

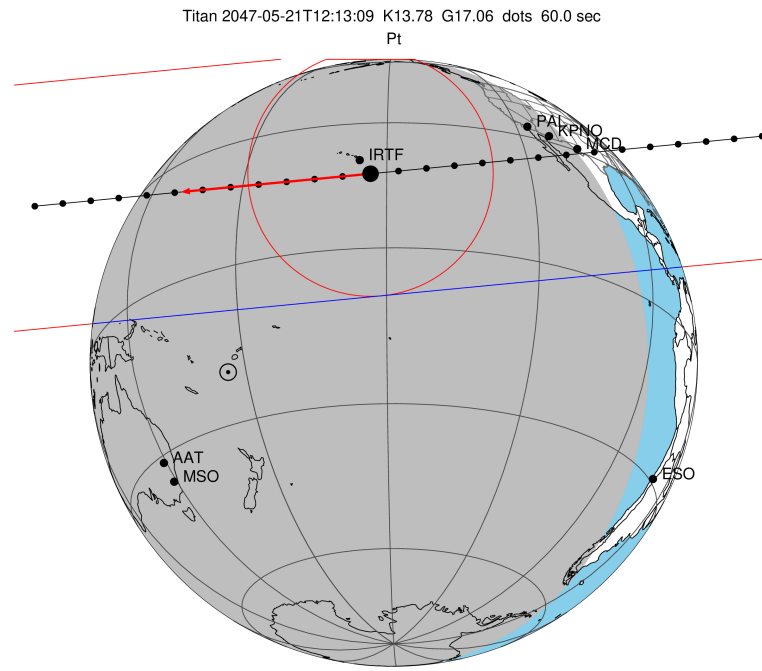
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-05-21T12:13:09.370
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4066728301490455424
 2Mass ID (if available) : 18121307-2217148

ICRS Star Coord at Epoch: 18h 12m 13.08428s -22:17:14.75132s
 RUWE (>1.4 is poor) : 1.18
 K magnitude : 13.781
 G magnitude : 17.063
 RP magnitude : 16.083
 BP magnitude : 17.958
 DUPflag : 0
 Distance (au) : 9.190
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -9.84
 Sun-Target sep (deg) : 146.89
 Sun-Moon sep (deg) : 110.08
 B (ring opening deg) : 26.08
 PA of pole (deg) : 5.88
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.599
 C/A sky separation (km) : 3993.4
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

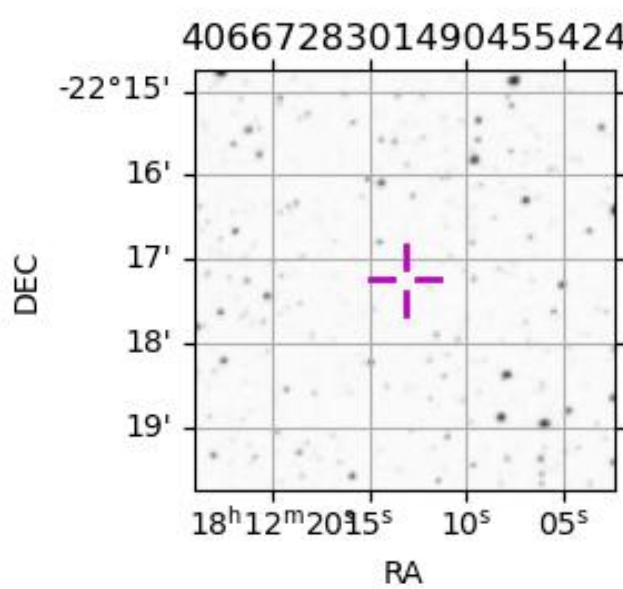
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

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

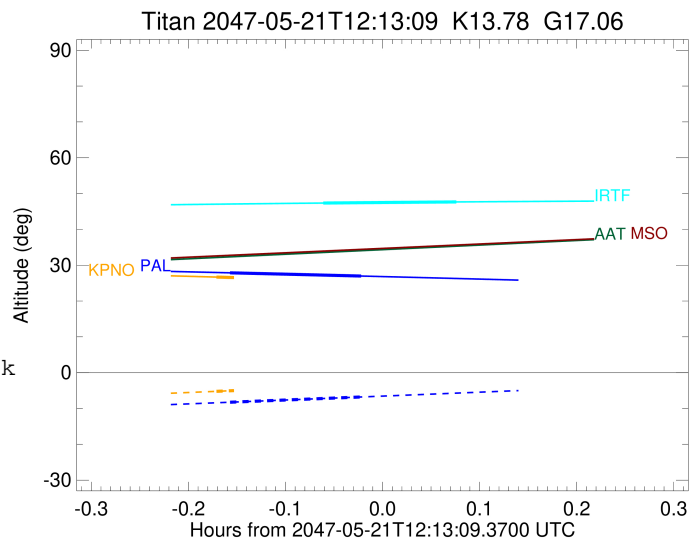
Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	MAY 21 12:03 - MAY 21 12:11	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAY 21 12:02 - MAY 21 12:02	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	MAY 21 12:09 - MAY 21 12:17	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



