

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2033-09-14T11:12:25.320
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 866119432716665600
 2Mass ID (if available) : 07210344+2140565

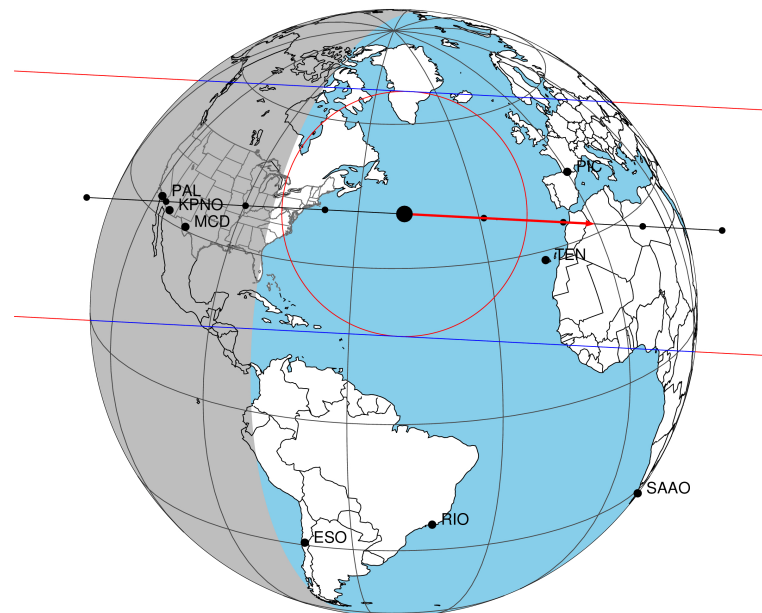
ICRS Star Coord at Epoch: 07h 21m 03.45201s +21:40:56.19665s
 RUWE (>1.4 is poor) : 1.15
 K magnitude : 13.678
 G magnitude : 15.681
 RP magnitude : 15.045
 BP magnitude : 16.156
 DUPflag : 0
 Distance (au) : 9.446
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 27.83
 Sun-Target sep (deg) : 62.72
 Sun-Moon sep (deg) : 43.53
 B (ring opening deg) : -23.71
 PA of pole (deg) : -6.78
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.305
 C/A sky separation (km) : 2088.4
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

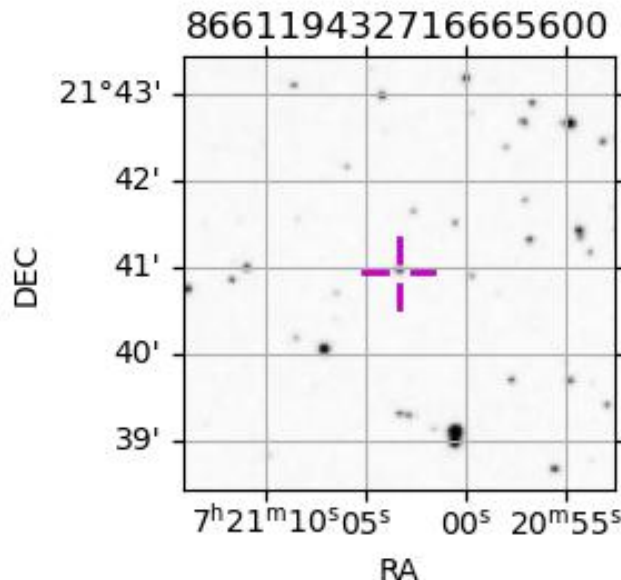
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	SEP 14 11:07 - SEP 14 11:10	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	SEP 14 11:07 - SEP 14 11:11	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	SEP 14 11:08 - SEP 14 11:11	Pie
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			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn

Titan 2033-09-14T11:12:25 K13.68 G15.68 dots 60.0 sec
 Pgt



2033-09-14T11:12:25.3200 cc: 07 21 03.45201 s: +21 40 56.197 C/A 0.304" PA 2.97 deg v_sky +27.83 km/s D 09.45 AU
 Credit: Styled after SORA/Lucky Star



