

target : Titan  
 target radius (km) : 2575.15  
 C/A epoch : 2032-10-01T10:27:22.640  
 Event type : Pgt  
 : Titan occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 3376441402489445248  
 2Mass ID (if available) : 06280426+2217250

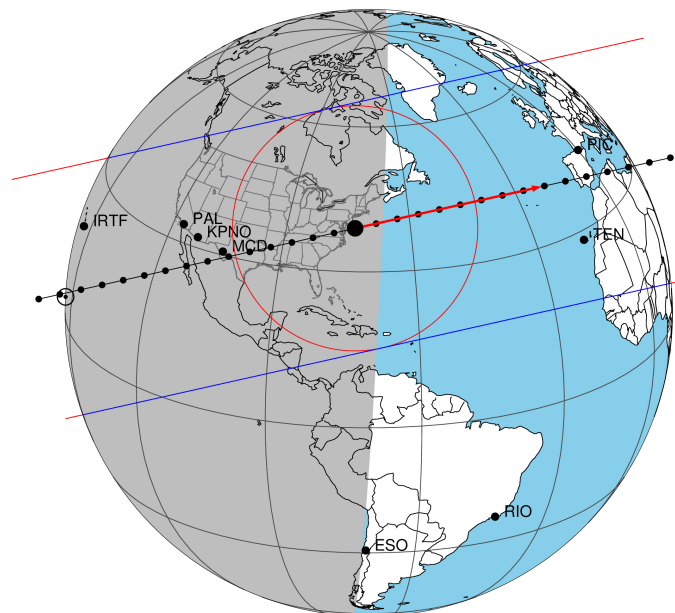
ICRS Star Coord at Epoch: 06h 28m 04.23903s +22:17:24.79201s  
 RUWE (>1.4 is poor) : 2.72  
 K magnitude : 14.291  
 G magnitude : 17.627  
 RP magnitude : 16.463  
 BP magnitude : 18.264  
 DUPflag : 0  
 Distance (au) : 8.925  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 7.55  
 Sun-Target sep (deg) : 91.85  
 Sun-Moon sep (deg) : 57.65  
 B (ring opening deg) : -25.70  
 PA of pole (deg) : -6.15  
 Pole direction: RA (deg): 39.48270  
 Dec (deg): 83.42790  
 C/A sky separation (") : 0.281  
 C/A sky separation (km) : 1817.5  
 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

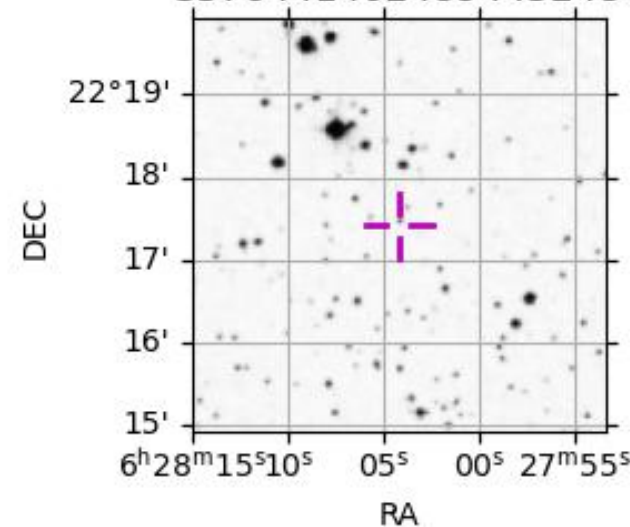
Obs	Location	lat	Elon	Target	Observed Events Interval	Ocode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	OCT 01 10:14 - OCT 01 10:25	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	OCT 01 10:14 - OCT 01 10:25	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	OCT 01 10:15 - OCT 01 10:27	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	OCT 01 10:10 - OCT 01 10:20	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 2032-10-01T10:27:22 K14.29 G17.63 dots 60.0 sec  
 Pgt



2032-10-01T10:27:22.6400 α: 06 28 04.2390 δ: +22 17 24.792 C/A 0.277" PA 347.37 deg v\_sky + 7.55 km/s D 08.92 AU  
 Credit: Styled after SORA/Lucky Star

