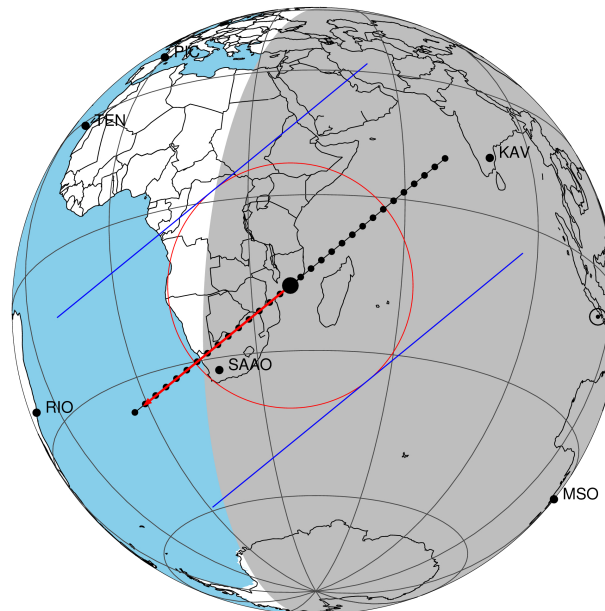


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-08-29T16:28:31.850
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068972232954117632
 2Mass ID (if available) : 17483674-2230026

Titan 2047-08-29T16:28:31 K13.46 G17.68 dots 60.0 sec
 Pgt

ICRS Star Coord at Epoch: 17h 48m 36.74311s -22:30:02.77155s
 RUWE (>1.4 is poor) : 1.25
 K magnitude : 13.460
 G magnitude : 17.677
 RP magnitude : 16.496
 BP magnitude : 19.000
 DUPflag : 1
 Distance (au) : 9.626
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -4.67
 Sun-Target sep (deg) : 111.75
 Sun-Moon sep (deg) : 2.89
 B (ring opening deg) : 26.83
 PA of pole (deg) : 5.44
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.098
 C/A sky separation (km) : 684.2
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk



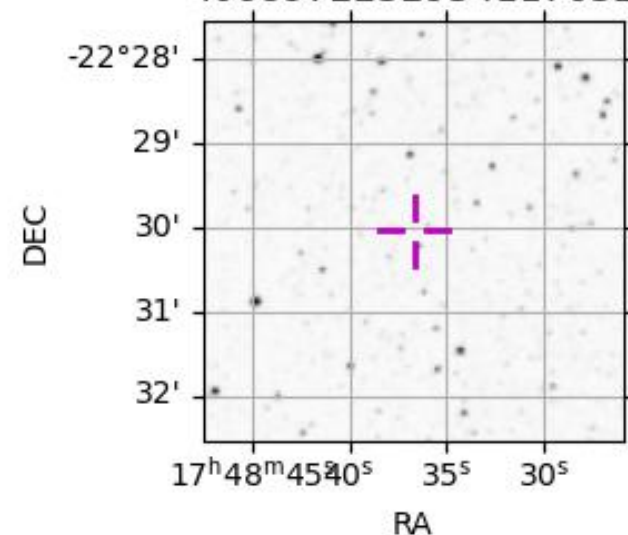
2047-08-29T16:28:31.8500 α: 17 48 36.7431 δ: -22 30 02.772 C/A 0.107" PA 320.67 deg v_sky - 4.68 km/s D 09.63 AU
 Credit: Styled after SORA/Lucky Star

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	+	AUG 29 15:57 - AUG 29 15:57	Pin
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	+ +	AUG 29 16:03 - AUG 29 16:20	Pie
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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	AUG 29 16:44 - AUG 29 16:44	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

