -12.97 km/s D 09.10 AU

Credit: Styled after SORA/Lucky Star

4078540943361442048



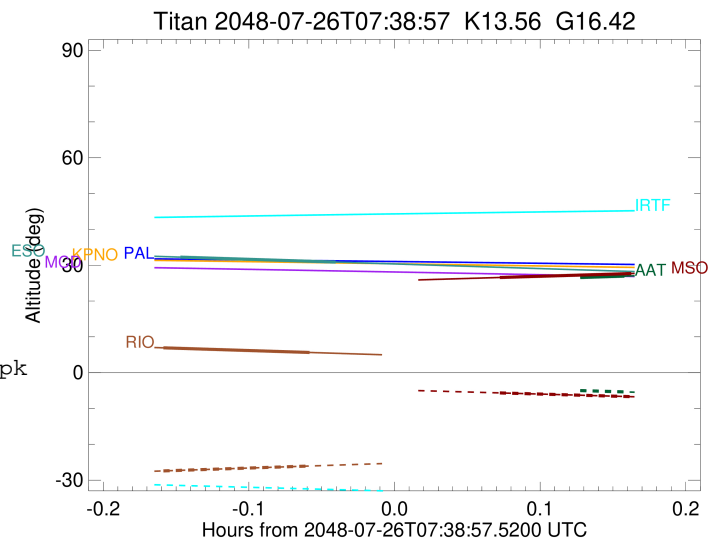
```

target                : Titan
target radius (km)    : 2575.15
C/A epoch             : 2048-07-26T07:32:26.830
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : RIO
Location              : Rio de Janeiro
Latitude (deg)        : -22.89506
E. Longitude (deg)    : 316.77708
Altitude (km)         : 0.033
Gaia source ID        : 4078540943361442048
2Mass ID (if available) : 18451141-2229527
ICRS Star Coord at Epoch: 18h 45m 11.40161s -22:29:52.92927s
RUWE (>1.4 is poor)  : 0.97
K magnitude           : 13.563
G magnitude           : 16.420
RP magnitude          : 15.570
BP magnitude          : 17.178
DUPflag              : 0
Distance (au)         : 9.099
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -12.97
Sun-Target sep (deg)  : 157.09
Sun-Moon sep (deg)    : 34.98
B (ring opening deg)  : 25.47
PA of pole (deg)      : 6.42
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.155
C/A sky separation (km) : 1026.0
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	2048-07-26T07:29:23.816	6.94	-27.43	2575.1	-38.80	-38.82
Titan	E	2048-07-26T07:35:29.904	5.63	-26.05	2575.2	-2.69	-2.70



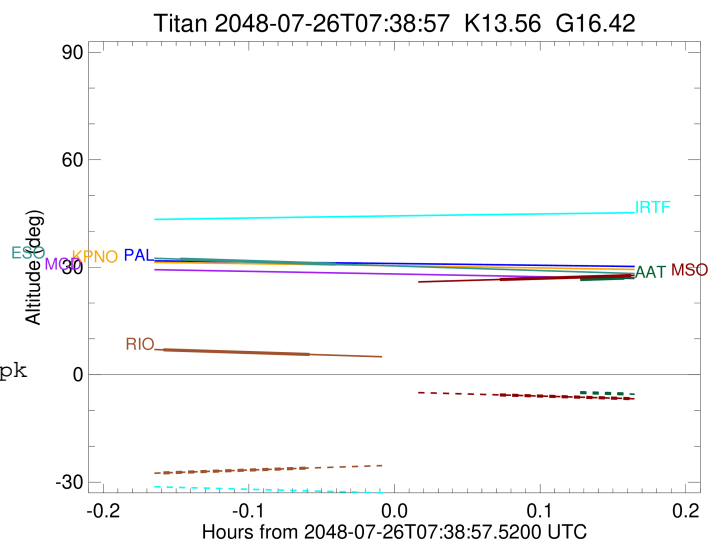
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-07-26T07:33:19.770
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : ESO
Location             : European Southern Obs. (3.6m)
Latitude (deg)       : -29.26097
E. Longitude (deg)   : 289.26831
Altitude (km)        : 2.400
Gaia source ID       : 4078540943361442048
2Mass ID (if available) : 18451141-2229527
ICRS Star Coord at Epoch: 18h 45m 11.40161s -22:29:52.92927s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 13.563
G magnitude           : 16.420
RP magnitude         : 15.570
BP magnitude         : 17.178
DUPflag              : 0
Distance (au)        : 9.099
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.97
Sun-Target sep (deg) : 157.09
Sun-Moon sep (deg)   : 35.30
B (ring opening deg) : 25.47
PA of pole (deg)     : 6.42
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.064
C/A sky separation (km): 425.4
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

