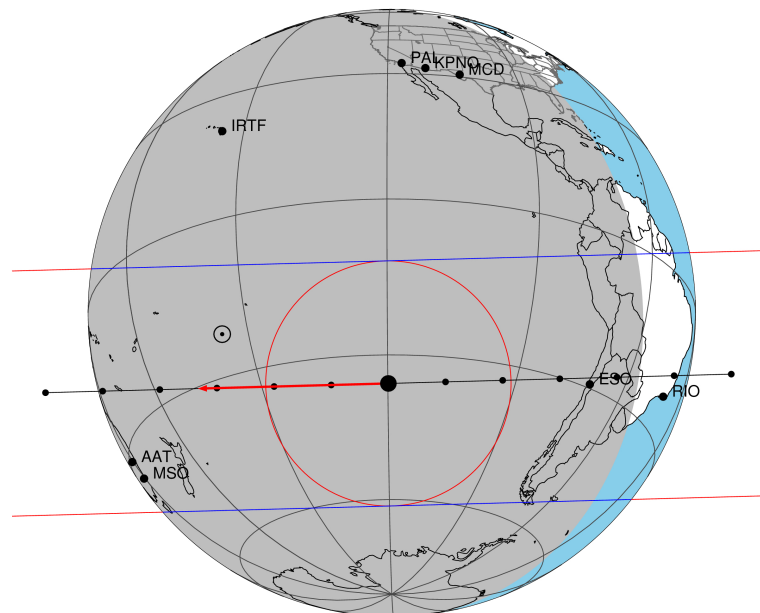


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-05-31T10:22:13.860
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4081525670725610368
 2Mass ID (if available) : 19013087-2206344

ICRS Star Coord at Epoch: 19h 01m 30.86069s -22:06:34.58011s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 14.848
 G magnitude : 16.731
 RP magnitude : 16.157
 BP magnitude : 17.132
 DUPflag : 0
 Distance (au) : 9.177
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -20.00
 Sun-Target sep (deg) : 145.75
 Sun-Moon sep (deg) : 16.76
 B (ring opening deg) : 24.66
 PA of pole (deg) : 6.60
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.221
 C/A sky separation (km) : 1472.9
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

Titan 2048-05-31T10:22:13 K14.85 G16.73 dots 60.0 sec
 Pgt

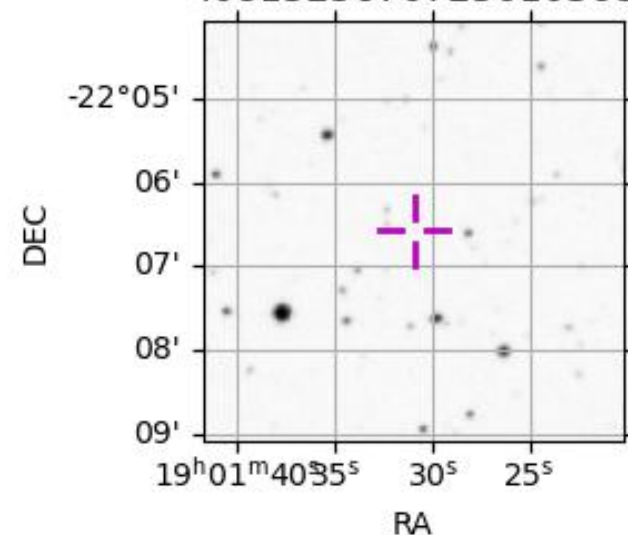


2048-05-31T10:22:13.8600 cc: 19 01 30.8607 & -22 06 34.580 C/A 0.223" PA 178.46 deg v_sky -20.01 km/s D 09.18 AU
 Credit: Styled after SORA/Lucky Star

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

Obs	Location	lat	Elon	Target	Observed Events Interval	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	+ +	MAY 31 10:16 - MAY 31 10:20	Pie
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	MAY 31 10:25 - MAY 31 10:28	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	MAY 31 10:25 - MAY 31 10:28	Pie