3376441402489445248



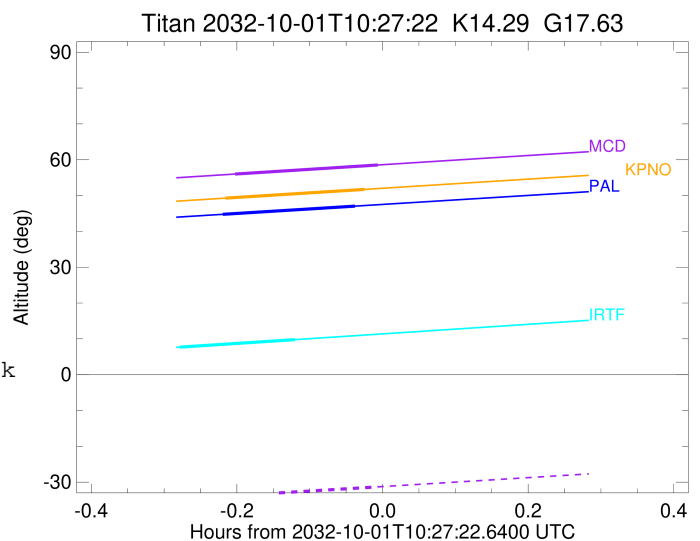
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2032-10-01T10:19:41.020
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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        : 3376441402489445248
2Mass ID (if available) : 06280426+2217250
ICRS Star Coord at Epoch: 06h 28m 04.23903s +22:17:24.79201s
RUWE (>1.4 is poor)  : 2.72
K magnitude           : 14.291
G magnitude           : 17.627
RP magnitude          : 16.463
BP magnitude          : 18.264
DUPflag              : 0
Distance (au)         : 8.925
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 7.55
Sun-Target sep (deg)  : 91.85
Sun-Moon sep (deg)   : 58.52
B (ring opening deg) : -25.70
PA of pole (deg)     : -6.15
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.138
C/A sky separation (km) : 896.0
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	2032-10-01T10:14:12.455	44.75	-42.81	2575.1	25.11	25.12
Titan	E	2032-10-01T10:25:10.348	47.05	-40.81	2575.1	11.36	11.36



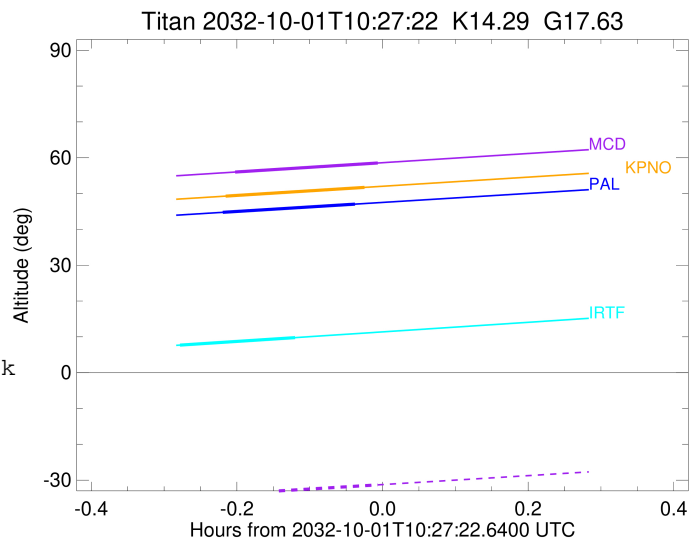
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2032-10-01T10:20:09.540
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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        : 3376441402489445248
2Mass ID (if available) : 06280426+2217250
ICRS Star Coord at Epoch: 06h 28m 04.23903s +22:17:24.79201s
RUWE (>1.4 is poor) : 2.72
K magnitude           : 14.291
G magnitude           : 17.627
RP magnitude          : 16.463
BP magnitude          : 18.264
DUPflag              : 0
Distance (au)         : 8.925
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 7.55
Sun-Target sep (deg) : 91.85
Sun-Moon sep (deg)   : 58.53
B (ring opening deg) : -25.70
PA of pole (deg)     : -6.15
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.087
C/A sky separation (km) : 560.2
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	2032-10-01T10:14:25.953	49.27	-39.47	2575.1	18.21	18.22
Titan	E	2032-10-01T10:25:53.943	51.71	-37.24	2575.2	4.35	4.35



