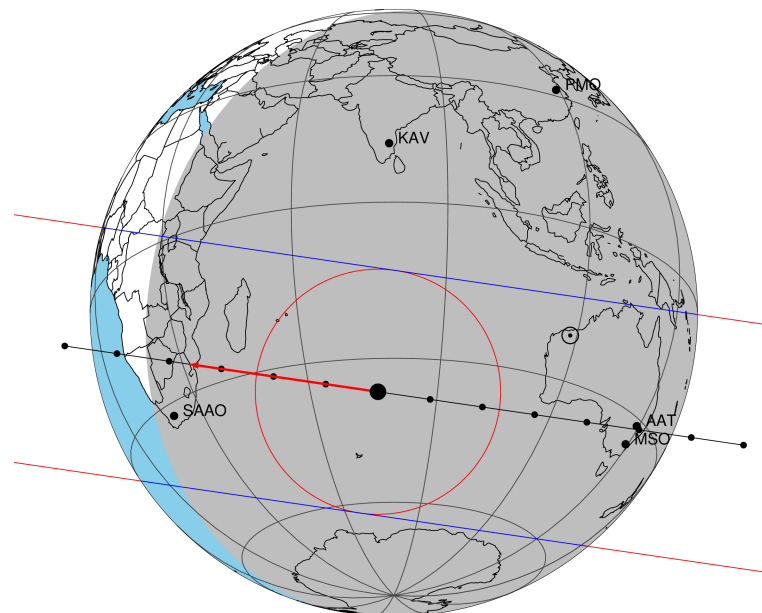


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-07-15T16:12:42.400
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4127655023922897664
 2Mass ID (if available) : 17034287-2119563

Titan 2046-07-15T16:12:42 K11.74 G13.57 dots 60.0 sec
 Pgt

ICRS Star Coord at Epoch: 17h 03m 42.86466s -21:19:56.13922s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 11.736
 G magnitude : 13.573
 RP magnitude : 12.958
 BP magnitude : 14.011
 DUPflag : 0
 Distance (au) : 9.189
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -18.46
 Sun-Target sep (deg) : 144.16
 Sun-Moon sep (deg) : 8.97
 B (ring opening deg) : 26.56
 PA of pole (deg) : 4.36
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.253
 C/A sky separation (km) : 1684.8
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk



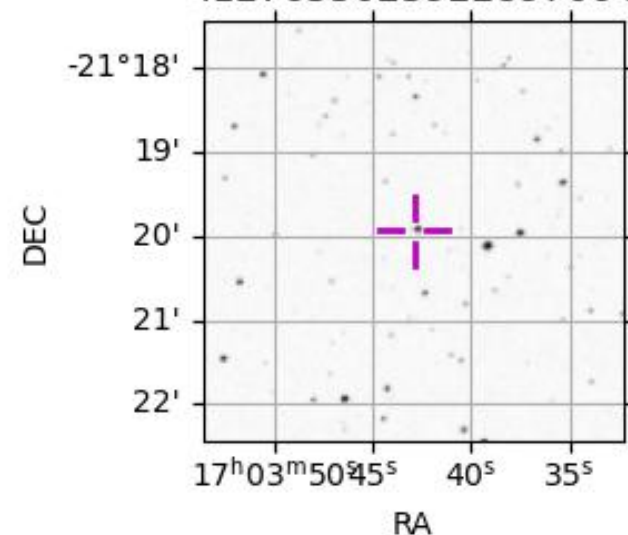
2046-07-15T16:12:42.4000 cc: 17 03 42.8647 d: -21 19 56.139 C/A 0.253" PA 188.31 deg v_sky -18.47 km/s D 09.19 AU

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	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	+ +	JUL 15 16:05 - JUL 15 16:10	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 15 16:14 - JUL 15 16:18	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 15 16:05 - JUL 15 16:10	Pie

