

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-19T13:50:13.950
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069859160850285184
 2Mass ID (if available) : 18033674-2220280

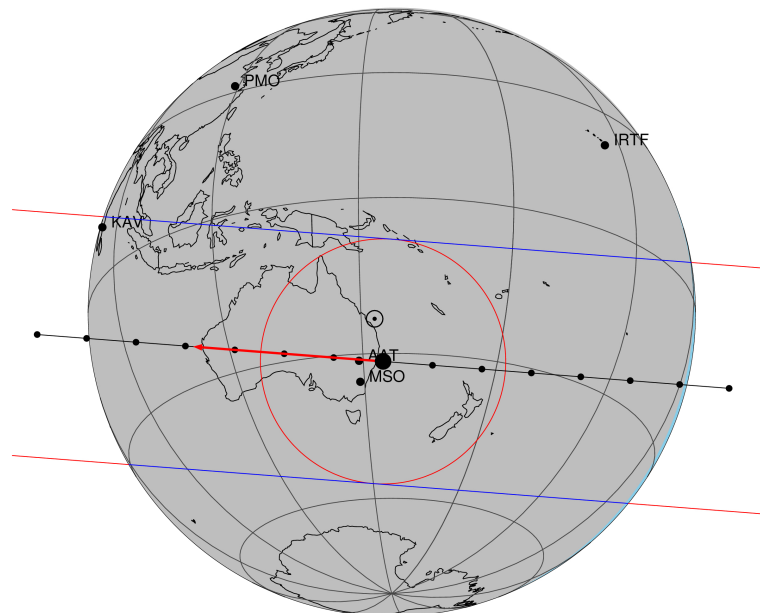
ICRS Star Coord at Epoch: 18h 03m 36.74592s -22:20:28.11881s
 RUWE (>1.4 is poor) : 1.08
 K magnitude : 11.546
 G magnitude : 17.885
 RP magnitude : 16.458
 BP magnitude : 20.457
 DUPflag : 0
 Distance (au) : 9.035
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -17.35
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 133.13
 B (ring opening deg) : 26.34
 PA of pole (deg) : 5.73
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.156
 C/A sky separation (km) : 1023.6
 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

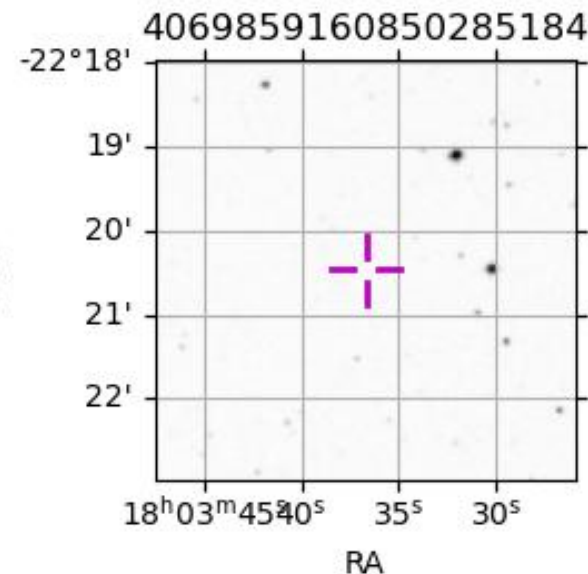
Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 19 13:55 - JUN 19 13:56	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	+ +	JUN 19 13:48 - JUN 19 13:53	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 19 13:48 - JUN 19 13:53	Pie

Titan 2047-06-19T13:50:13 K11.55 G17.88 dots 60.0 sec
 Pgt



2047-06-19T13:50:13.95000 ra: 18 03 36.74592 d: -22 20 28.119 C/A 0.157" PA 184.43 deg v_sky -17.35 km/s D 09.04 AU

Credit: Styled after SORA/Lucky Star



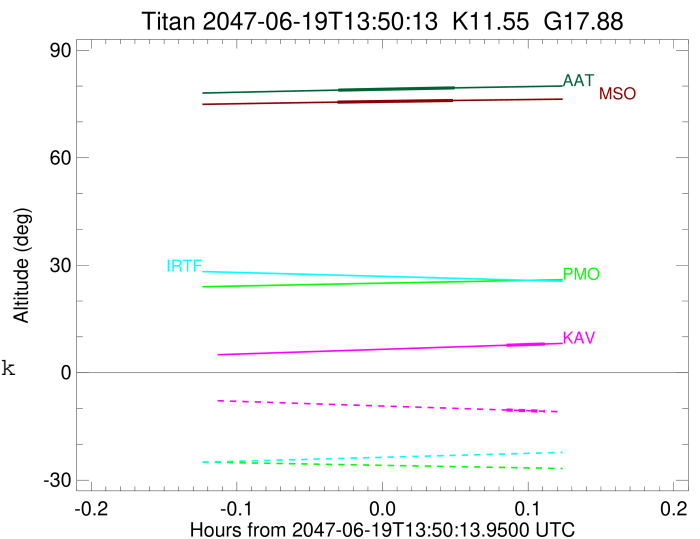
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-06-19T13:56:07.720
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       : 4069859160850285184
2Mass ID (if available) : 18033674-2220280
ICRS Star Coord at Epoch: 18h 03m 36.74592s -22:20:28.11881s
RUWE (>1.4 is poor) : 1.08
K magnitude          : 11.546
G magnitude          : 17.885
RP magnitude         : 16.458
BP magnitude         : 20.457
DUPflag             : 0
Distance (au)        : 9.035
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.35
Sun-Target sep (deg) : 176.57
Sun-Moon sep (deg)   : 132.65
B (ring opening deg) : 26.34
PA of pole (deg)     : 5.73
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.371
C/A sky separation (km) : 2429.2
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	2047-06-19T13:55:18.717	7.65	-10.42	2575.1	56.65	56.66
Titan	E	2047-06-19T13:56:56.716	8.01	-10.77	2575.1	58.72	58.73