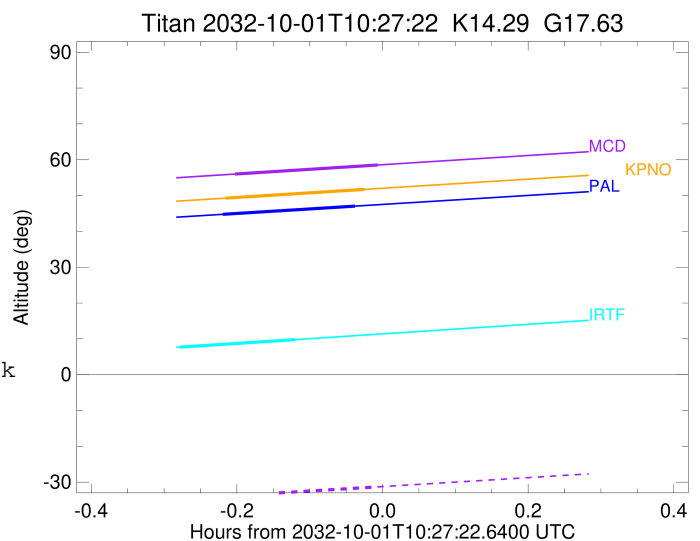
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2032-10-01T10:21:07.460
Event type           : Pgt
: Titan occs: geocentric, topocentric
: 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       : 3376441402489445248
2Mass ID (if available) : 06280426+2217250
ICRS Star Coord at Epoch: 06h 28m 04.23903s +22:17:24.79201s
RUWE (>1.4 is poor) : 2.72
K magnitude           : 14.291
G magnitude           : 17.627
RP magnitude          : 16.463
BP magnitude          : 18.264
DUPflag              : 0
Distance (au)        : 8.925
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 7.55
Sun-Target sep (deg) : 91.85
Sun-Moon sep (deg)   : 58.54
B (ring opening deg) : -25.70
PA of pole (deg)     : -6.15
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.022
C/A sky separation (km) : 140.0
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

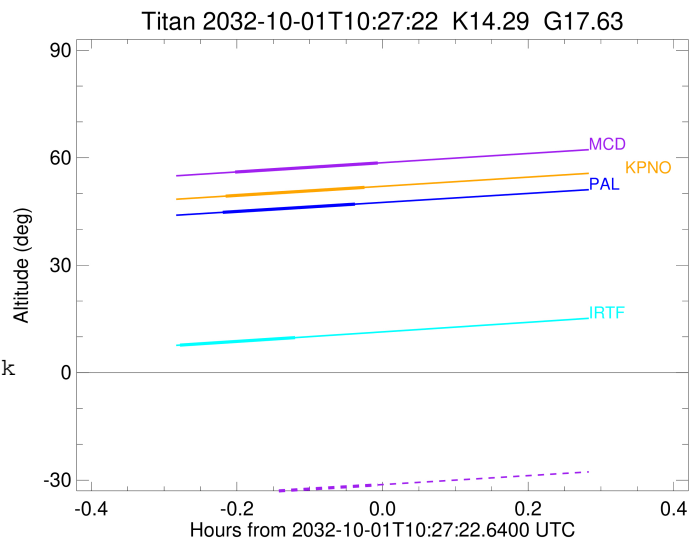
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2032-10-01T10:15:13.891	56.00	-33.74	2575.1	9.73	9.74
Titan	E	2032-10-01T10:27:01.856	58.53	-31.31	2575.1	-4.13	-4.13



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2032-10-01T10:15:25.880
Event type            : Pgt
: Titan occs: geocentric, topocentric
: 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       : 3376441402489445248
2Mass ID (if available) : 06280426+2217250
ICRS Star Coord at Epoch: 06h 28m 04.23903s +22:17:24.79201s
RUWE (>1.4 is poor) : 2.72
K magnitude           : 14.291
G magnitude           : 17.627
RP magnitude         : 16.463
BP magnitude         : 18.264
DUPflag              : 0
Distance (au)        : 8.925
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 7.55
Sun-Target sep (deg) : 91.85
Sun-Moon sep (deg)  : 58.26
B (ring opening deg) : -25.70
PA of pole (deg)    : -6.15
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.210
C/A sky separation (km) : 1356.8
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	2032-10-01T10:10:38.081	7.68	-73.78	2575.1	34.95	34.97
Titan	E	2032-10-01T10:20:14.341	9.80	-73.64	2575.1	21.57	21.58