

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2045-03-14T12:43:02.370
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4130311620113039744
 2Mass ID (if available) : 16392205-2012311

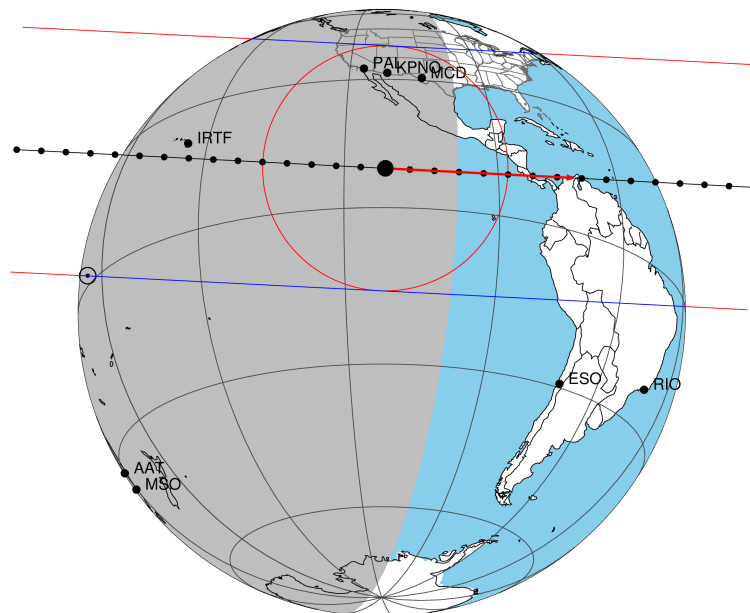
ICRS Star Coord at Epoch: 16h 39m 22.02779s -20:12:31.36468s
 RUWE (>1.4 is poor) : 1.03
 K magnitude : 13.810
 G magnitude : 16.132
 RP magnitude : 15.379
 BP magnitude : 16.745
 DUPflag : 0
 Distance (au) : 9.734
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 8.60
 Sun-Target sep (deg) : 102.58
 Sun-Moon sep (deg) : 56.26
 B (ring opening deg) : 25.84
 PA of pole (deg) : 3.69
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.429
 C/A sky separation (km) : 3029.4
 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	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	MAR 14 12:38 - MAR 14 12:44	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAR 14 12:39 - MAR 14 12:46	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 14 12:40 - MAR 14 12:40	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	MAR 14 12:29 - MAR 14 12:39	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

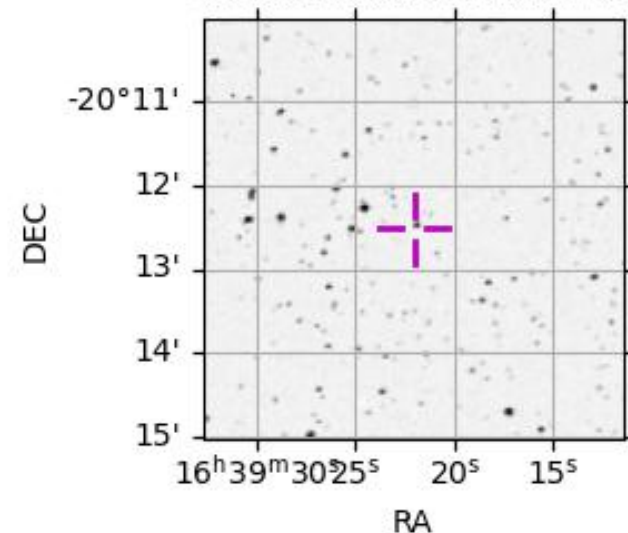
Titan 2045-03-14T12:43:02 K13.81 G16.13 dots 60.0 sec
 Pt



2045-03-14T12:43:02.3700 α: 16 39 22.0278 δ: -20 12 31.365 C/A 0.430" PA 2.93 deg v_sky + 8.61 km/s D 09.73 AU

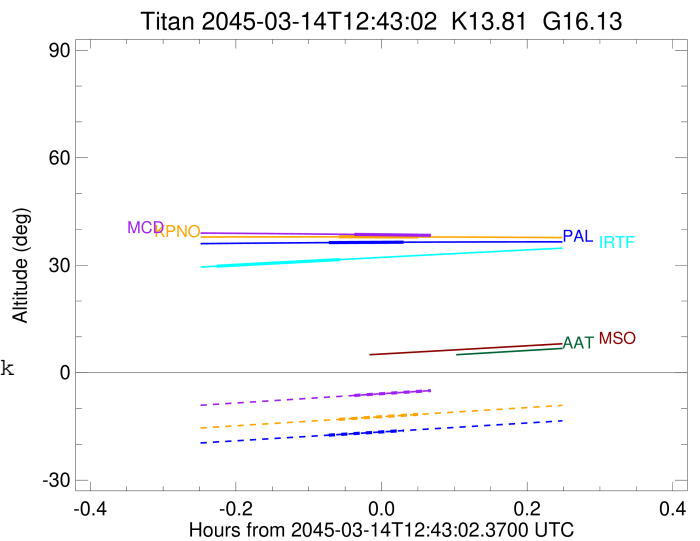
Credit: Styled after SORA/Lucky Star

4130311620113039744



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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2045-03-14T12:41:46.700
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       : 4130311620113039744
2Mass ID (if available) : 16392205-2012311
ICRS Star Coord at Epoch: 16h 39m 22.02779s -20:12:31.36468s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 13.810
G magnitude           : 16.132
RP magnitude          : 15.379
BP magnitude          : 16.745
DUPflag              : 0
Distance (au)         : 9.734
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.60
Sun-Target sep (deg) : 102.58
Sun-Moon sep (deg)   : 56.81
B (ring opening deg) : 25.84
PA of pole (deg)     : 3.69
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.292
C/A sky separation (km): 2062.5
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
    