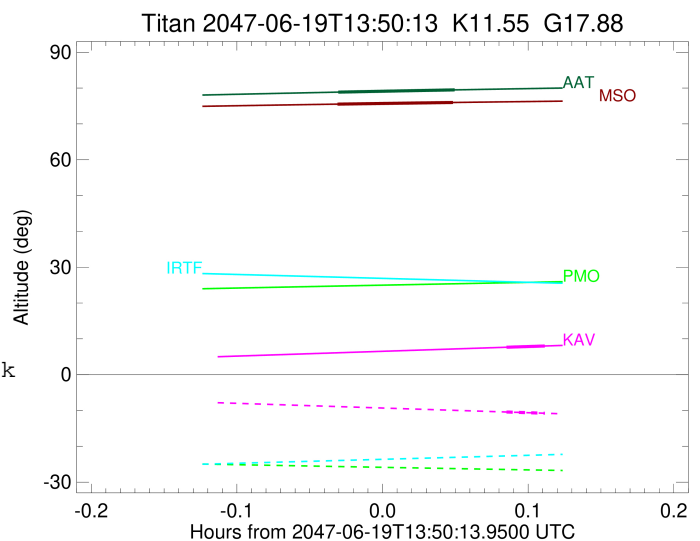
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-19T13:50:48.620
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : AAT
Location             : Siding Spring (AAT)
Latitude (deg)       : -31.27703
E. Longitude (deg)   : 149.06608
Altitude (km)        : 1.164
Gaia source ID       : 4069859160850285184
2Mass ID (if available) : 18033674-2220280
ICRS Star Coord at Epoch: 18h 03m 36.74592s -22:20:28.11881s
RUWE (>1.4 is poor) : 1.08
K magnitude          : 11.546
G magnitude          : 17.885
RP magnitude         : 16.458
BP magnitude         : 20.457
DUPflag             : 0
Distance (au)        : 9.035
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -17.35
Sun-Target sep (deg) : 176.57
Sun-Moon sep (deg)   : 133.69
B (ring opening deg) : 26.34
PA of pole (deg)     : 5.73
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.003
C/A sky separation (km): 21.2
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

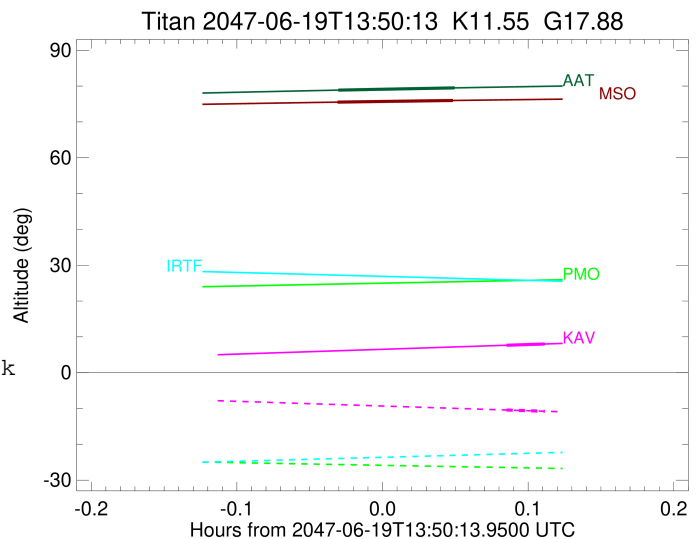
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x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-06-19T13:48:23.469	78.86	-81.47	2575.1	-1.50	-1.50
Titan	E	2047-06-19T13:53:13.801	79.49	-81.88	2575.1	1.07	1.07



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-19T13:50:45.460
 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 : 4069859160850285184
 2Mass ID (if available) : 18033674-2220280
 ICRS Star Coord at Epoch: 18h 03m 36.74592s -22:20:28.11881s
 RUWE (>1.4 is poor) : 1.08
 K magnitude : 11.546
 G magnitude : 17.885
 RP magnitude : 16.458
 BP magnitude : 20.457
 DUPflag : 0
 Distance (au) : 9.035
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -17.35
 Sun-Target sep (deg) : 176.57
 Sun-Moon sep (deg) : 133.67
 B (ring opening deg) : 26.34
 PA of pole (deg) : 5.73
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.068
 C/A sky separation (km) : 447.4
 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	2047-06-19T13:48:22.373	75.51	-77.72	2575.1	-10.23	-10.24
Titan	E	2047-06-19T13:53:08.577	75.97	-77.99	2575.1	-7.68	-7.69