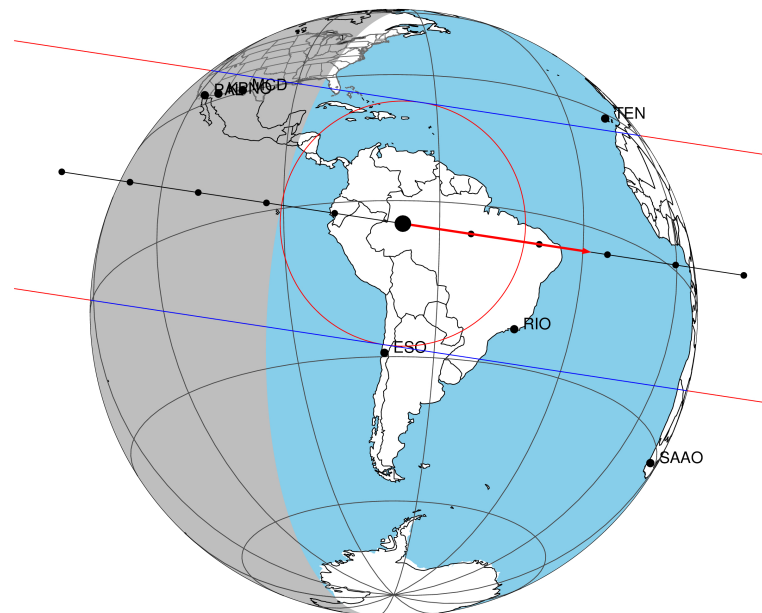


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2046-02-15T12:15:59.160
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4115039163112958208
 2Mass ID (if available) : 17211069-2139408

ICRS Star Coord at Epoch: 17h 21m 10.67768s -21:39:40.67730s
 RUWE (>1.4 is poor) : 1.07
 K magnitude : 10.446
 G magnitude : 15.038
 RP magnitude : 13.828
 BP magnitude : 16.639
 DUPflag : 0
 Distance (au) : 10.399
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 24.14
 Sun-Target sep (deg) : 65.36
 Sun-Moon sep (deg) : 169.82
 B (ring opening deg) : 26.56
 PA of pole (deg) : 4.80
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.251
 C/A sky separation (km) : 1889.6
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

Titan 2046-02-15T12:15:59 K10.45 G15.04 dots 60.0 sec
 Pgt

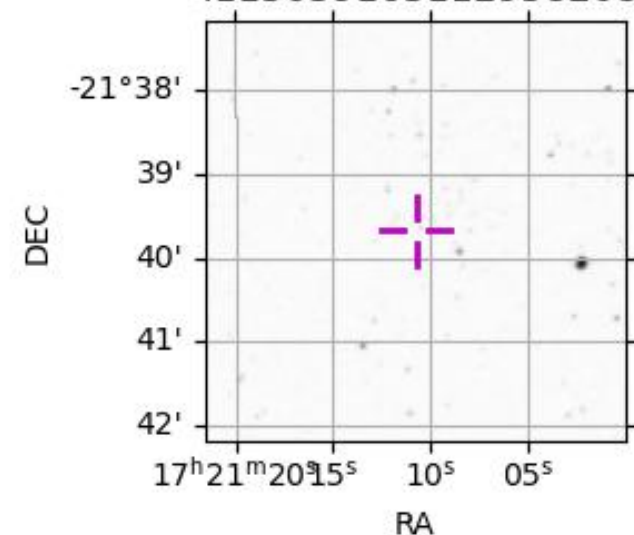


2046-02-15T12:15:59.1600 α: 17 21 10.6777 δ: -21 39 40.6777 C/A 0.250" PA 8.65 deg v_sky +24.14 km/s D 10.40 AU
 Credit: Styled after SORA/Lucky Star

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	+ +	FEB 15 12:11 - FEB 15 12:13	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	FEB 15 12:11 - FEB 15 12:14	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	FEB 15 12:12 - FEB 15 12:14	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