2047-05-21T12:13:09.3700 α: 18 12 13.0843 δ: -22 17 14.751 C/A 0.600" PA 354.50 deg v_sky - 9.83 km/s D 09.19 AU
 Credit: Styled after SORA/Lucky Star



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-05-21T12:07:45.990
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : 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 : 4066728301490455424
 2Mass ID (if available) : 18121307-2217148
 ICRS Star Coord at Epoch: 18h 12m 13.08428s -22:17:14.75132s
 RUWE (>1.4 is poor) : 1.18
 K magnitude : 13.781
 G magnitude : 17.063
 RP magnitude : 16.083
 BP magnitude : 17.958
 DUPflag : 0
 Distance (au) : 9.190
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -9.84
 Sun-Target sep (deg) : 146.89
 Sun-Moon sep (deg) : 110.63
 B (ring opening deg) : 26.08
 PA of pole (deg) : 5.88
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.102
 C/A sky separation (km) : 680.9
 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	2047-05-21T12:03:41.580	27.87	-8.26	2575.2	4.11	4.11
Titan	E	2047-05-21T12:11:50.464	26.97	-6.79	2575.1	23.27	23.28

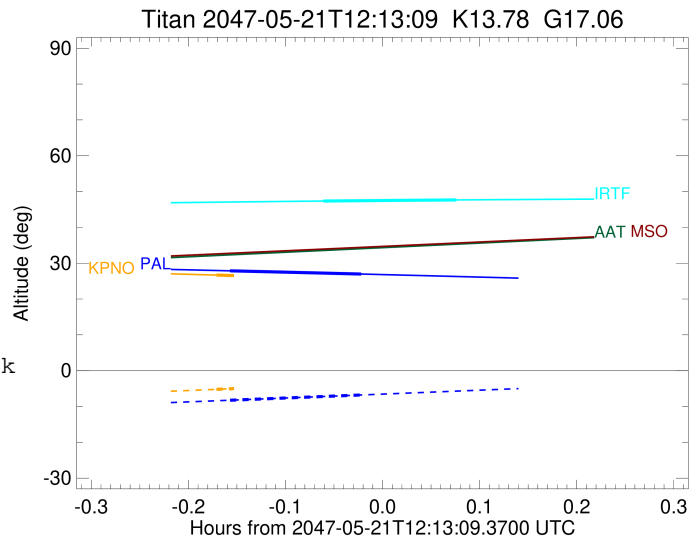
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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-05-21T12:07:02.660
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : KPNO
Location              : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)   : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4066728301490455424
2Mass ID (if available) : 18121307-2217148
ICRS Star Coord at Epoch: 18h 12m 13.08428s -22:17:14.75132s
RUWE (>1.4 is poor) : 1.18
K magnitude           : 13.781
G magnitude           : 17.063
RP magnitude         : 16.083
BP magnitude         : 17.958
DUPflag              : 0
Distance (au)        : 9.190
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.84
Sun-Target sep (deg) : 146.89
Sun-Moon sep (deg)   : 110.63
B (ring opening deg) : 26.08
PA of pole (deg)     : 5.88
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.067
C/A sky separation (km) : 445.2
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	2047-05-21T12:02:52.684	26.68	-5.21	2575.2	-0.66	-0.66
Titan	E	2047-05-21T12:11:12.717	25.62	-3.64x	2575.1	18.47	18.48



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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-05-21T12:13:37.120
Event type           : Pt
: Titan occs: topocentric, not geocentric
: 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       : 4066728301490455424
2Mass ID (if available) : 18121307-2217148
ICRS Star Coord at Epoch: 18h 12m 13.08428s -22:17:14.75132s
RUWE (>1.4 is poor) : 1.18
K magnitude          : 13.781
G magnitude          : 17.063
RP magnitude         : 16.083
BP magnitude         : 17.958
DUPflag             : 0
Distance (au)        : 9.190
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -9.84
Sun-Target sep (deg) : 146.89
Sun-Moon sep (deg)   : 110.69
B (ring opening deg) : 26.08
PA of pole (deg)     : 5.88
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.046
C/A sky separation (km): 307.6
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	2047-05-21T12:09:28.130	47.34	-41.69	2575.2	-3.95	-3.96
Titan	E	2047-05-21T12:17:46.072	47.66	-40.52	2575.1	16.21	16.22

