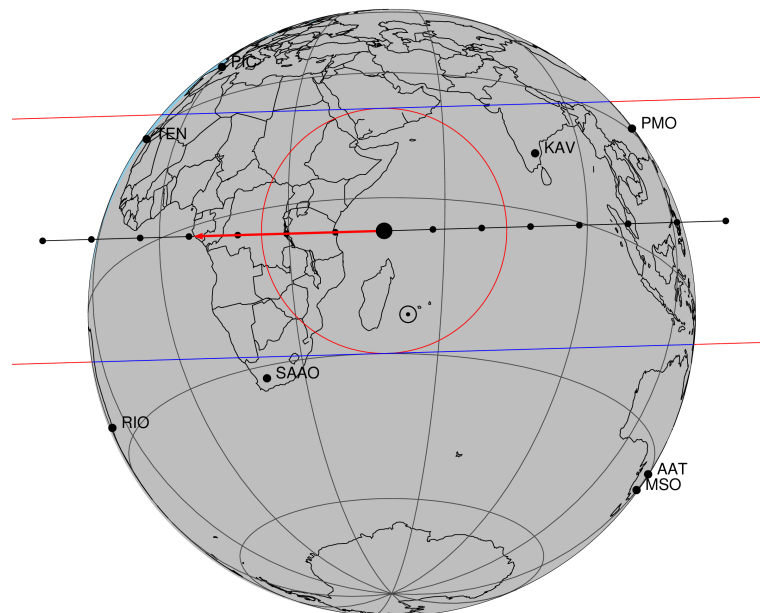


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-07-06T20:31:55.720
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4078692362390458624
 2Mass ID (if available) : 18504892-2221191

ICRS Star Coord at Epoch: 18h 50m 48.92822s -22:21:19.64210s
 RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.428
 G magnitude : 18.440
 RP magnitude : 17.719
 BP magnitude : 19.018
 DUPflag : 0
 Distance (au) : 9.025
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -17.09
 Sun-Target sep (deg) : 176.92
 Sun-Moon sep (deg) : 135.94
 B (ring opening deg) : 25.19
 PA of pole (deg) : 6.48
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.265
 C/A sky separation (km) : 1732.3
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

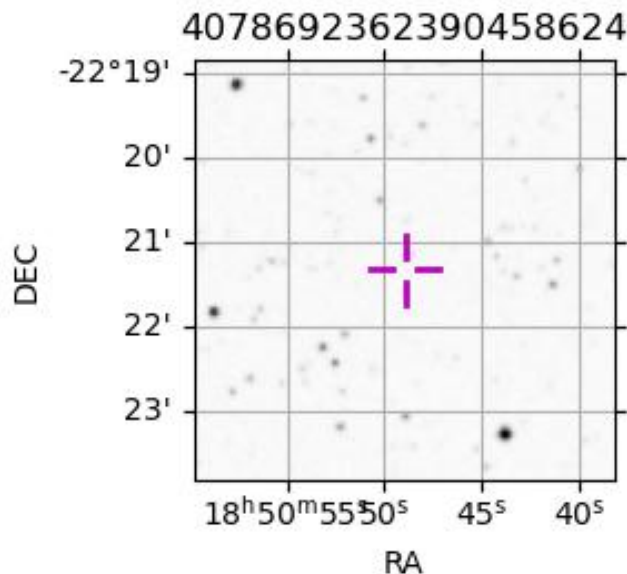
Titan 2048-07-06T20:31:55 K14.43 G18.44 dots 60.0 sec
 Pgt



2048-07-06T20:31:55.7200 cc: 18 50 48.9282 d: -22 21 19.642 C/A 0.264" PA 358.31 deg v_sky -17.08 km/s D 09.02 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