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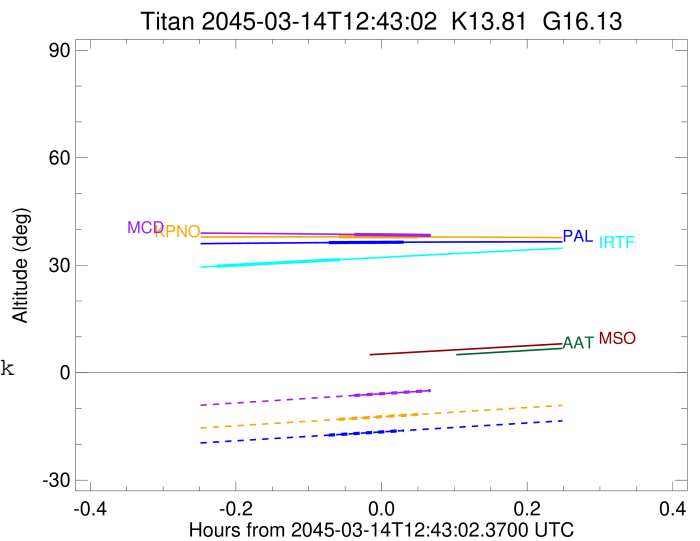


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2045-03-14T12:38:39.178	36.30	-17.45	2575.1	46.56	46.58
Titan	E	2045-03-14T12:44:54.266	36.41	-16.15	2575.1	45.69	45.71

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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2045-03-14T12:42:47.300
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       : 4130311620113039744
2Mass ID (if available) : 16392205-2012311
ICRS Star Coord at Epoch: 16h 39m 22.02779s -20:12:31.36468s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 13.810
G magnitude           : 16.132
RP magnitude          : 15.379
BP magnitude          : 16.745
DUPflag              : 0
Distance (au)         : 9.734
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.60
Sun-Target sep (deg) : 102.58
Sun-Moon sep (deg)   : 56.79
B (ring opening deg) : 25.84
PA of pole (deg)     : 3.69
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.283
C/A sky separation (km) : 1999.0
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	2045-03-14T12:39:29.642	37.91	-13.04	2575.1	44.83	44.84
Titan	E	2045-03-14T12:46:05.003	37.88	-11.65	2575.1	43.81	43.82

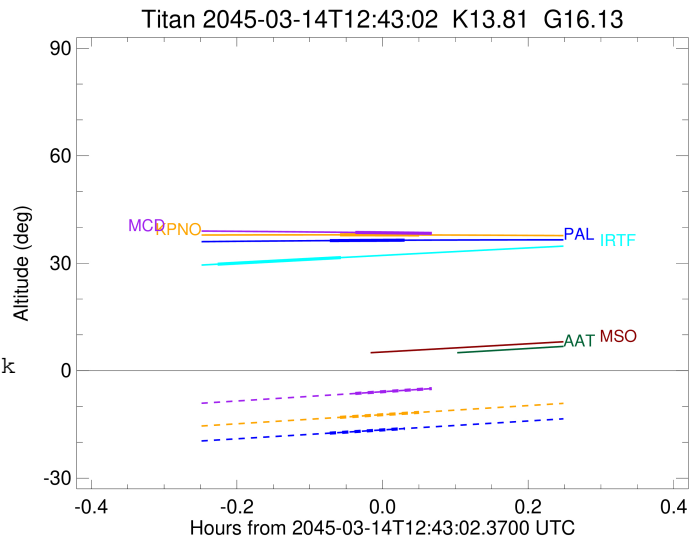
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2045-03-14T12:44:16.650
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        : 4130311620113039744
2Mass ID (if available) : 16392205-2012311
ICRS Star Coord at Epoch: 16h 39m 22.02779s -20:12:31.36468s
RUWE (>1.4 is poor) : 1.03
K magnitude           : 13.810
G magnitude           : 16.132
RP magnitude          : 15.379
BP magnitude          : 16.745
DUPflag              : 0
Distance (au)         : 9.734
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 8.60
Sun-Target sep (deg) : 102.58
Sun-Moon sep (deg)   : 56.74
B (ring opening deg) : 25.84
PA of pole (deg)     : 3.69
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.272
C/A sky separation (km) : 1922.0
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	2045-03-14T12:40:47.921	38.59	-6.36	2575.0	42.82	42.84
Titan	E	2045-03-14T12:47:45.408	38.30	-4.86x	2575.1	41.58	41.59



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2045-03-14T12:34:32.000
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       : 4130311620113039744
2Mass ID (if available) : 16392205-2012311
ICRS Star Coord at Epoch: 16h 39m 22.02779s -20:12:31.36468s
RUWE (>1.4 is poor) : 1.03
K magnitude          : 13.810
G magnitude          : 16.132
RP magnitude         : 15.379
BP magnitude         : 16.745
DUPflag             : 0
Distance (au)        : 9.734
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 8.60
Sun-Target sep (deg) : 102.58
Sun-Moon sep (deg)  : 57.02
B (ring opening deg) : 25.84
PA of pole (deg)    : 3.69
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.038
C/A sky separation (km) : 267.2
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	2045-03-14T12:29:23.835	29.71	-56.19	2575.1	5.31	5.31
Titan	E	2045-03-14T12:39:40.531	31.57	-54.02	2575.1	5.39	5.40