4115039163112958208



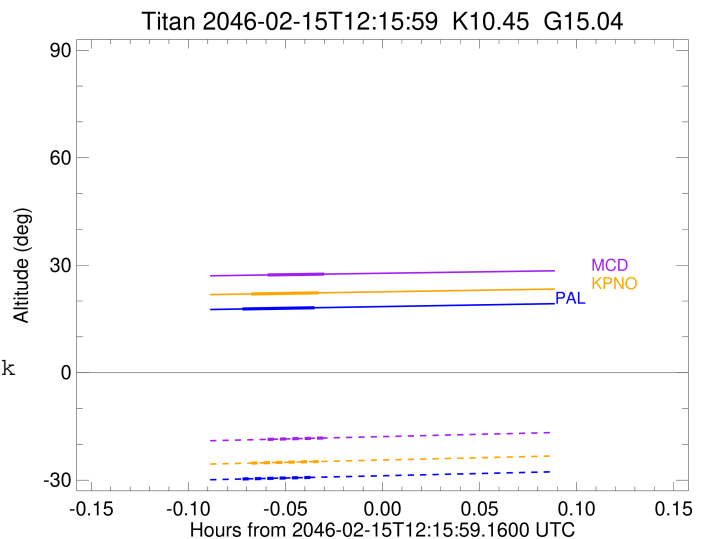
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-02-15T12:12:46.470
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        : 4115039163112958208
2Mass ID (if available) : 17211069-2139408
ICRS Star Coord at Epoch: 17h 21m 10.67768s -21:39:40.67730s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 10.446
G magnitude           : 15.038
RP magnitude          : 13.828
BP magnitude          : 16.639
DUPflag              : 0
Distance (au)         : 10.400
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 24.14
Sun-Target sep (deg)  : 65.36
Sun-Moon sep (deg)   : 169.71
B (ring opening deg) : 26.56
PA of pole (deg)     : 4.80
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.267
C/A sky separation (km): 2013.2
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	2046-02-15T12:11:39.314	17.78	-29.68	2575.1	41.05	41.06
Titan	E	2046-02-15T12:13:53.628	18.12	-29.21	2575.1	47.57	47.58



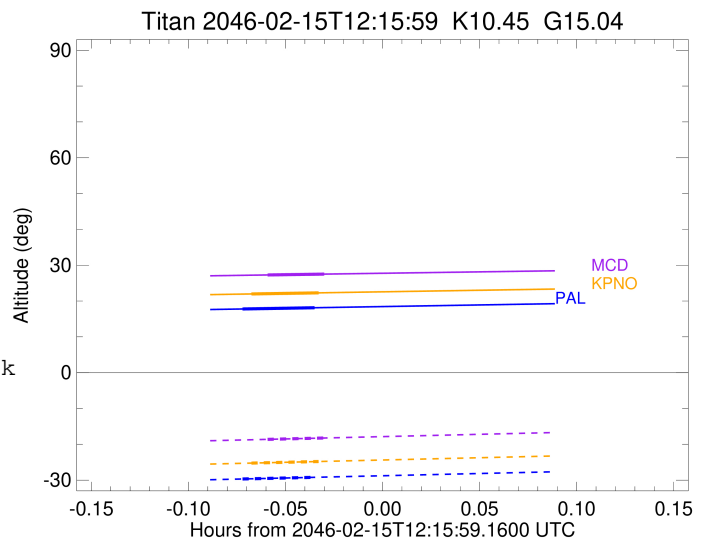
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-02-15T12:12:57.880
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        : 4115039163112958208
2Mass ID (if available) : 17211069-2139408
ICRS Star Coord at Epoch: 17h 21m 10.67768s -21:39:40.67730s
RUWE (>1.4 is poor)  : 1.07
K magnitude           : 10.446
G magnitude           : 15.038
RP magnitude          : 13.828
BP magnitude          : 16.639
DUPflag              : 0
Distance (au)         : 10.400
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 24.14
Sun-Target sep (deg)  : 65.36
Sun-Moon sep (deg)    : 169.76
B (ring opening deg)  : 26.56
PA of pole (deg)      : 4.80
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.277
C/A sky separation (km) : 2087.9
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

```

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	2046-02-15T12:11:54.764	21.97	-25.25	2575.1	43.25	43.26
Titan	E	2046-02-15T12:14:00.999	22.28	-24.80	2575.1	49.59	49.61



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2046-02-15T12:13:18.390
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        : 4115039163112958208
2Mass ID (if available) : 17211069-2139408
ICRS Star Coord at Epoch: 17h 21m 10.67768s -21:39:40.67730s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 10.446
G magnitude           : 15.038
RP magnitude          : 13.828
BP magnitude          : 16.639
DUPflag              : 0
Distance (au)         : 10.400
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 24.14
Sun-Target sep (deg)  : 65.36
Sun-Moon sep (deg)   : 169.84
B (ring opening deg) : 26.56
PA of pole (deg)     : 4.80
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.297
C/A sky separation (km) : 2241.6
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	2046-02-15T12:12:25.230	27.27	-18.62	2575.1	48.13	48.14
Titan	E	2046-02-15T12:14:11.552	27.51	-18.24	2575.1	53.95	53.96

