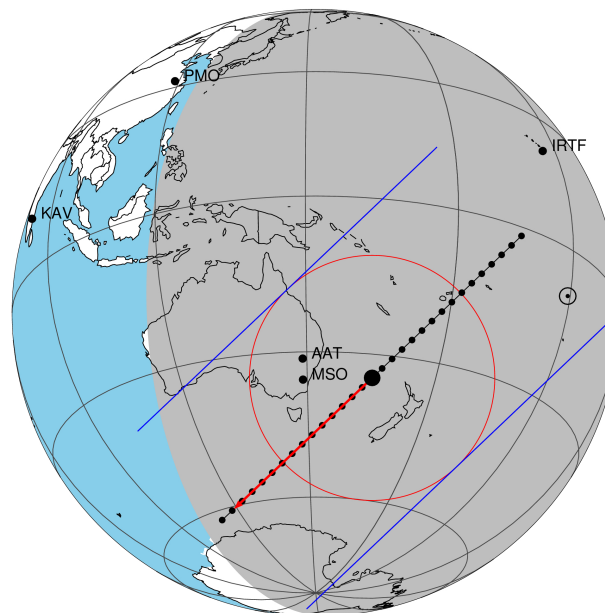


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-08-28T10:04:19.350
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4079216657633008128
 2Mass ID (if available) : 18383706-2240558

ICRS Star Coord at Epoch: 18h 38m 37.07003s -22:40:55.84165s
 RUWE (>1.4 is poor) : 1.16
 K magnitude : 14.525
 G magnitude : 16.784
 RP magnitude : 16.012
 BP magnitude : 17.365
 DUPflag : 0
 Distance (au) : 9.442
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -4.82
 Sun-Target sep (deg) : 123.79
 Sun-Moon sep (deg) : 113.78
 B (ring opening deg) : 25.82
 PA of pole (deg) : 6.33
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.274
 C/A sky separation (km) : 1876.3
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

Titan 2048-08-28T10:04:19 K14.53 G16.78 dots 60.0 sec
 Pgt

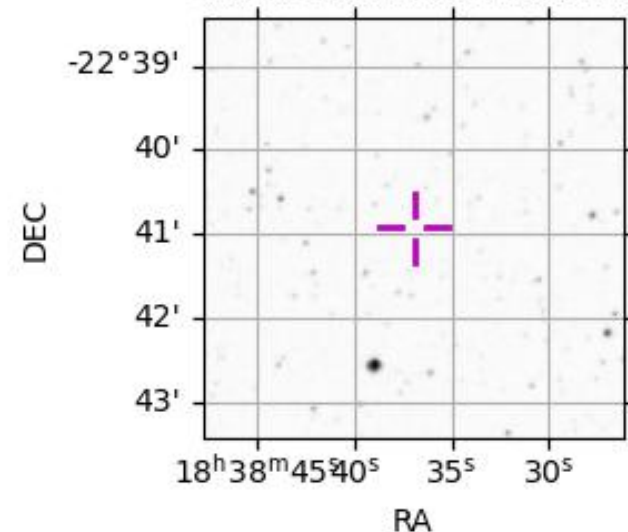


2048-08-28T10:04:19.3500 α: 18 38 37.0700 δ: -22 40 55.842 C/A 0.264" PA 136.46 deg v_sky - 4.82 km/s D 09.44 AU
 Credit: Styled after SORA/Lucky Star

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

Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
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	+ +	AUG 28 09:37 - AUG 28 09:52	Pie
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	+ +	AUG 28 10:00 - AUG 28 10:14	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	AUG 28 10:00 - AUG 28 10:16	Pie

4079216657633008128



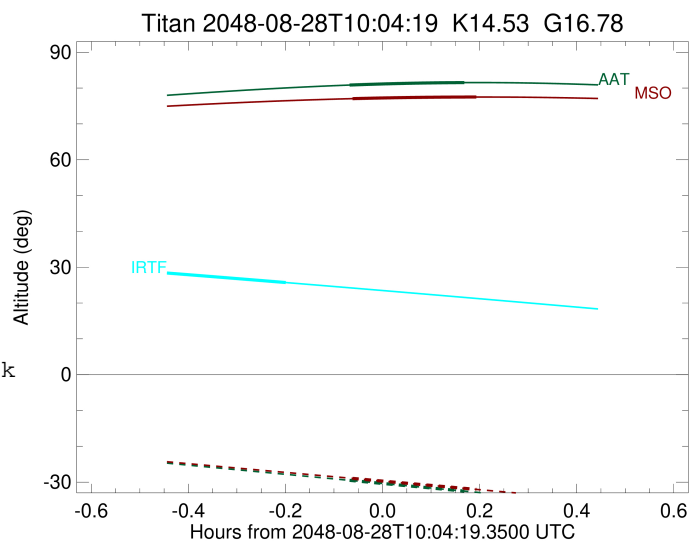
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-08-28T09:44:58.640
Event type            : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code         : IRTF
Location              : Mauna Kea/IRTF
Latitude (deg)        : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 4079216657633008128
2Mass ID (if available) : 18383706-2240558
ICRS Star Coord at Epoch: 18h 38m 37.07003s -22:40:55.84165s
RUWE (>1.4 is poor) : 1.16
K magnitude           : 14.525
G magnitude           : 16.784
RP magnitude          : 16.012
BP magnitude          : 17.365
DUPflag              : 0
Distance (au)         : 9.441
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.82
Sun-Target sep (deg) : 123.79
Sun-Moon sep (deg)   : 114.43
B (ring opening deg) : 25.82
PA of pole (deg)     : 6.33
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.197
C/A sky separation (km) : 1351.5
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	2048-08-28T09:37:34.437	28.39	-58.84	2575.2	-13.37	-13.38
Titan	E	2048-08-28T09:52:23.149	25.71	-59.96	2575.0	61.78	61.80