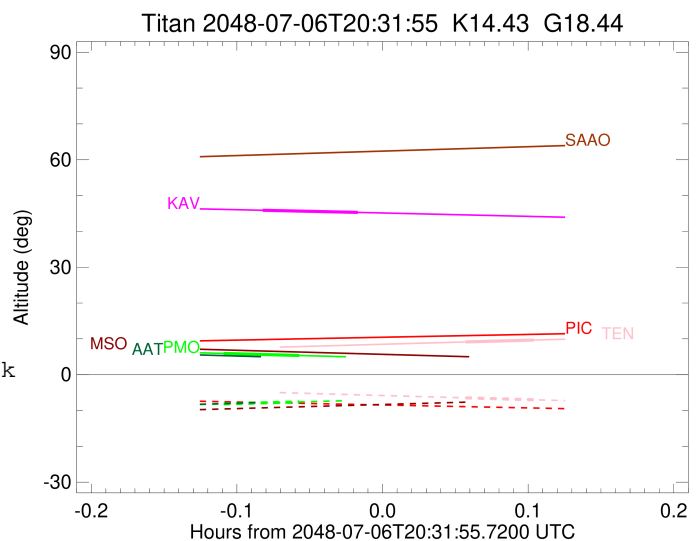
Obs	Location	lat	Elon	Target	Observed Events Interval	OEncode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	JUL 06 20:25 - JUL 06 20:28	Pie
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	JUL 06 20:35 - JUL 06 20:38	Pie
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUL 06 20:26 - JUL 06 20:30	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			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-07-06T20:26:56.220
 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 : 4078692362390458624
 2Mass ID (if available) : 18504892-2221191
 ICRS Star Coord at Epoch: 18h 50m 48.92822s -22:21:19.64210s
 RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.428
 G magnitude : 18.440
 RP magnitude : 17.719
 BP magnitude : 19.018
 DUPflag : 0
 Distance (au) : 9.025
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -17.09
 Sun-Target sep (deg) : 176.92
 Sun-Moon sep (deg) : 136.57
 B (ring opening deg) : 25.19
 PA of pole (deg) : 6.48
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.304
 C/A sky separation (km) : 1990.6
 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

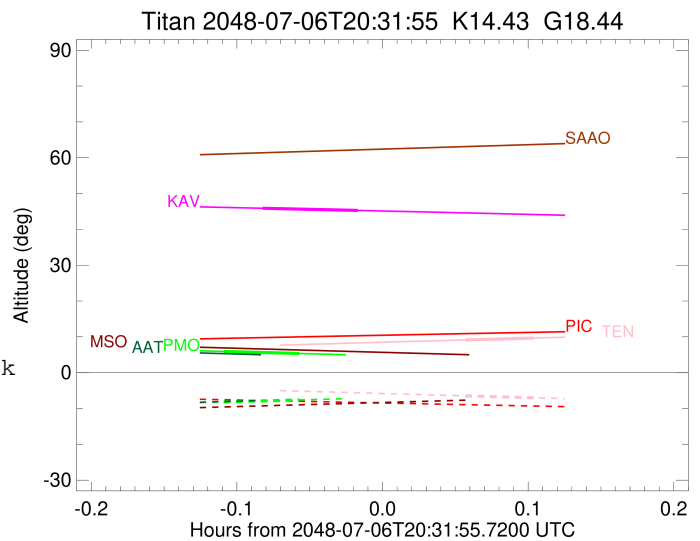
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2048-07-06T20:25:21.446	5.93	-8.17	2575.1	38.07	38.09
Titan	E	2048-07-06T20:28:31.014	5.35	-7.60	2575.1	50.35	50.36



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2048-07-06T20:36:46.060
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Observer code : TEN
 Location : Teide Obs./Tenerife
 Latitude (deg) : 28.30050
 E. Longitude (deg) : 343.48909
 Altitude (km) : 2.395
 Gaia source ID : 4078692362390458624
 2Mass ID (if available) : 18504892-2221191
 ICRS Star Coord at Epoch: 18h 50m 48.92822s -22:21:19.64210s
 RUWE (>1.4 is poor) : 1.09
 K magnitude : 14.428
 G magnitude : 18.440
 RP magnitude : 17.719
 BP magnitude : 19.018
 DUPflag : 0
 Distance (au) : 9.025
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -17.09
 Sun-Target sep (deg) : 176.92
 Sun-Moon sep (deg) : 135.58
 B (ring opening deg) : 25.19
 PA of pole (deg) : 6.48
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.323
 C/A sky separation (km) : 2116.3
 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	2048-07-06T20:35:21.024	9.13	-6.47	2575.1	41.16	41.17
Titan	E	2048-07-06T20:38:11.082	9.67	-7.01	2575.1	54.34	54.36



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-07-06T20:28:57.570
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        : 4078692362390458624
2Mass ID (if available) : 18504892-2221191
ICRS Star Coord at Epoch: 18h 50m 48.92822s -22:21:19.64210s
RUWE (>1.4 is poor)  : 1.09
K magnitude           : 14.428
G magnitude           : 18.440
RP magnitude          : 17.719
BP magnitude          : 19.018
DUPflag              : 0
Distance (au)         : 9.025
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -17.09
Sun-Target sep (deg)  : 176.92
Sun-Moon sep (deg)    : 136.74
B (ring opening deg) : 25.19
PA of pole (deg)     : 6.48
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.233
C/A sky separation (km) : 1524.5
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	2048-07-06T20:26:58.884	45.89	-47.61	2575.1	25.54	25.56
Titan	E	2048-07-06T20:30:56.288	45.28	-47.06	2575.1	39.06	39.08

