

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-07-29T17:19:44.900
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4070419087149153280
 2Mass ID (if available) : 17522546-2226263

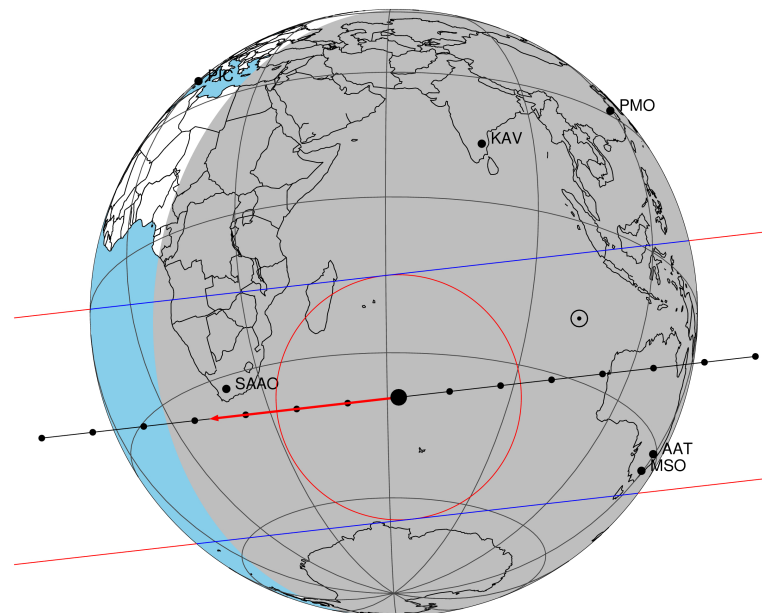
ICRS Star Coord at Epoch: 17h 52m 25.45168s -22:26:26.77521s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 13.212
 G magnitude : 17.960
 RP magnitude : 16.696
 BP magnitude : 19.634
 DUPflag : 0
 Distance (au) : 9.219
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -17.95
 Sun-Target sep (deg) : 142.36
 Sun-Moon sep (deg) : 55.25
 B (ring opening deg) : 26.69
 PA of pole (deg) : 5.52
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.267
 C/A sky separation (km) : 1788.3
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

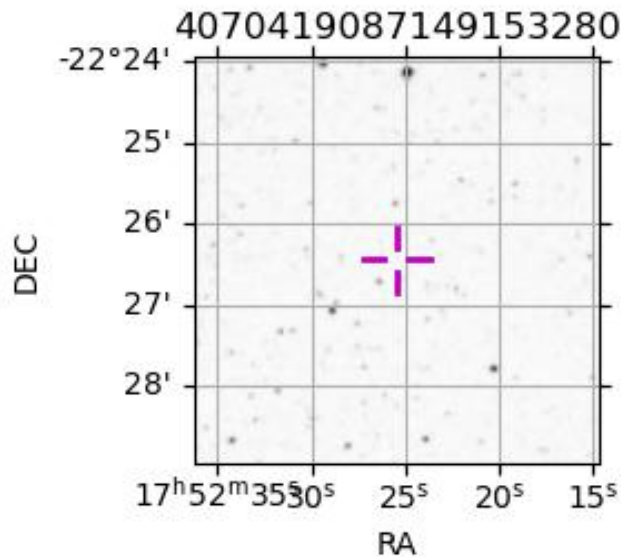
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUL 29 17:13 - JUL 29 17:16	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUL 29 17:20 - JUL 29 17:25	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUL 29 17:13 - JUL 29 17:16	Pie

Titan 2047-07-29T17:19:44 K13.21 G17.96 dots 60.0 sec
 Pgt



2047-07-29T17:19:44.9000 cc: 17 52 25.4517 & -22 26 26.775 C/A 0.265" PA 173.45 deg v_sky -17.95 km/s D 09.22 AU
 Credit: Styled after SORA/Lucky Star