4127655023922897664



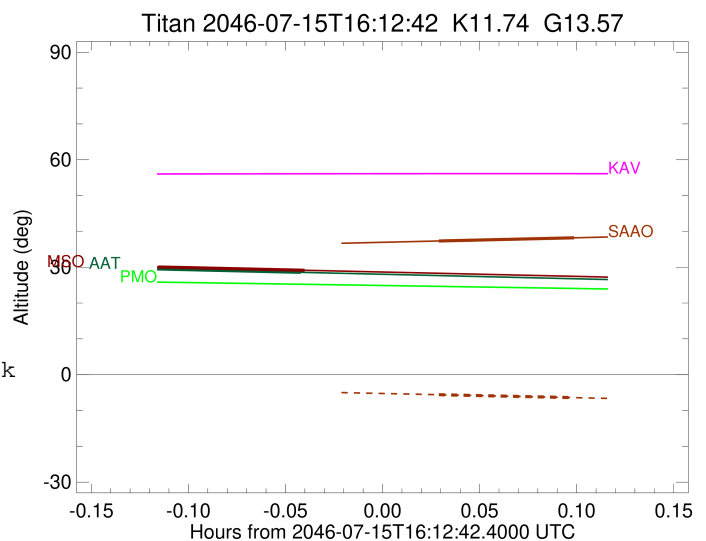
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-07-15T16:07:53.300
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       : 4127655023922897664
2Mass ID (if available) : 17034287-2119563
ICRS Star Coord at Epoch: 17h 03m 42.86466s -21:19:56.13922s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 11.736
G magnitude           : 13.573
RP magnitude          : 12.958
BP magnitude          : 14.011
DUPflag              : 0
Distance (au)         : 9.189
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -18.46
Sun-Target sep (deg) : 144.16
Sun-Moon sep (deg)   : 8.23
B (ring opening deg) : 26.56
PA of pole (deg)     : 4.36
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.014
C/A sky separation (km) : 92.2
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

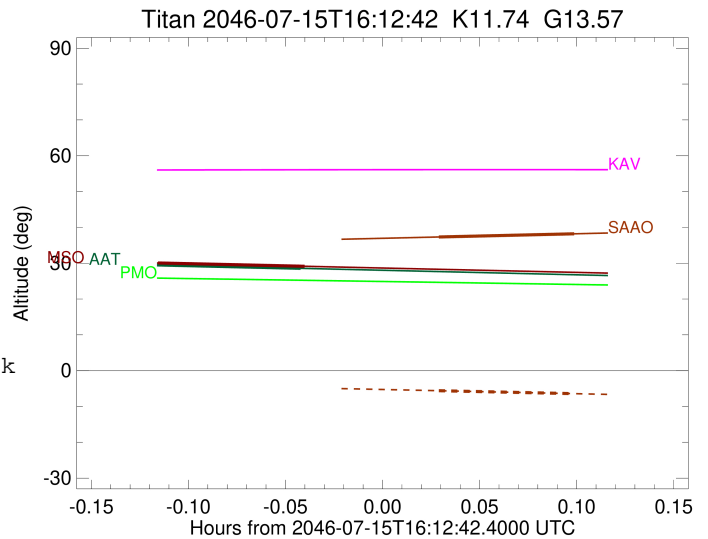
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2046-07-15T16:05:35.231	29.54	-62.38	2575.1	5.67	5.67
Titan	E	2046-07-15T16:10:11.410	28.56	-61.42	2575.1	-2.01	-2.01



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-07-15T16:16:31.990
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       : 4127655023922897664
2Mass ID (if available) : 17034287-2119563
ICRS Star Coord at Epoch: 17h 03m 42.86466s -21:19:56.13922s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 11.736
G magnitude           : 13.573
RP magnitude          : 12.958
BP magnitude          : 14.011
DUPflag              : 0
Distance (au)        : 9.189
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -18.46
Sun-Target sep (deg) : 144.16
Sun-Moon sep (deg)   : 9.44
B (ring opening deg) : 26.56
PA of pole (deg)     : 4.36
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.158
C/A sky separation (km) : 1053.9
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	2046-07-15T16:14:26.000	37.31	-5.59	2575.1	-18.39	-18.40
Titan	E	2046-07-15T16:18:37.966	38.20	-6.42	2575.1	-24.54	-24.55

```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2046-07-15T16:08:02.570
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       : 4127655023922897664
2Mass ID (if available) : 17034287-2119563
ICRS Star Coord at Epoch: 17h 03m 42.86466s -21:19:56.13922s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 11.736
G magnitude           : 13.573
RP magnitude          : 12.958
BP magnitude          : 14.011
DUPflag              : 0
Distance (au)        : 9.189
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -18.46
Sun-Target sep (deg) : 144.16
Sun-Moon sep (deg)   : 8.22
B (ring opening deg) : 26.56
PA of pole (deg)     : 4.36
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.048
C/A sky separation (km) : 318.1
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	2046-07-15T16:05:45.422	30.06	-61.21	2575.2	-2.52	-2.52
Titan	E	2046-07-15T16:10:19.773	29.13	-60.33	2575.1	-10.16	-10.17