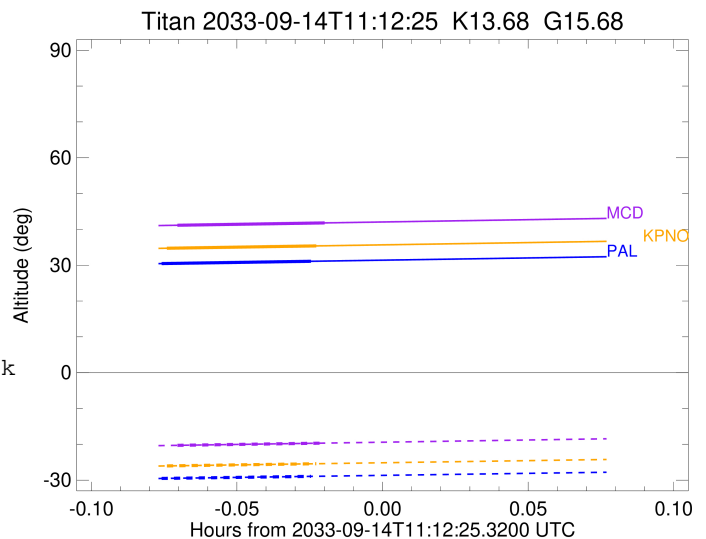
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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2033-09-14T11:09:24.940
Event type           : Pgt
: Titan occs: geocentric, topocentric
: Not a ringed target
Observer code        : PAL
Location             : Palomar Mt (200")
Latitude (deg)       : 33.35622
E. Longitude (deg)  : 243.13601
Altitude (km)        : 1.706
Gaia source ID       : 866119432716665600
2Mass ID (if available) : 07210344+2140565
ICRS Star Coord at Epoch: 07h 21m 03.45201s +21:40:56.19665s
RUWE (>1.4 is poor) : 1.15
K magnitude          : 13.678
G magnitude          : 15.681
RP magnitude         : 15.045
BP magnitude         : 16.156
DUPflag             : 0
Distance (au)        : 9.446
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 27.83
Sun-Target sep (deg) : 62.72
Sun-Moon sep (deg)  : 43.32
B (ring opening deg) : -23.71
PA of pole (deg)    : -6.78
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.014
C/A sky separation (km) : 97.8
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

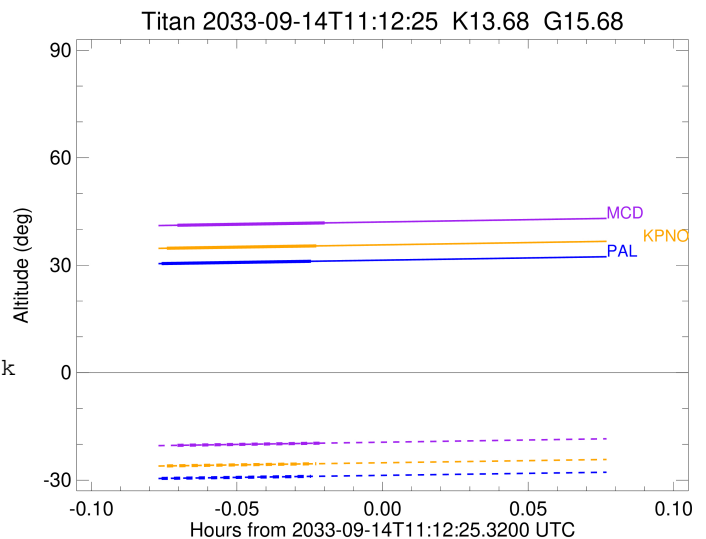
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2033-09-14T11:07:51.966	30.45	-29.52	2575.1	-6.71	-6.72
Titan	E	2033-09-14T11:10:57.933	31.09	-28.94	2575.1	10.68	10.68



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2033-09-14T11:09:30.630
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      : 866119432716665600
2Mass ID (if available) : 07210344+2140565
ICRS Star Coord at Epoch: 07h 21m 03.45201s +21:40:56.19665s
RUWE (>1.4 is poor) : 1.15
K magnitude         : 13.678
G magnitude         : 15.681
RP magnitude        : 15.045
BP magnitude        : 16.156
DUPflag            : 0
Distance (au)       : 9.446
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 27.83
Sun-Target sep (deg) : 62.72
Sun-Moon sep (deg)  : 43.38
B (ring opening deg) : -23.71
PA of pole (deg)    : -6.78
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.028
C/A sky separation (km) : 193.0
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	2033-09-14T11:07:57.728	34.72	-26.03	2575.1	-12.62	-12.63
Titan	E	2033-09-14T11:11:03.543	35.38	-25.42	2575.1	4.79	4.79

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target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2033-09-14T11:09:43.060
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       : 866119432716665600
2Mass ID (if available) : 07210344+2140565
ICRS Star Coord at Epoch: 07h 21m 03.45201s +21:40:56.19665s
RUWE (>1.4 is poor) : 1.15
K magnitude           : 13.678
G magnitude           : 15.681
RP magnitude          : 15.045
BP magnitude          : 16.156
DUPflag              : 0
Distance (au)        : 9.446
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 27.83
Sun-Target sep (deg) : 62.72
Sun-Moon sep (deg)   : 43.48
B (ring opening deg) : -23.71
PA of pole (deg)     : -6.78
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.077
C/A sky separation (km) : 527.7
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	2033-09-14T11:08:11.725	41.14	-20.29	2575.1	-19.48	-19.49
Titan	E	2033-09-14T11:11:14.418	41.80	-19.66	2575.2	-2.09	-2.09

