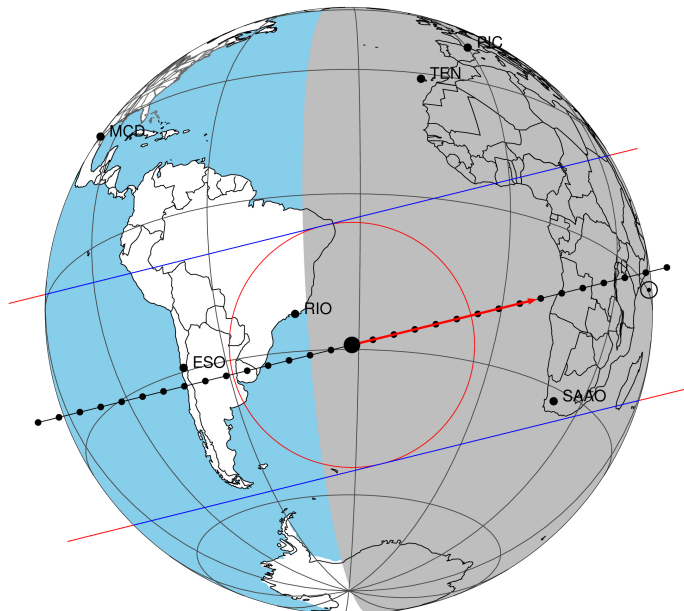


target : Titan
target radius (km) : 2575.15
C/A epoch : 2048-09-23T20:35:55.330
Event type : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Gaia source ID : 4079213672667168896
2Mass ID (if available) : 18375384-2244226

ICRS Star Coord at Epoch: 18h 37m 53.89862s -22:44:22.11866s
RUWE (>1.4 is poor) : 0.00
K magnitude : 12.132
G magnitude : 16.842
RP magnitude : 0.000
BP magnitude : 0.000
DUPflag : 0
Distance (au) : 9.845
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : 7.55
Sun-Target sep (deg) : 97.92
Sun-Moon sep (deg) : 102.18
B (ring opening deg) : 25.90
PA of pole (deg) : 6.33
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.102
C/A sky separation (km) : 730.3
NAIF SPICE kernels : RAJobs_U111+rgf16.spk

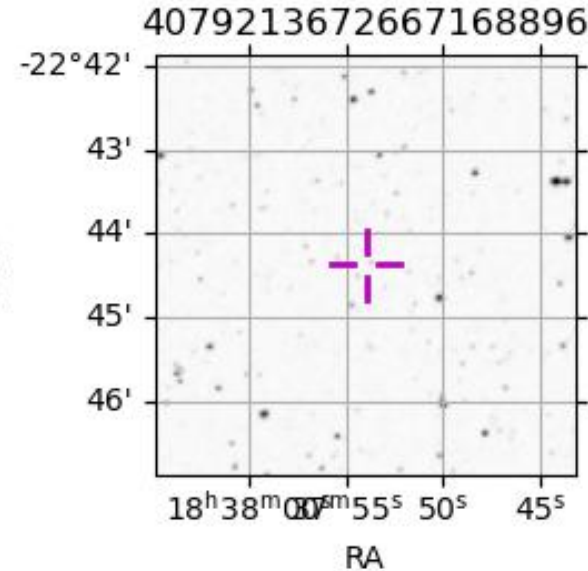
Titan 2048-09-23T20:35:55 K12.13 G16.84 dots 60.0 sec
Pgt



2048-09-23T20:35:55.330000 α: 18 37 53.8986 δ: -22 44 22.119 C/A 0.100" PA 166.14 deg v_sky + 7.56 km/s D 09.85 AU
Credit: Styled after SORA/Lucky Star

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

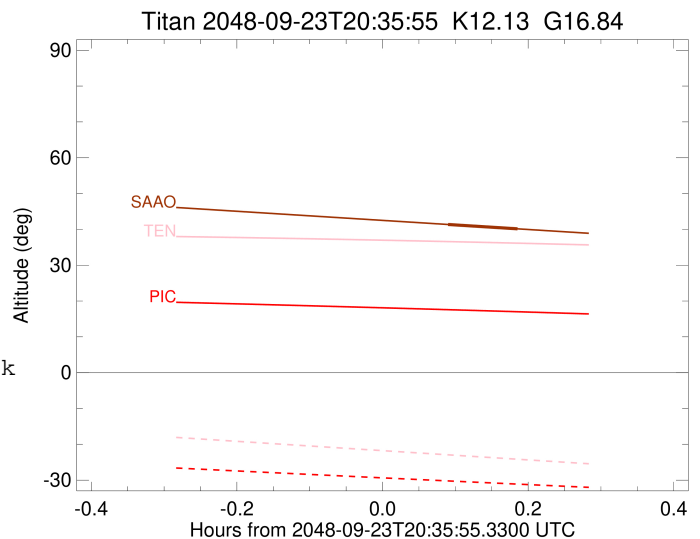
Obs	Location	lat	Elon	Target	Observed Events	Interval	OEcode
PIC	Pic du Midi	42.9	0.1				Pnn
PAL	Palomar Mt (200")	33.4	243.1				Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8				Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4				Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0				Pnn
TEN	Teide Obs./Tenerife	28.3	343.5				Pnn
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				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	+ +	SEP 23 20:41 - SEP 23 20:47		Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0				Pnn



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2048-09-23T20:44:12.660
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : SAAO
Location             : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)       : -32.37953
E. Longitude (deg)   : 20.81070
Altitude (km)        : 1.768
Gaia source ID       : 4079213672667168896
2Mass ID (if available) : 18375384-2244226
ICRS Star Coord at Epoch: 18h 37m 53.89862s -22:44:22.11866s
RUWE (>1.4 is poor) : 0.00
K magnitude           : 12.132
G magnitude           : 16.842
RP magnitude         : 0.000
BP magnitude         : 0.000
DUPflag              : 0
Distance (au)        : 9.845
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 7.55
Sun-Target sep (deg) : 97.92
Sun-Moon sep (deg)   : 102.93
B (ring opening deg) : 25.90
PA of pole (deg)     : 6.33
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.313
C/A sky separation (km) : 2233.0
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	2048-09-23T20:41:18.776	41.36	-48.54	2575.1	-34.16	-34.17
Titan	E	2048-09-23T20:47:06.329	40.14	-49.36	2575.1	-62.87	-62.88