

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-12T07:41:27.380
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4069684652055534080
 2Mass ID (if available) : 18061423-2221511

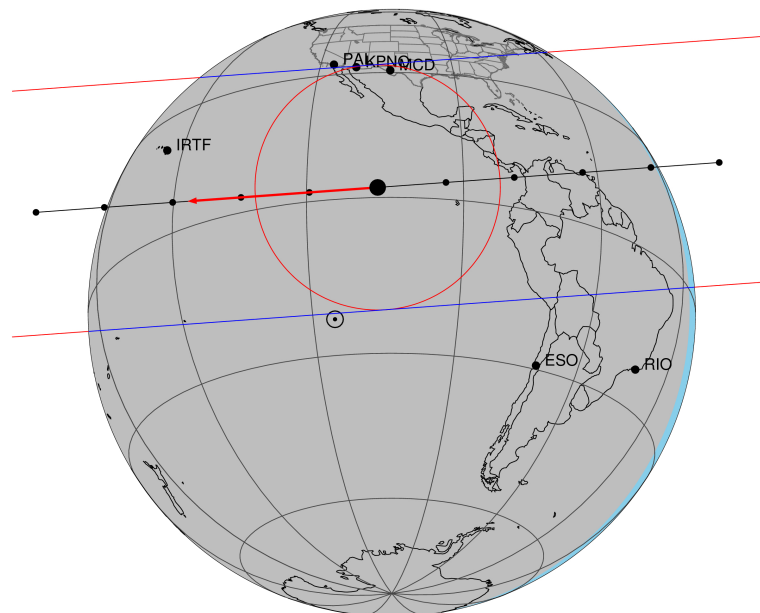
ICRS Star Coord at Epoch: 18h 06m 14.22961s -22:21:51.33706s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 11.761
 G magnitude : 16.107
 RP magnitude : 14.895
 BP magnitude : 17.713
 DUPflag : 0
 Distance (au) : 9.042
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -23.97
 Sun-Target sep (deg) : 169.15
 Sun-Moon sep (deg) : 44.30
 B (ring opening deg) : 26.30
 PA of pole (deg) : 5.78
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.403
 C/A sky separation (km) : 2642.3
 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

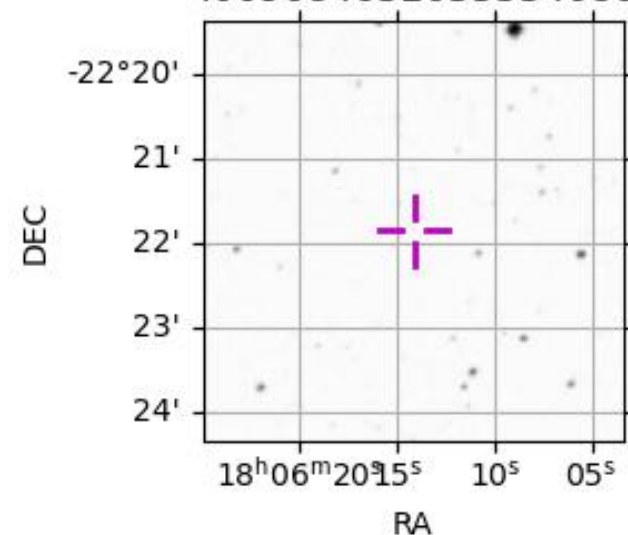
Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUN 12 07:41 - JUN 12 07:41	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUN 12 07:40 - JUN 12 07:41	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JUN 12 07:42 - JUN 12 07:46	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

Titan 2047-06-12T07:41:27 K11.76 G16.11 dots 60.0 sec
 Pt



2047-06-12T07:41:27.3800 cc: 18 06 14.2296 s: -22 21 51.337 C/A 0.404" PA 355.83 deg v_sky -23.97 km/s D 09.04 AU
 Credit: Styled after SORA/Lucky Star