4068972232954117632



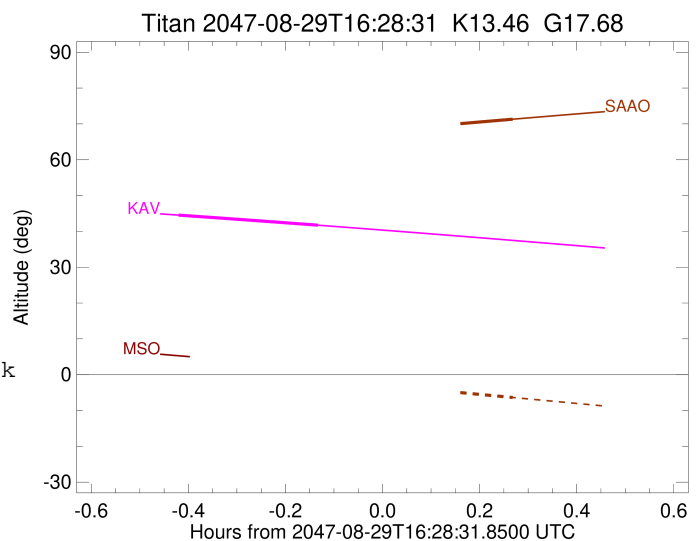
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-08-29T16:05:43.880
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : PMO
Location             : Purple Mtn Obs. Nanking
Latitude (deg)       : 32.06667
E. Longitude (deg)   : 118.82089
Altitude (km)        : 0.364
Gaia source ID       : 4068972232954117632
2Mass ID (if available) : 17483674-2230026
ICRS Star Coord at Epoch: 17h 48m 36.74311s -22:30:02.77155s
RUWE (>1.4 is poor) : 1.25
K magnitude           : 13.460
G magnitude           : 17.677
RP magnitude          : 16.496
BP magnitude          : 19.000
DUPflag              : 1
Distance (au)         : 9.626
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.67
Sun-Target sep (deg) : 111.75
Sun-Moon sep (deg)   : 3.79
B (ring opening deg) : 26.83
PA of pole (deg)     : 5.44
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.145
C/A sky separation (km) : 1011.2
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

```

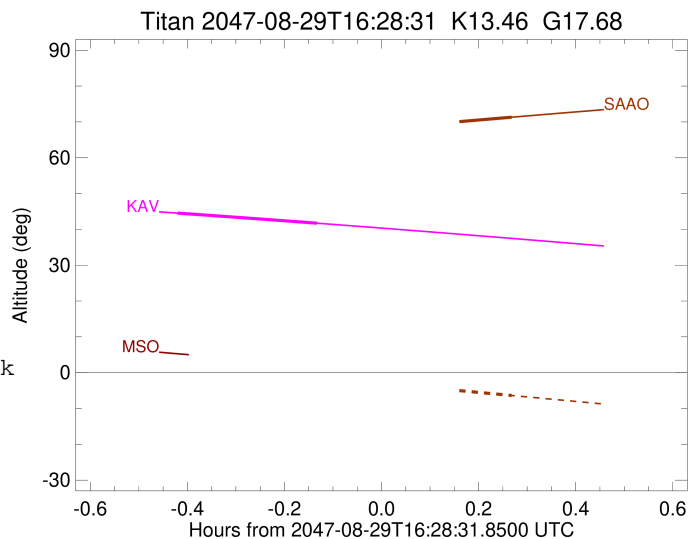
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-08-29T15:57:18.059	5.19	-48.85	2575.0	-54.49	-54.50
Titan	E	2047-08-29T16:14:10.389	2.06x	-48.85	2575.1	17.37	17.38



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-08-29T16:11:57.590
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 4068972232954117632
2Mass ID (if available) : 17483674-2230026
ICRS Star Coord at Epoch: 17h 48m 36.74311s -22:30:02.77155s
RUWE (>1.4 is poor) : 1.25
K magnitude           : 13.460
G magnitude           : 17.677
RP magnitude         : 16.496
BP magnitude         : 19.000
DUPflag              : 1
Distance (au)        : 9.626
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.67
Sun-Target sep (deg) : 111.75
Sun-Moon sep (deg)  : 3.64
B (ring opening deg) : 26.83
PA of pole (deg)    : 5.44
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.035
C/A sky separation (km) : 241.2
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	2047-08-29T16:03:16.259	44.54	-44.23	2575.1	-40.50	-40.51
Titan	E	2047-08-29T16:20:39.394	41.70	-47.99	2575.1	31.52	31.53

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-08-29T16:36:17.300
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       : 4068972232954117632
2Mass ID (if available) : 17483674-2230026
ICRS Star Coord at Epoch: 17h 48m 36.74311s -22:30:02.77155s
RUWE (>1.4 is poor) : 1.25
K magnitude           : 13.460
G magnitude           : 17.677
RP magnitude          : 16.496
BP magnitude          : 19.000
DUPflag              : 1
Distance (au)        : 9.626
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.67
Sun-Target sep (deg) : 111.75
Sun-Moon sep (deg)   : 2.62
B (ring opening deg) : 26.83
PA of pole (deg)     : 5.44
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.061
C/A sky separation (km) : 425.6
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	2047-08-29T16:27:49.624	68.04	-2.85x	2575.1	-44.72	-44.73
Titan	E	2047-08-29T16:44:44.307	71.32	-6.39	2575.1	28.94	28.96

