

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-05-23T12:48:35.980
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4081612905786443136
 2Mass ID (if available) : 19031970-2201336

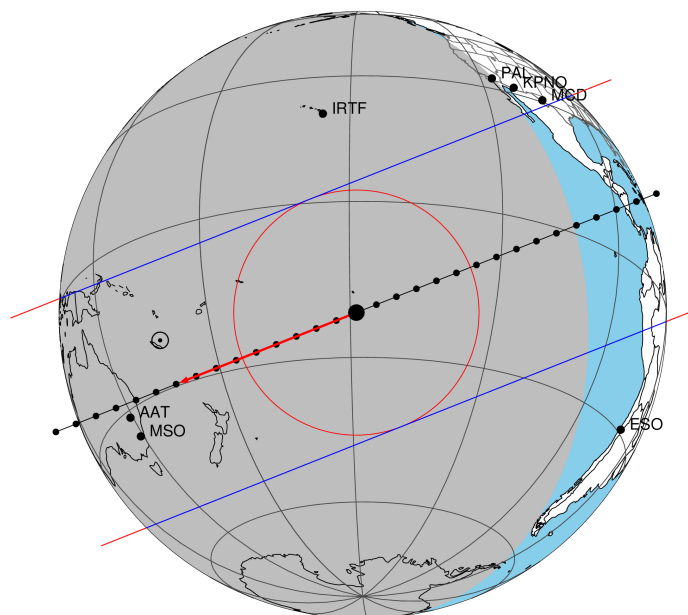
ICRS Star Coord at Epoch: 19h 03m 19.69953s -22:01:33.83040s
 RUWE (>1.4 is poor) : 0.97
 K magnitude : 14.861
 G magnitude : 16.784
 RP magnitude : 16.138
 BP magnitude : 17.243
 DUPflag : 0
 Distance (au) : 9.273
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -7.54
 Sun-Target sep (deg) : 137.74
 Sun-Moon sep (deg) : 100.98
 B (ring opening deg) : 24.53
 PA of pole (deg) : 6.62
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.009
 C/A sky separation (km) : 62.9
 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	+ +	MAY 23 12:54 - MAY 23 13:05	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	MAY 23 12:54 - MAY 23 13:05	Pie

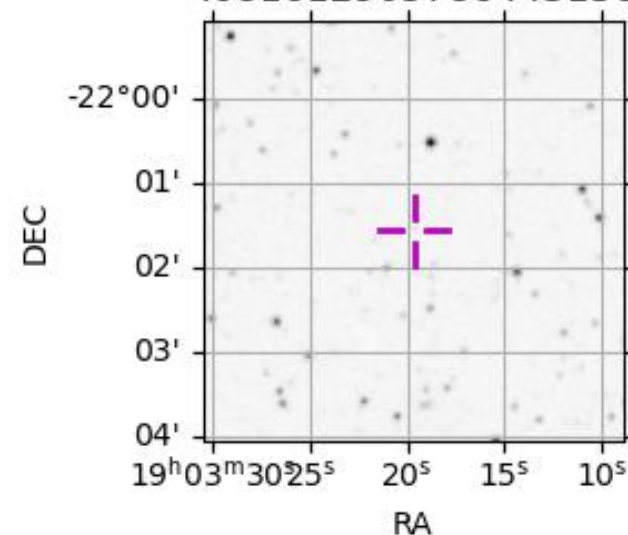
Titan 2048-05-23T12:48:35 K14.86 G16.78 dots 60.0 sec
 Pgt



2048-05-23T12:48:35.9800 α: 19 03 19.6995 δ: -22 01 33.8300 C/A 0.014" PA 338.26 deg v_sky - 7.54 km/s D 09.27 AU

Credit: Styled after SORA/Lucky Star

4081612905786443136



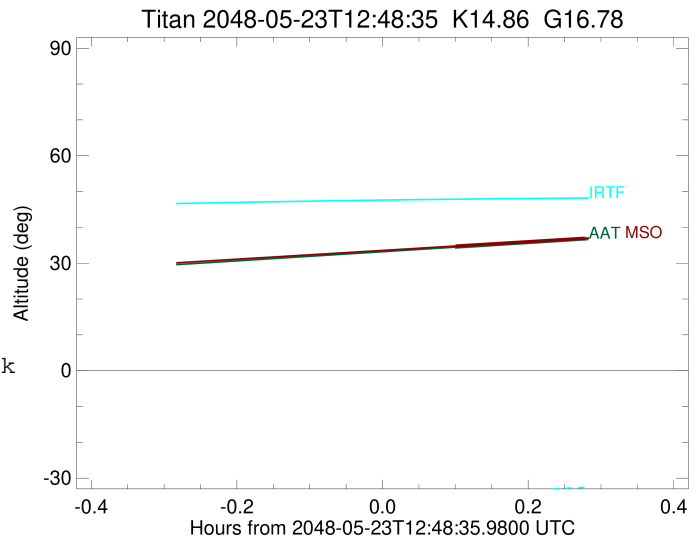
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-05-23T13:00:02.780
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        : 4081612905786443136
2Mass ID (if available) : 19031970-2201336
ICRS Star Coord at Epoch: 19h 03m 19.69953s -22:01:33.83040s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 14.861
G magnitude           : 16.784
RP magnitude          : 16.138
BP magnitude          : 17.243
DUPflag              : 0
Distance (au)         : 9.273
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.54
Sun-Target sep (deg) : 137.74
Sun-Moon sep (deg)   : 101.66
B (ring opening deg) : 24.53
PA of pole (deg)     : 6.62
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.028
C/A sky separation (km) : 189.7
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	2048-05-23T12:54:32.298	34.46	-71.96	2575.1	-29.60	-29.62
Titan	E	2048-05-23T13:05:32.750	36.81	-73.92	2575.1	22.09	22.10



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-05-23T12:59:56.750
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       : 4081612905786443136
2Mass ID (if available) : 19031970-2201336
ICRS Star Coord at Epoch: 19h 03m 19.69953s -22:01:33.83040s
RUWE (>1.4 is poor) : 0.97
K magnitude           : 14.861
G magnitude           : 16.784
RP magnitude         : 16.138
BP magnitude         : 17.243
DUPflag              : 0
Distance (au)        : 9.273
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -7.54
Sun-Target sep (deg) : 137.74
Sun-Moon sep (deg)   : 101.66
B (ring opening deg) : 24.53
PA of pole (deg)     : 6.62
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.094
C/A sky separation (km) : 635.0
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	2048-05-23T12:54:35.184	34.79	-69.57	2575.1	-38.29	-38.30
Titan	E	2048-05-23T13:05:17.860	36.98	-71.17	2575.1	13.03	13.04