```

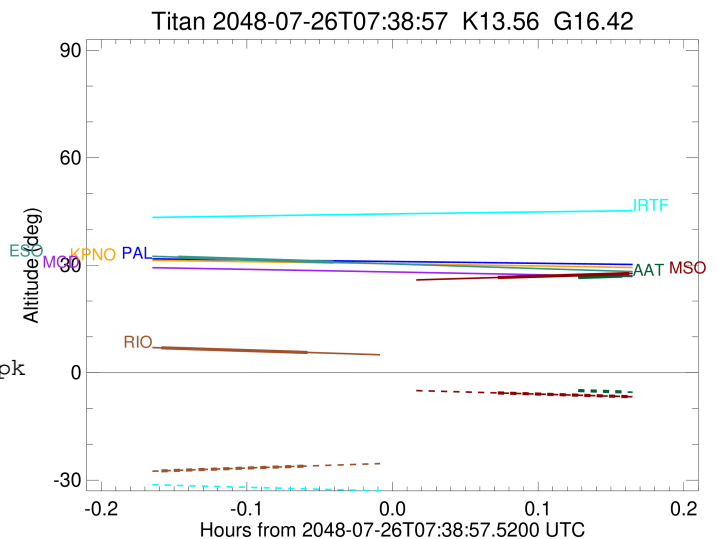
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2048-07-26T07:30:05.823	32.26	-52.25	2575.1	-26.73	-26.74
Titan	E	2048-07-26T07:36:33.766	30.86	-50.84	2575.1	9.81	9.81



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-07-26T07:46:09.940
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       : 4078540943361442048
2Mass ID (if available) : 18451141-2229527
ICRS Star Coord at Epoch: 18h 45m 11.40161s -22:29:52.92927s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 13.563
G magnitude          : 16.420
RP magnitude         : 15.570
BP magnitude         : 17.178
DUPflag             : 0
Distance (au)        : 9.099
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.97
Sun-Target sep (deg) : 157.09
Sun-Moon sep (deg)  : 36.56
B (ring opening deg) : 25.47
PA of pole (deg)    : 6.42
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.278
C/A sky separation (km) : 1835.3
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	2048-07-26T07:43:52.345	25.98	-4.45x	2575.2	21.36	21.37
Titan	E	2048-07-26T07:48:27.479	26.95	-5.37	2575.1	56.27	56.29

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-07-26T07:46:00.620
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       : 4078540943361442048
2Mass ID (if available) : 18451141-2229527
ICRS Star Coord at Epoch: 18h 45m 11.40161s -22:29:52.92927s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 13.563
G magnitude           : 16.420
RP magnitude          : 15.570
BP magnitude          : 17.178
DUPflag              : 0
Distance (au)         : 9.099
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -12.97
Sun-Target sep (deg) : 157.09
Sun-Moon sep (deg)   : 36.54
B (ring opening deg) : 25.47
PA of pole (deg)     : 6.42
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.214
C/A sky separation (km) : 1409.2
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	2048-07-26T07:43:16.347	26.56	-5.65	2575.2	10.41	10.41
Titan	E	2048-07-26T07:48:44.820	27.67	-6.70	2575.1	47.55	47.56