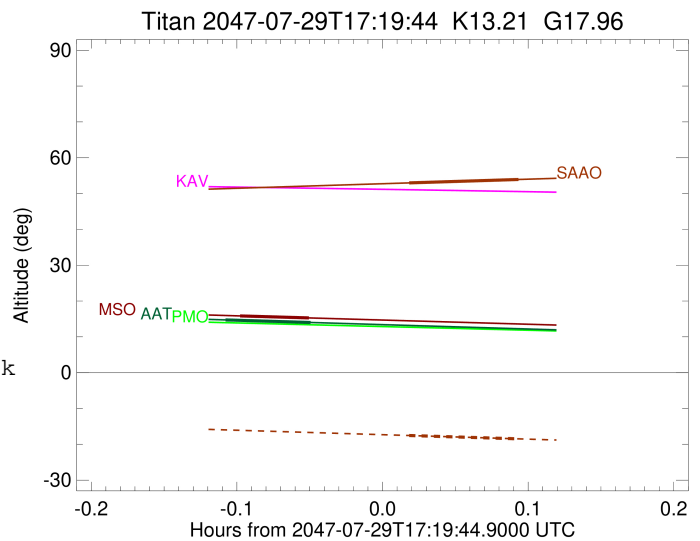
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-07-29T17:15:02.150
Event type          : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code       : AAT
Location            : Siding Spring (AAT)
Latitude (deg)      : -31.27703
E. Longitude (deg)  : 149.06608
Altitude (km)       : 1.164
Gaia source ID      : 4070419087149153280
2Mass ID (if available) : 17522546-2226263
ICRS Star Coord at Epoch: 17h 52m 25.45168s -22:26:26.77521s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 13.212
G magnitude          : 17.960
RP magnitude         : 16.696
BP magnitude         : 19.634
DUPflag             : 0
Distance (au)       : 9.219
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.95
Sun-Target sep (deg) : 142.36
Sun-Moon sep (deg)  : 55.88
B (ring opening deg) : 26.69
PA of pole (deg)    : 5.52
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.261
C/A sky separation (km) : 1748.0
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

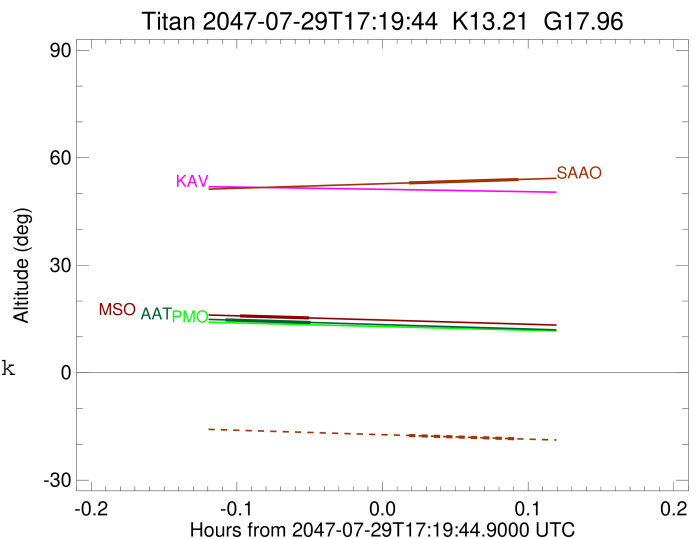
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x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-07-29T17:13:16.869	14.73	-46.97	2575.0	-46.53	-46.55
Titan	E	2047-07-29T17:16:47.449	14.01	-46.22	2575.1	-27.55	-27.56



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-07-29T17:23:06.470
 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 : 4070419087149153280
 2Mass ID (if available) : 17522546-2226263
 ICRS Star Coord at Epoch: 17h 52m 25.45168s -22:26:26.77521s
 RUWE (>1.4 is poor) : 1.01
 K magnitude : 13.212
 G magnitude : 17.960
 RP magnitude : 16.696
 BP magnitude : 19.634
 DUPflag : 0
 Distance (au) : 9.219
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -17.95
 Sun-Target sep (deg) : 142.36
 Sun-Moon sep (deg) : 55.57
 B (ring opening deg) : 26.69
 PA of pole (deg) : 5.52
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.097
 C/A sky separation (km) : 650.3
 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	2047-07-29T17:20:50.061	52.97	-17.54	2575.2	2.14	2.14
Titan	E	2047-07-29T17:25:22.841	53.93	-18.48	2575.1	23.80	23.81

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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-07-29T17:15:17.980
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       : 4070419087149153280
2Mass ID (if available) : 17522546-2226263
ICRS Star Coord at Epoch: 17h 52m 25.45168s -22:26:26.77521s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 13.212
G magnitude           : 17.960
RP magnitude          : 16.696
BP magnitude          : 19.634
DUPflag              : 0
Distance (au)        : 9.219
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.95
Sun-Target sep (deg) : 142.36
Sun-Moon sep (deg)   : 55.87
B (ring opening deg) : 26.69
PA of pole (deg)     : 5.52
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.309
C/A sky separation (km): 2068.7
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	2047-07-29T17:13:52.603	15.84	-46.35	2575.0	-54.10	-54.12
Titan	E	2047-07-29T17:16:43.372	15.28	-45.77	2575.1	-36.60	-36.61