4081525670725610368



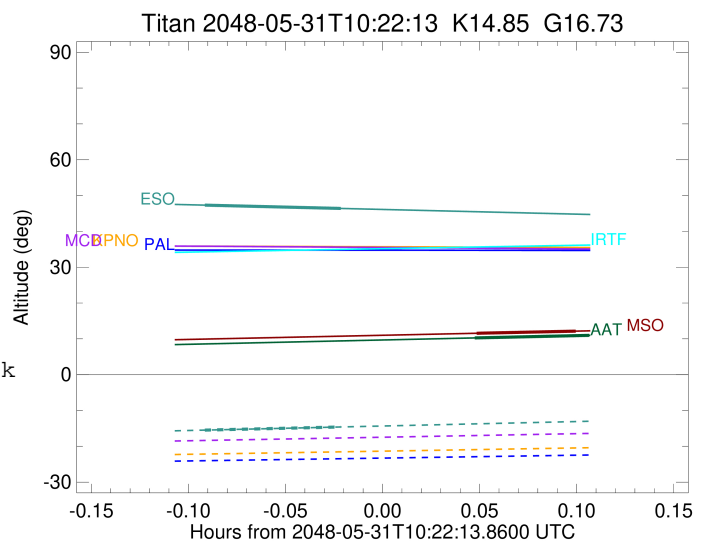
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-05-31T10:18:50.970
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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       : 4081525670725610368
2Mass ID (if available) : 19013087-2206344
ICRS Star Coord at Epoch: 19h 01m 30.86069s -22:06:34.58011s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 14.848
G magnitude           : 16.731
RP magnitude          : 16.157
BP magnitude          : 17.132
DUPflag              : 0
Distance (au)        : 9.177
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -20.00
Sun-Target sep (deg) : 145.75
Sun-Moon sep (deg)   : 16.42
B (ring opening deg) : 24.66
PA of pole (deg)     : 6.60
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.018
C/A sky separation (km) : 120.2
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	2048-05-31T10:16:44.124	47.32	-15.48	2575.1	-9.52	-9.52
Titan	E	2048-05-31T10:20:57.833	46.39	-14.60	2575.1	4.68	4.68



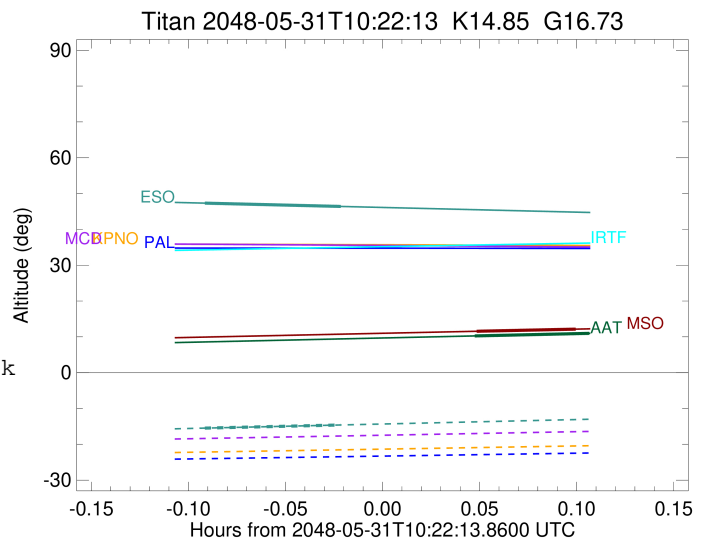
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-05-31T10:26:51.940
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        : 4081525670725610368
2Mass ID (if available) : 19013087-2206344
ICRS Star Coord at Epoch: 19h 01m 30.86069s -22:06:34.58011s
RUWE (>1.4 is poor)  : 0.99
K magnitude           : 14.848
G magnitude           : 16.731
RP magnitude          : 16.157
BP magnitude          : 17.132
DUPflag              : 0
Distance (au)         : 9.177
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -20.00
Sun-Target sep (deg)  : 145.75
Sun-Moon sep (deg)    : 17.71
B (ring opening deg)  : 24.66
PA of pole (deg)      : 6.60
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.215
C/A sky separation (km) : 1428.3
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	2048-05-31T10:25:04.821	10.26	-41.25	2575.1	-37.68	-37.69
Titan	E	2048-05-31T10:28:39.041	10.98	-42.01	2575.1	-22.69	-22.70



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-05-31T10:26:40.280
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       : 4081525670725610368
2Mass ID (if available) : 19013087-2206344
ICRS Star Coord at Epoch: 19h 01m 30.86069s -22:06:34.58011s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 14.848
G magnitude           : 16.731
RP magnitude         : 16.157
BP magnitude         : 17.132
DUPflag              : 0
Distance (au)        : 9.177
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -20.00
Sun-Target sep (deg) : 145.75
Sun-Moon sep (deg)   : 17.69
B (ring opening deg) : 24.66
PA of pole (deg)     : 6.60
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.268
C/A sky separation (km) : 1785.6
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	2048-05-31T10:25:07.521	11.55	-41.30	2575.1	-46.10	-46.12
Titan	E	2048-05-31T10:28:13.025	12.15	-41.93	2575.1	-31.72	-31.73

