

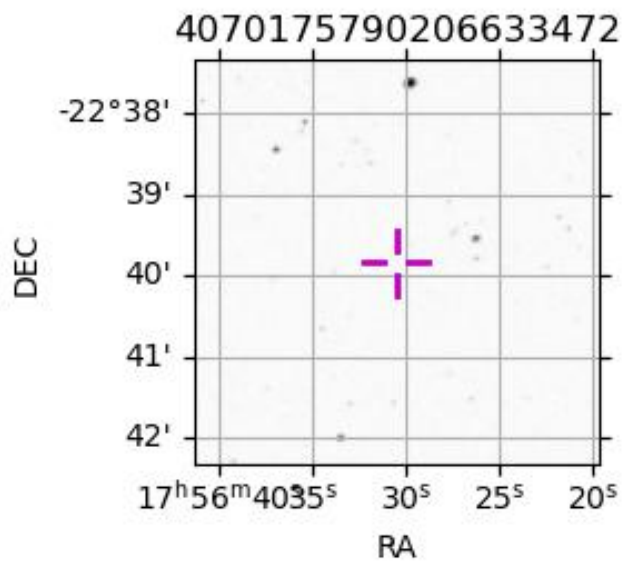
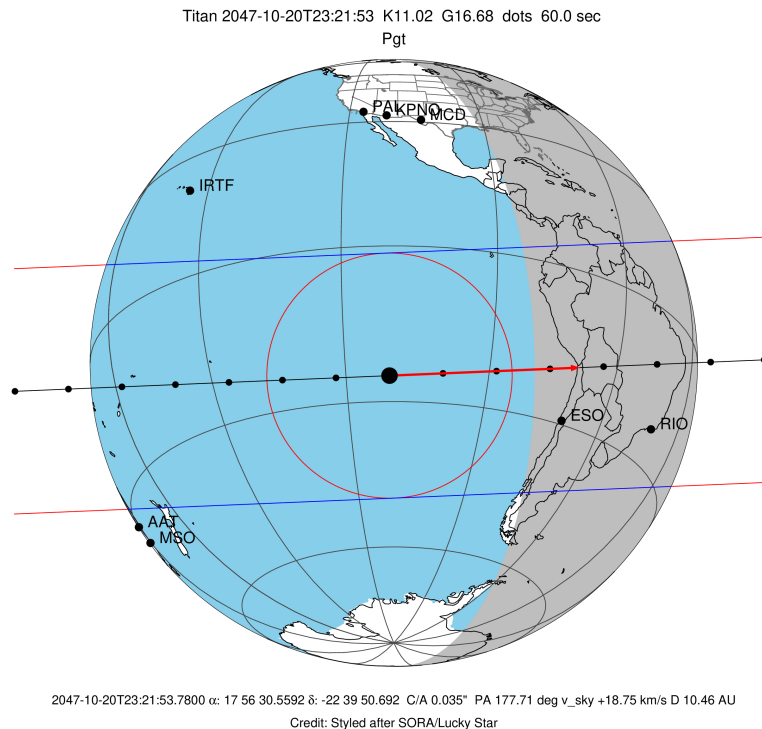
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-10-20T23:21:53.780
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4070175790206633472
 2Mass ID (if available) : 17563056-2239503

ICRS Star Coord at Epoch: 17h 56m 30.55923s -22:39:50.69213s
 RUWE (>1.4 is poor) : 0.98
 K magnitude : 11.015
 G magnitude : 16.679
 RP magnitude : 15.300
 BP magnitude : 18.790
 DUPflag : 0
 Distance (au) : 10.462
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 18.75
 Sun-Target sep (deg) : 62.37
 Sun-Moon sep (deg) : 36.61
 B (ring opening deg) : 26.82
 PA of pole (deg) : 5.61
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.036
 C/A sky separation (km) : 270.3
 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			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	+ +	OCT 20 23:24 - OCT 20 23:28	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	OCT 20 23:22 - OCT 20 23:27	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



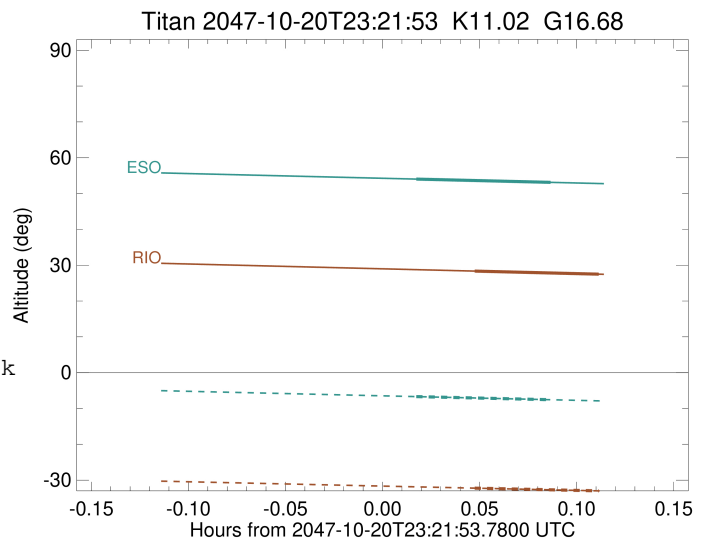
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-10-20T23:26:39.900
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : RIO
Location             : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)  : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 4070175790206633472
2Mass ID (if available) : 17563056-2239503
ICRS Star Coord at Epoch: 17h 56m 30.55923s -22:39:50.69213s
RUWE (>1.4 is poor) : 0.98
K magnitude          : 11.015
G magnitude          : 16.679
RP magnitude         : 15.300
BP magnitude         : 18.790
DUPflag             : 0
Distance (au)        : 10.462
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 18.75
Sun-Target sep (deg) : 62.37
Sun-Moon sep (deg)  : 37.57
B (ring opening deg) : 26.82
PA of pole (deg)    : 5.61
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.186
C/A sky separation (km) : 1410.9
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

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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	2047-10-20T23:24:44.043	28.35	-32.23	2575.1	-21.90	-21.91
Titan	E	2047-10-20T23:28:35.712	27.49	-33.00	2575.1	-36.45	-36.47



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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-10-20T23:25:01.350
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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       : 4070175790206633472
2Mass ID (if available) : 17563056-2239503
ICRS Star Coord at Epoch: 17h 56m 30.55923s -22:39:50.69213s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 11.015
G magnitude           : 16.679
RP magnitude          : 15.300
BP magnitude          : 18.790
DUPflag              : 0
Distance (au)        : 10.462
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 18.75
Sun-Target sep (deg) : 62.37
Sun-Moon sep (deg)   : 37.54
B (ring opening deg) : 26.82
PA of pole (deg)     : 5.61
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.147
C/A sky separation (km) : 1114.8
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

```

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	2047-10-20T23:22:55.463	54.03	-6.68	2575.1	-15.37	-15.37
Titan	E	2047-10-20T23:27:07.194	53.11	-7.56	2575.1	-29.96	-29.98

