

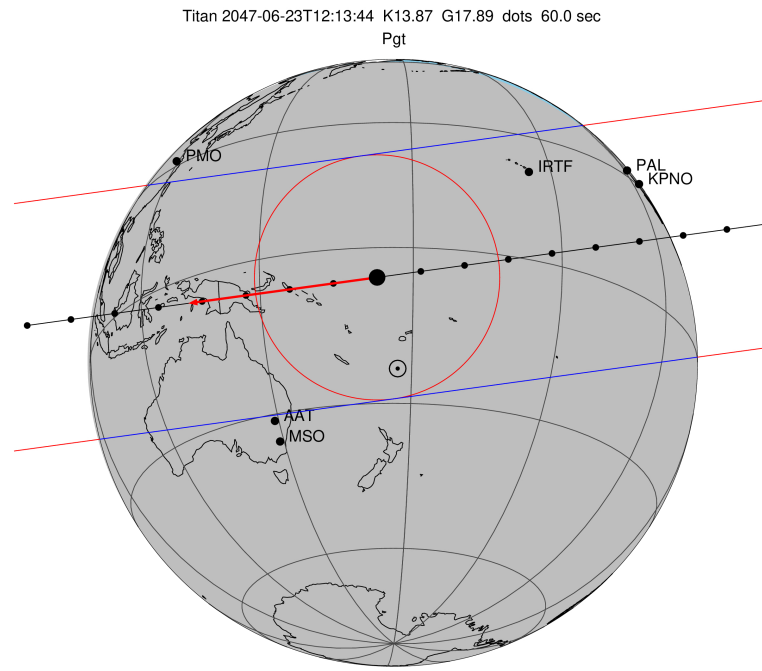
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-23T12:13:44.940
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069867239698780672
 2Mass ID (if available) : 18023946-2220446

ICRS Star Coord at Epoch: 18h 02m 39.44645s -22:20:44.82992s
 RUWE (>1.4 is poor) : 1.37
 K magnitude : 13.872
 G magnitude : 17.891
 RP magnitude : 16.784
 BP magnitude : 19.006
 DUPflag : 0
 Distance (au) : 9.036
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.45
 Sun-Target sep (deg) : 178.70
 Sun-Moon sep (deg) : 177.26
 B (ring opening deg) : 26.36
 PA of pole (deg) : 5.71
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.276
 C/A sky separation (km) : 1811.7
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

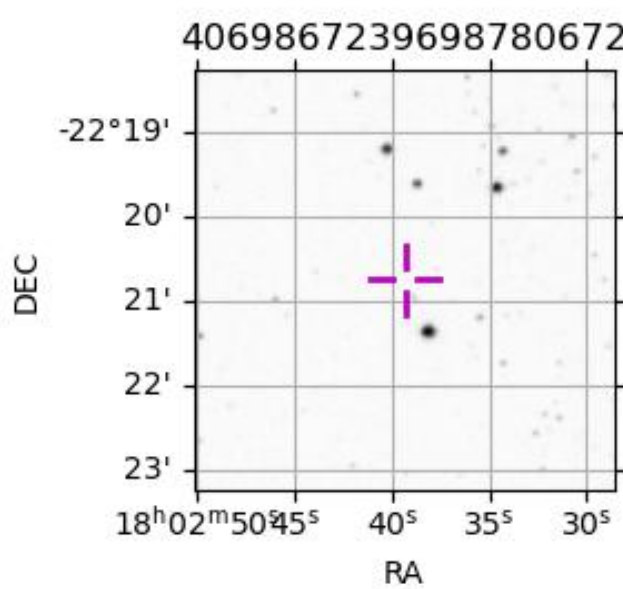
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

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

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	JUN 23 12:05 - JUN 23 12:10	Pie
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	+ +	JUN 23 12:08 - JUN 23 12:12	Pie
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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

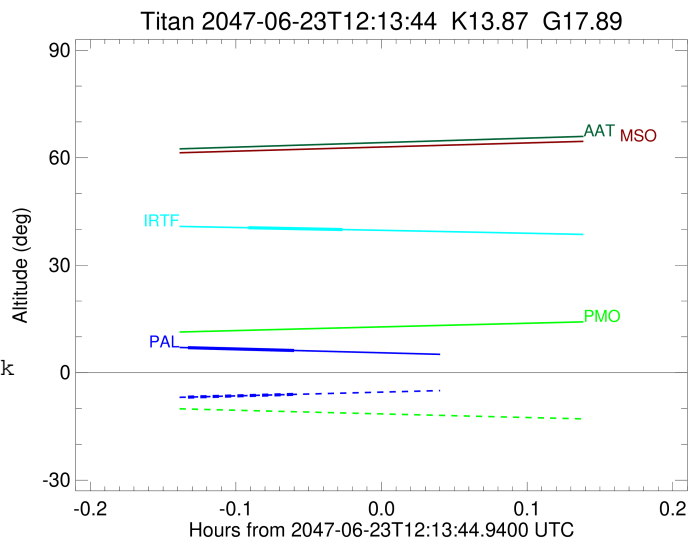


2047-06-23T12:13:44.9400 cc: 18 02 39.4464 d: -22 20 44.830 C/A 0.279" PA 352.17 deg v_sky -15.45 km/s D 09.04 AU
 Credit: Styled after SORA/Lucky Star



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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-23T12:07:57.940
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 4069867239698780672
2Mass ID (if available) : 18023946-2220446
ICRS Star Coord at Epoch: 18h 02m 39.44645s -22:20:44.82992s
RUWE (>1.4 is poor) : 1.37
K magnitude           : 13.872
G magnitude           : 17.891
RP magnitude         : 16.784
BP magnitude         : 19.006
DUPflag              : 0
Distance (au)        : 9.036
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.45
Sun-Target sep (deg) : 178.70
Sun-Moon sep (deg)   : 177.20
B (ring opening deg) : 26.36
PA of pole (deg)     : 5.71
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.234
C/A sky separation (km) : 1535.1
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	2047-06-23T12:05:45.285	6.97	-6.83	2575.2	21.06	21.07
Titan	E	2047-06-23T12:10:10.609	6.19	-6.06	2575.1	42.99	43.00

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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-23T12:10:12.500
Event type          : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code       : IRTF
Location           : Mauna Kea/IRTF
Latitude (deg)     : 19.82622
E. Longitude (deg) : 204.52800
Altitude (km)     : 4.168
Gaia source ID     : 4069867239698780672
2Mass ID (if available) : 18023946-2220446
ICRS Star Coord at Epoch: 18h 02m 39.44645s -22:20:44.82992s
RUWE (>1.4 is poor) : 1.37
K magnitude        : 13.872
G magnitude        : 17.891
RP magnitude       : 16.784
BP magnitude       : 19.006
DUPflag           : 0
Distance (au)     : 9.036
f0 (km)          : 0.00
g0 (km)          : 0.00
skyplane vel. (km/s) : -15.45
Sun-Target sep (deg) : 178.70
Sun-Moon sep (deg) : 177.45
B (ring opening deg) : 26.36
PA of pole (deg) : 5.71
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.271
C/A sky separation (km) : 1777.4
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	2047-06-23T12:08:14.707	40.46	-39.96	2575.1	27.13	27.14
Titan	E	2047-06-23T12:12:10.296	39.94	-39.47	2575.1	48.50	48.51