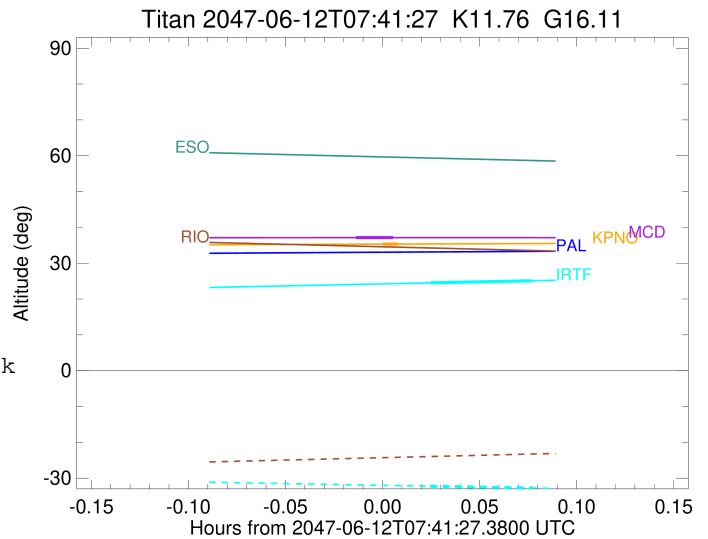
4069684652055534080



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-12T07:41:41.500
 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 : 4069684652055534080
 2Mass ID (if available) : 18061423-2221511
 ICRS Star Coord at Epoch: 18h 06m 14.22961s -22:21:51.33706s
 RUWE (>1.4 is poor) : 0.99
 K magnitude : 11.761
 G magnitude : 16.107
 RP magnitude : 14.895
 BP magnitude : 17.713
 DUPflag : 0
 Distance (au) : 9.042
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -23.97
 Sun-Target sep (deg) : 169.15
 Sun-Moon sep (deg) : 44.73
 B (ring opening deg) : 26.30
 PA of pole (deg) : 5.78
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.388
 C/A sky separation (km) : 2546.9
 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	2047-06-12T07:41:25.917	35.32	-34.94	2575.0	58.28	58.29
Titan	E	2047-06-12T07:41:57.089	35.34	-34.93	2575.1	63.66	63.68



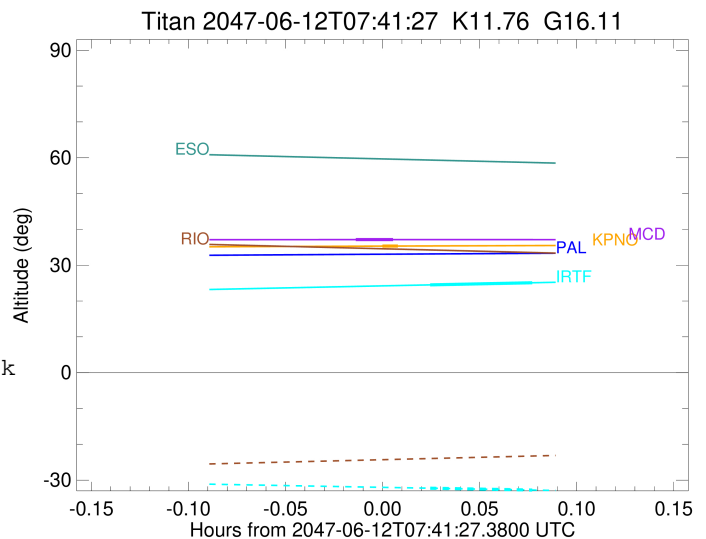
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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-06-12T07:41:12.590
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : MCD
Location              : McDonald Obs. 2.7m
Latitude (deg)        : 30.67158
E. Longitude (deg)    : 255.97844
Altitude (km)         : 2.075
Gaia source ID        : 4069684652055534080
2Mass ID (if available) : 18061423-2221511
ICRS Star Coord at Epoch: 18h 06m 14.22961s -22:21:51.33706s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 11.761
G magnitude           : 16.107
RP magnitude          : 14.895
BP magnitude          : 17.713
DUPflag              : 0
Distance (au)         : 9.042
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -23.97
Sun-Target sep (deg)  : 169.15
Sun-Moon sep (deg)    : 44.68
B (ring opening deg)  : 26.30
PA of pole (deg)      : 5.78
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.370
C/A sky separation (km) : 2426.8
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	2047-06-12T07:40:37.249	37.14	-35.29	2575.1	51.34	51.35
Titan	E	2047-06-12T07:41:47.922	37.14	-35.23	2575.1	62.11	62.12



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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-06-12T07:44:30.220
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        : 4069684652055534080
2Mass ID (if available) : 18061423-2221511
ICRS Star Coord at Epoch: 18h 06m 14.22961s -22:21:51.33706s
RUWE (>1.4 is poor) : 0.99
K magnitude           : 11.761
G magnitude           : 16.107
RP magnitude          : 14.895
BP magnitude          : 17.713
DUPflag              : 0
Distance (au)         : 9.042
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -23.97
Sun-Target sep (deg) : 169.15
Sun-Moon sep (deg)   : 45.05
B (ring opening deg) : 26.30
PA of pole (deg)     : 5.78
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.173
C/A sky separation (km) : 1137.0
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

```

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	2047-06-12T07:42:54.973	24.50	-32.25	2575.2	14.30	14.31
Titan	E	2047-06-12T07:46:05.457	25.09	-32.77	2575.1	32.15	32.16

