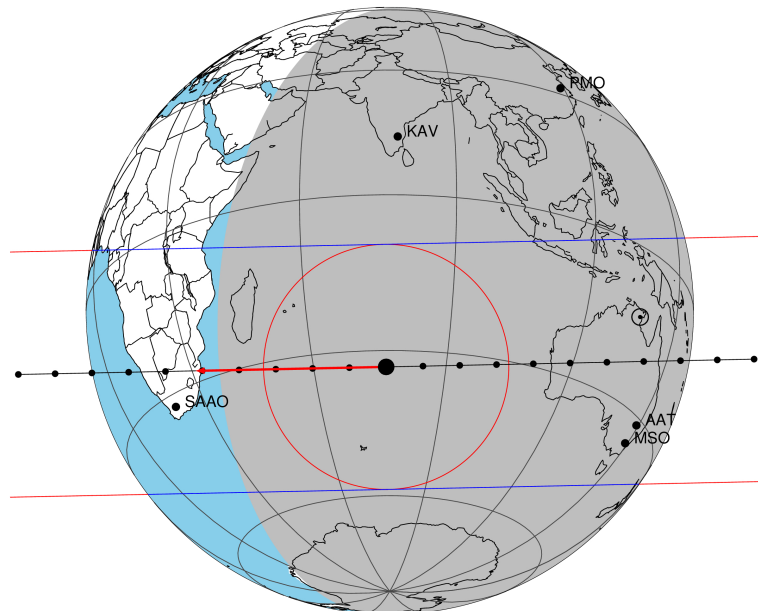


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-08-16T15:03:07.400
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068970343140214528
 2Mass ID (if available) : 17491783-2228467

Titan 2047-08-16T15:03:07 K12.74 G16.94 dots 60.0 sec
 Pgt

ICRS Star Coord at Epoch: 17h 49m 17.82542s -22:28:46.88179s
 RUWE (>1.4 is poor) : 1.57
 K magnitude : 12.743
 G magnitude : 16.945
 RP magnitude : 15.736
 BP magnitude : 18.206
 DUPflag : 0
 Distance (au) : 9.431
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.87
 Sun-Target sep (deg) : 124.49
 Sun-Moon sep (deg) : 176.40
 B (ring opening deg) : 26.80
 PA of pole (deg) : 5.45
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.173
 C/A sky separation (km) : 1180.5
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk



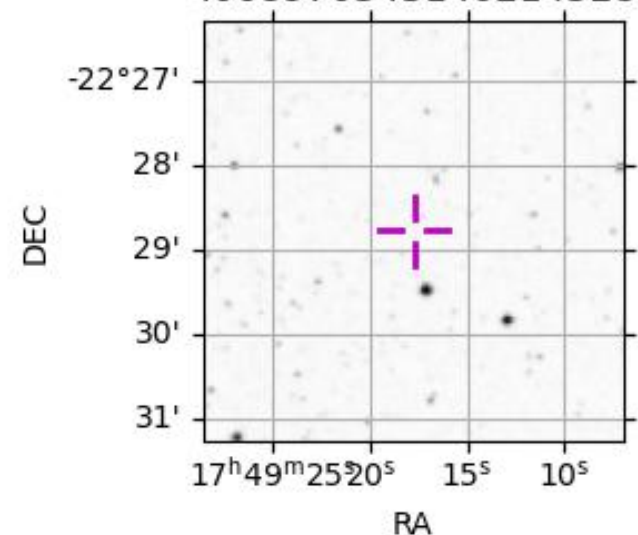
2047-08-16T15:03:07.4000 cc: 17 49 17.8254 d: -22 28 46.882 C/A 0.172" PA 178.79 deg v_sky -12.88 km/s D 09.43 AU
 Credit: Styled after SORA/Lucky Star

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	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			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	+ +	AUG 16 14:53 - AUG 16 14:59	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	AUG 16 14:54 - AUG 16 14:59	Pie

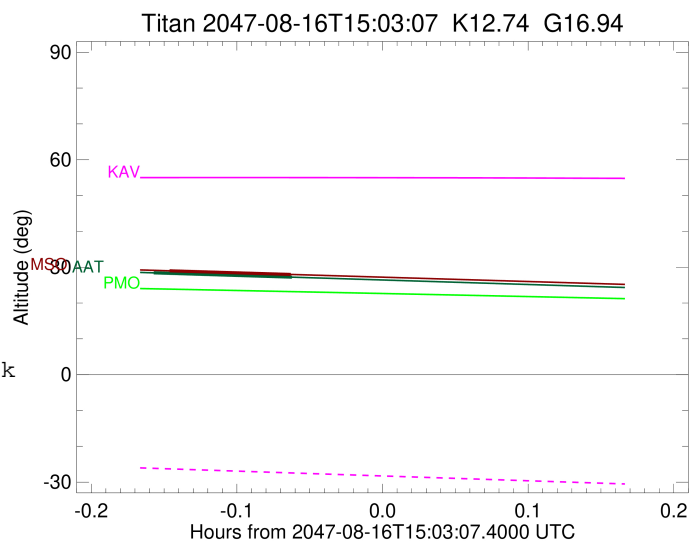
4068970343140214528



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-08-16T14:56:32.600
 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 : 4068970343140214528
 2Mass ID (if available) : 17491783-2228467
 ICRS Star Coord at Epoch: 17h 49m 17.82542s -22:28:46.88179s
 RUWE (>1.4 is poor) : 1.57
 K magnitude : 12.743
 G magnitude : 16.945
 RP magnitude : 15.736
 BP magnitude : 18.206
 DUPflag : 0
 Distance (au) : 9.431
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -12.87
 Sun-Target sep (deg) : 124.49
 Sun-Moon sep (deg) : 176.59
 B (ring opening deg) : 26.80
 PA of pole (deg) : 5.45
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.188
 C/A sky separation (km) : 1285.0
 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	2047-08-16T14:53:41.123	28.42	-69.60	2575.1	-31.61	-31.63
Titan	E	2047-08-16T14:59:24.155	27.21	-68.89	2575.1	-21.22	-21.23



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-08-16T14:56:51.060
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       : 4068970343140214528
2Mass ID (if available) : 17491783-2228467
ICRS Star Coord at Epoch: 17h 49m 17.82542s -22:28:46.88179s
RUWE (>1.4 is poor) : 1.57
K magnitude           : 12.743
G magnitude           : 16.945
RP magnitude          : 15.736
BP magnitude          : 18.206
DUPflag              : 0
Distance (au)        : 9.431
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -12.87
Sun-Target sep (deg) : 124.49
Sun-Moon sep (deg)   : 176.53
B (ring opening deg) : 26.80
PA of pole (deg)     : 5.45
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.242
C/A sky separation (km) : 1657.7
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	2047-08-16T14:54:19.553	28.99	-66.10	2575.1	-40.05	-40.06
Titan	E	2047-08-16T14:59:22.618	27.97	-65.58	2575.1	-29.96	-29.98

