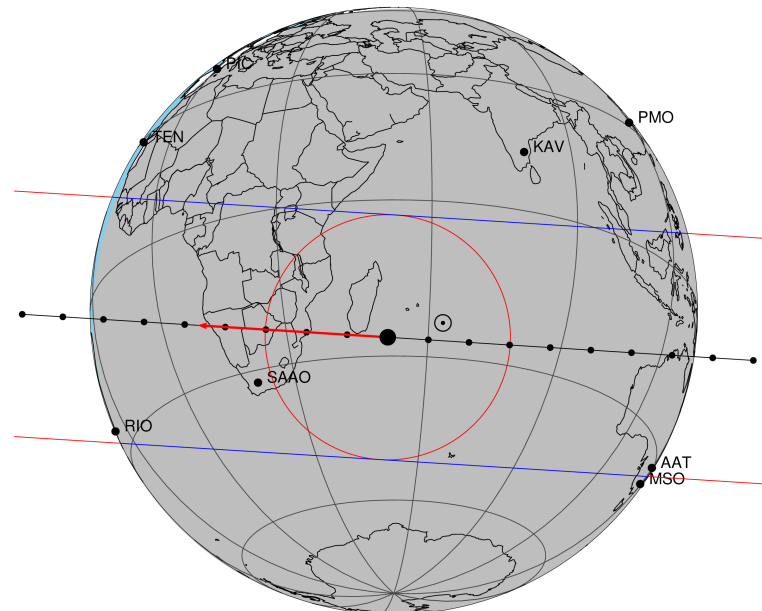


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-06-19T19:49:47.960
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4115636056158241152
 2Mass ID (if available) : 17105980-2123207

Titan 2046-06-19T19:49:47 K13.86 G16.73 dots 60.0 sec
 Pgt

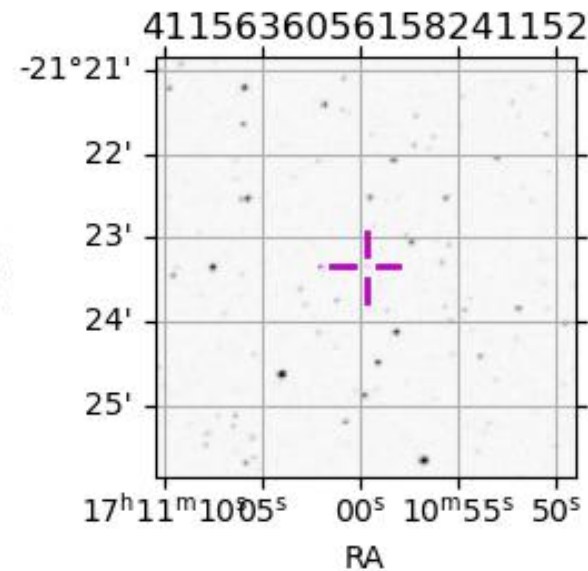
ICRS Star Coord at Epoch: 17h 10m 59.80458s -21:23:20.98573s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 13.856
 G magnitude : 16.726
 RP magnitude : 15.862
 BP magnitude : 17.485
 DUPflag : 0
 Distance (au) : 9.038
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.25
 Sun-Target sep (deg) : 170.41
 Sun-Moon sep (deg) : 25.27
 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 (") : 0.086
 C/A sky separation (km) : 564.7
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk



2046-06-19T19:49:47.9600 cc: 17 10 59.8046 s: -21 23 20.986 C/A 0.086" PA 183.63 deg v_sky -14.24 km/s D 09.04 AU
 Credit: Styled after SORA/Lucky Star

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			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUN 19 19:41 - JUN 19 19:44	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 19 19:50 - JUN 19 19:55	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



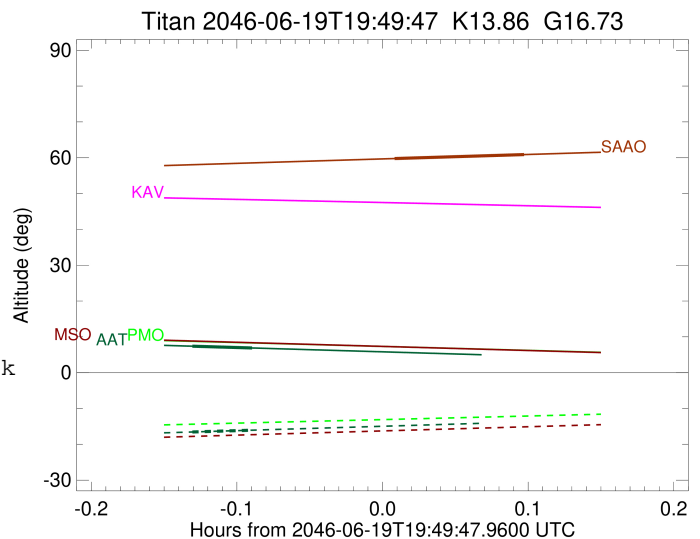
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-06-19T19:43:11.770
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        : 4115636056158241152
2Mass ID (if available) : 17105980-2123207
ICRS Star Coord at Epoch: 17h 10m 59.80458s -21:23:20.98573s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 13.856
G magnitude           : 16.726
RP magnitude          : 15.862
BP magnitude          : 17.485
DUPflag              : 0
Distance (au)         : 9.038
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.25
Sun-Target sep (deg)  : 170.41
Sun-Moon sep (deg)    : 24.50
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 (") : 0.357
C/A sky separation (km) : 2338.9
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	2046-06-19T19:41:56.003	7.39	-16.56	2575.1	-54.59	-54.60
Titan	E	2046-06-19T19:44:27.552	6.89	-16.05	2575.1	-54.17	-54.19



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-06-19T19:52:58.040
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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        : 4115636056158241152
2Mass ID (if available) : 17105980-2123207
ICRS Star Coord at Epoch: 17h 10m 59.80458s -21:23:20.98573s
RUWE (>1.4 is poor)  : 1.02
K magnitude           : 13.856
G magnitude           : 16.726
RP magnitude          : 15.862
BP magnitude          : 17.485
DUPflag              : 0
Distance (au)         : 9.038
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.25
Sun-Target sep (deg)  : 170.41
Sun-Moon sep (deg)    : 25.95
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 (") : 0.163
C/A sky separation (km) : 1069.7
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	2046-06-19T19:50:17.292	59.77	-52.10	2575.1	-22.97	-22.98
Titan	E	2046-06-19T19:55:38.769	60.87	-53.23	2575.1	-20.68	-20.69