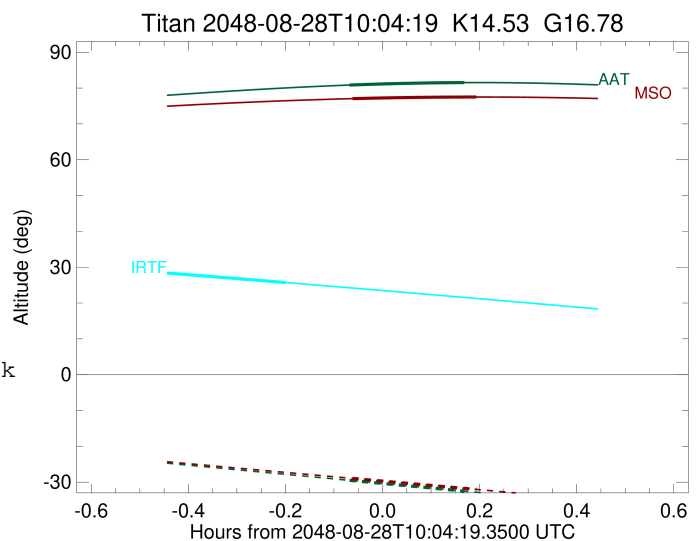
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-08-28T10:07:20.060
Event type           : Pgt
: Titan occs: geocentric, topocentric
: 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       : 4079216657633008128
2Mass ID (if available) : 18383706-2240558
ICRS Star Coord at Epoch: 18h 38m 37.07003s -22:40:55.84165s
RUWE (>1.4 is poor) : 1.16
K magnitude           : 14.525
G magnitude           : 16.784
RP magnitude         : 16.012
BP magnitude         : 17.365
DUPflag              : 0
Distance (au)        : 9.442
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.82
Sun-Target sep (deg) : 123.79
Sun-Moon sep (deg)   : 114.59
B (ring opening deg) : 25.82
PA of pole (deg)     : 6.33
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.196
C/A sky separation (km): 1341.6
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

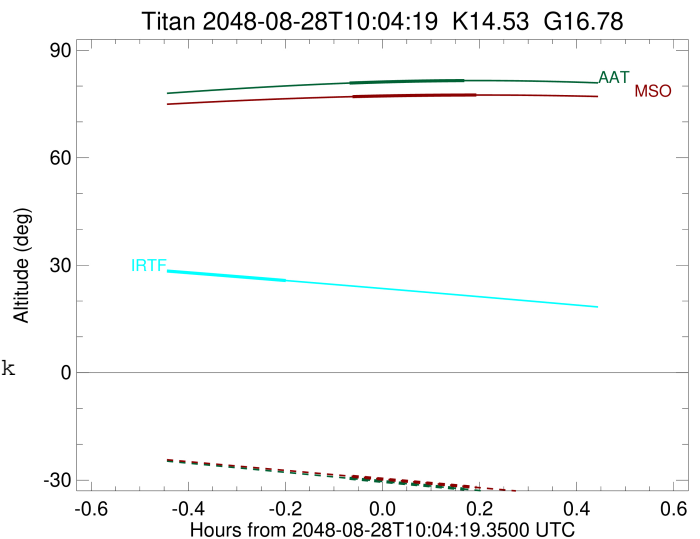
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2048-08-28T10:00:10.093	80.83	-29.48	2575.2	-13.88	-13.89
Titan	E	2048-08-28T10:14:29.681	81.52	-32.52	2575.0	61.77	61.78



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-08-28T10:08:15.440
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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       : 4079216657633008128
2Mass ID (if available) : 18383706-2240558
ICRS Star Coord at Epoch: 18h 38m 37.07003s -22:40:55.84165s
RUWE (>1.4 is poor) : 1.16
K magnitude           : 14.525
G magnitude           : 16.784
RP magnitude          : 16.012
BP magnitude          : 17.365
DUPflag              : 0
Distance (au)        : 9.442
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.82
Sun-Target sep (deg) : 123.79
Sun-Moon sep (deg)   : 114.58
B (ring opening deg) : 25.82
PA of pole (deg)     : 6.33
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.147
C/A sky separation (km): 1005.9
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	2048-08-28T10:00:30.570	77.04	-28.93	2575.1	-21.46	-21.47
Titan	E	2048-08-28T10:15:59.890	77.50	-32.04	2575.0	57.70	57.71