

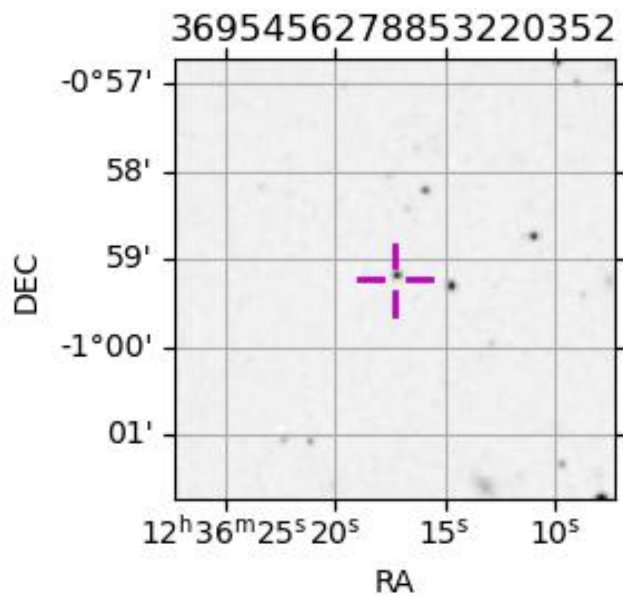
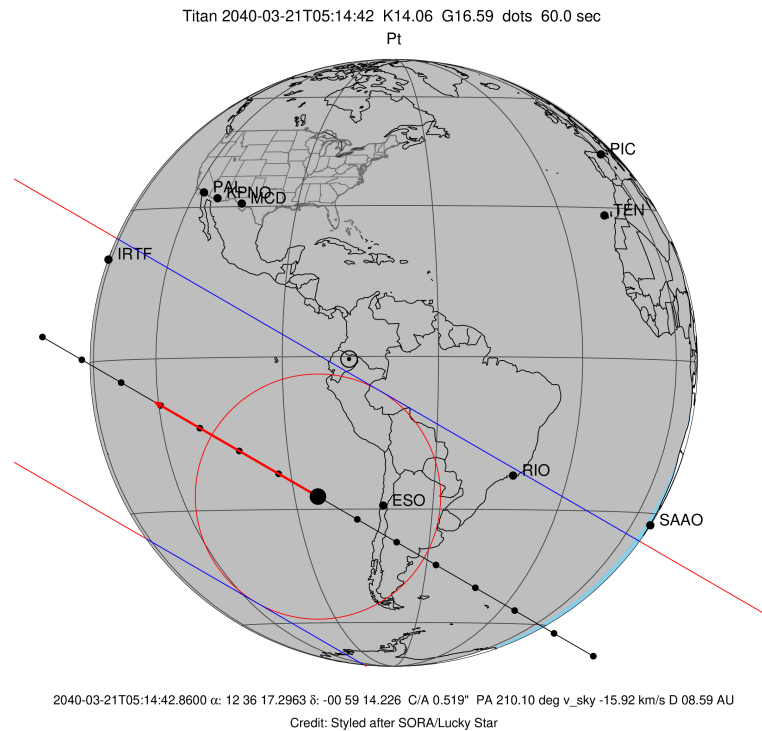
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2040-03-21T05:14:42.860
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 3695456278853220352
 2Mass ID (if available) : 12361728-0059135

ICRS Star Coord at Epoch: 12h 36m 17.29625s -00:59:14.22607s
 RUWE (>1.4 is poor) : 1.02
 K magnitude : 14.063
 G magnitude : 16.590
 RP magnitude : 15.756
 BP magnitude : 17.349
 DUPflag : 0
 Distance (au) : 8.589
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.92
 Sun-Target sep (deg) : 171.49
 Sun-Moon sep (deg) : 92.88
 B (ring opening deg) : 6.65
 PA of pole (deg) : -3.34
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.519
 C/A sky separation (km) : 3233.3
 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	OCode
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			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			Pnn
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	MAR 21 05:10 - MAR 21 05:12	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAR 21 05:10 - MAR 21 05:15	Pie
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



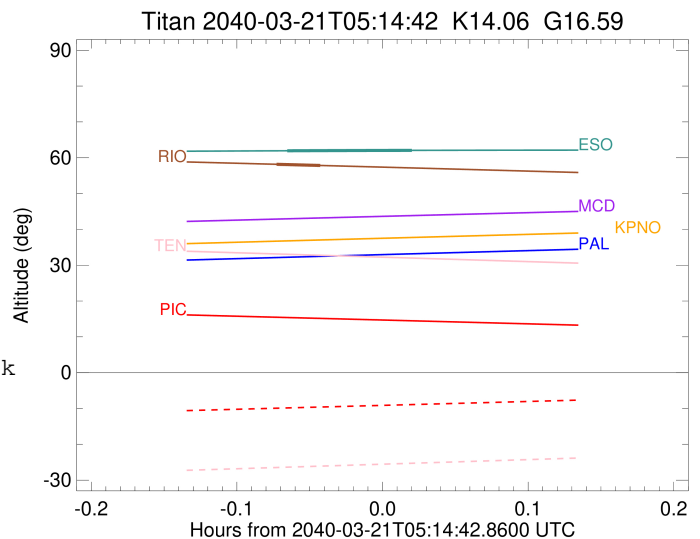
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2040-03-21T05:11:15.190
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : RIO
Location             : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)  : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 3695456278853220352
2Mass ID (if available) : 12361728-0059135
ICRS Star Coord at Epoch: 12h 36m 17.29625s -00:59:14.22607s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.063
G magnitude           : 16.590
RP magnitude          : 15.756
BP magnitude          : 17.349
DUPflag              : 0
Distance (au)         : 8.589
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.92
Sun-Target sep (deg) : 171.49
Sun-Moon sep (deg)   : 93.61
B (ring opening deg) : 6.65
PA of pole (deg)     : -3.34
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.387
C/A sky separation (km) : 2412.6
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

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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	2040-03-21T05:10:19.789	58.16	-51.26	2575.2	76.03	76.04
Titan	E	2040-03-21T05:12:10.583	57.83	-50.90	2575.2	36.47	36.48



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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2040-03-21T05:13:22.410
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : ESO
Location              : European Southern Obs. (3.6m)
Latitude (deg)        : -29.26097
E. Longitude (deg)    : 289.26831
Altitude (km)         : 2.400
Gaia source ID        : 3695456278853220352
2Mass ID (if available) : 12361728-0059135
ICRS Star Coord at Epoch: 12h 36m 17.29625s -00:59:14.22607s
RUWE (>1.4 is poor) : 1.02
K magnitude           : 14.063
G magnitude           : 16.590
RP magnitude          : 15.756
BP magnitude          : 17.349
DUPflag              : 0
Distance (au)         : 8.589
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.92
Sun-Target sep (deg)  : 171.49
Sun-Moon sep (deg)    : 93.66
B (ring opening deg) : 6.65
PA of pole (deg)      : -3.34
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.084
C/A sky separation (km) : 525.1
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	2040-03-21T05:10:47.428	61.94	-60.95	2575.1	44.12	44.13
Titan	E	2040-03-21T05:15:57.364	62.05	-60.72	2575.2	-20.82	-20.83

