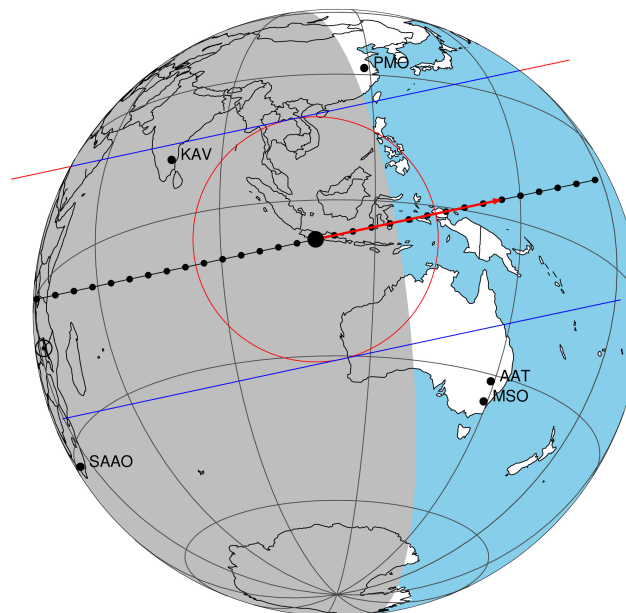


target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2048-04-18T21:47:09.500  
 Event type : Pgt  
 : Titan occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4081590881199774336  
 2Mass ID (if available) : 19055372-2156216

ICRS Star Coord at Epoch: 19h 05m 53.71679s -21:56:21.67351s  
 RUWE (>1.4 is poor) : 0.97  
 K magnitude : 14.810  
 G magnitude : 16.930  
 RP magnitude : 16.247  
 BP magnitude : 17.463  
 DUPflag : 0  
 Distance (au) : 9.762  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 6.65  
 Sun-Target sep (deg) : 103.61  
 Sun-Moon sep (deg) : 165.90  
 B (ring opening deg) : 24.37  
 PA of pole (deg) : 6.64  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.225  
 C/A sky separation (km) : 1591.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf16.spk

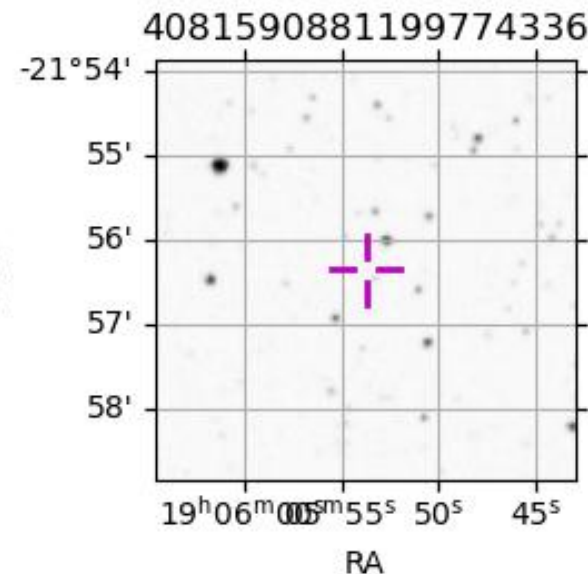
Titan 2048-04-18T21:47:09 K14.81 G16.93 dots 60.0 sec  
 Pgt



2048-04-18T21:47:09.5000 cc: 19 05 53.7168 s: -21 56 21.674 C/A 0.226" PA 347.94 deg v\_sky + 6.66 km/s D 09.76 AU  
 Credit: Styled after SORA/Lucky Star

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

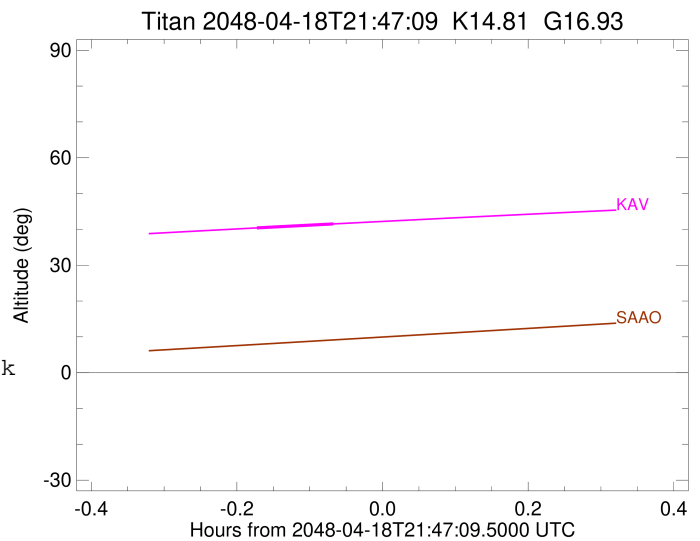
Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	APR 18 21:36 - APR 18 21:43	Pie
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



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2048-04-18T21:39:57.600
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)  : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 4081590881199774336
2Mass ID (if available) : 19055372-2156216
ICRS Star Coord at Epoch: 19h 05m 53.71679s -21:56:21.67351s
RUWE (>1.4 is poor) : 0.97
K magnitude          : 14.810
G magnitude          : 16.930
RP magnitude         : 16.247
BP magnitude         : 17.463
DUPflag             : 0
Distance (au)        : 9.762
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 6.65
Sun-Target sep (deg) : 103.61
Sun-Moon sep (deg)  : 165.63
B (ring opening deg) : 24.37
PA of pole (deg)    : 6.64
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.322
C/A sky separation (km): 2277.0
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	2048-04-18T21:36:45.924	40.40	-40.90	2575.1	64.03	64.04
Titan	E	2048-04-18T21:43:09.332	41.52	-39.50	2575.1	38.89	38.90