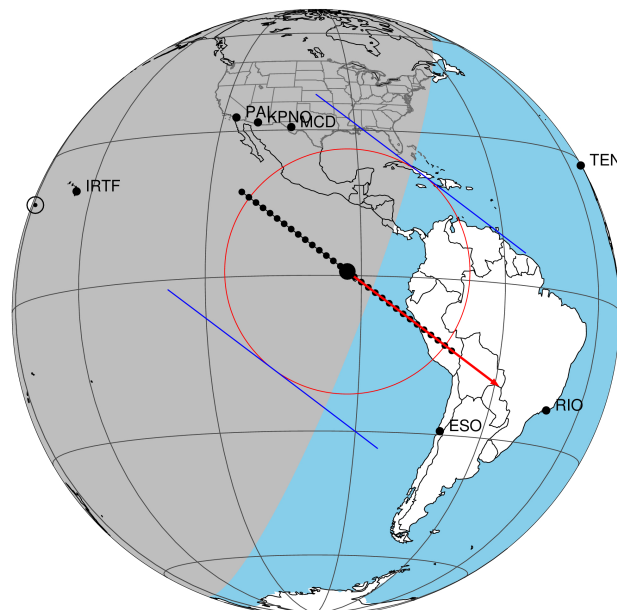


target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2041-01-22T11:59:44.470
 Event type : Pgt
 : Titan occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3630874028149610496
 2Mass ID (if available) : 13315922-0653106

ICRS Star Coord at Epoch: 13h 31m 59.23559s -06:53:10.60536s
 RUWE (>1.4 is poor) : 1.05
 K magnitude : 14.796
 G magnitude : 18.086
 RP magnitude : 16.988
 BP magnitude : 19.240
 DUPflag : 0
 Distance (au) : 9.462
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 3.07
 Sun-Target sep (deg) : 98.43
 Sun-Moon sep (deg) : 24.93
 B (ring opening deg) : 13.18
 PA of pole (deg) : -1.91
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.159
 C/A sky separation (km) : 1092.4
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

Titan 2041-01-22T11:59:44 K14.80 G18.09 dots 60.0 sec
 Pgt



2041-01-22T11:59:44.4700 α: 13 31 59.23556 δ: -06 53 10.605 C/A 0.159" PA 37.13 deg v_sky + 3.07 km/s D 09.46 AU

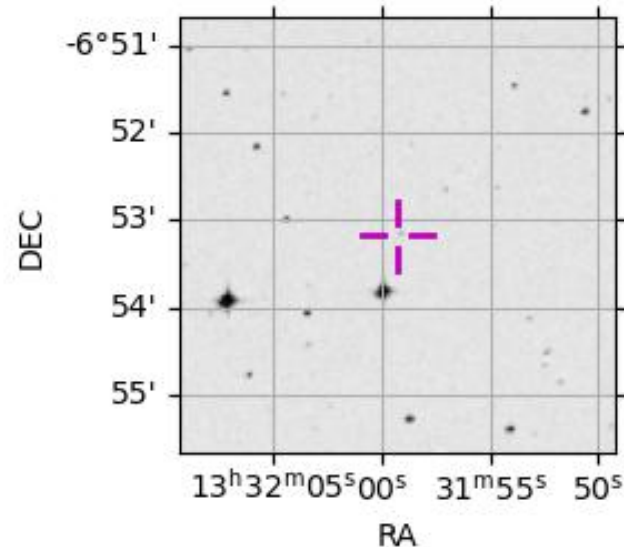
Credit: Styled after SORA/Lucky Star

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	+ +	JAN 22 11:22 - JAN 22 11:51	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JAN 22 11:25 - JAN 22 11:53	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JAN 22 11:29 - JAN 22 11:55	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JAN 22 11:23 - JAN 22 11:34	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

3630874028149610496



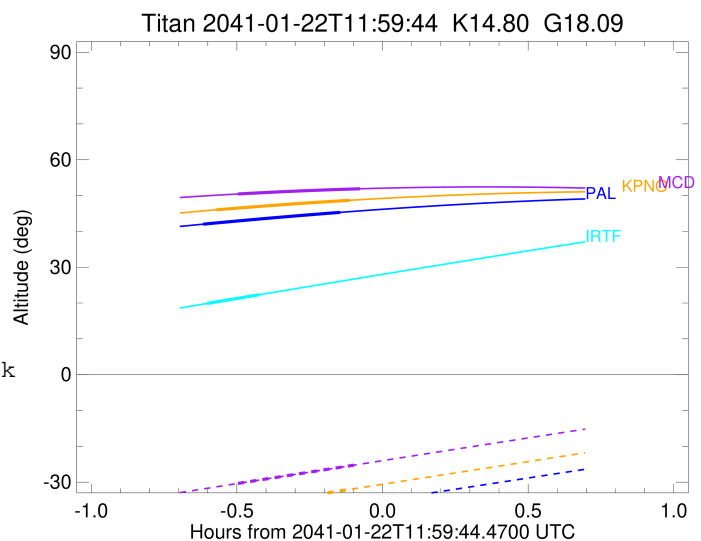
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2041-01-22T11:36:51.480
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        : 3630874028149610496
2Mass ID (if available) : 13315922-0653106
ICRS Star Coord at Epoch: 13h 31m 59.23559s -06:53:10.60536s
RUWE (>1.4 is poor)  : 1.05
K magnitude           : 14.796
G magnitude           : 18.086
RP magnitude          : 16.988
BP magnitude          : 19.240
DUPflag              : 0
Distance (au)         : 9.462
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 3.07
Sun-Target sep (deg)  : 98.43
Sun-Moon sep (deg)   : 24.78
B (ring opening deg) : 13.18
PA of pole (deg)     : -1.91
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.125
C/A sky separation (km) : 860.5
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	2041-01-22T11:22:43.214	41.99	-42.86	2575.2	-22.94	-22.95
Titan	E	2041-01-22T11:51:08.837	45.31	-36.91	2575.1	60.17	60.19



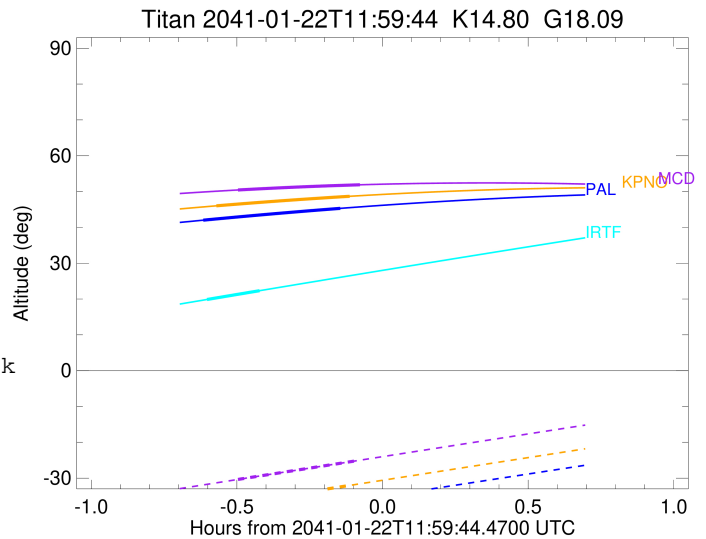
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2041-01-22T11:39:06.790
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       : 3630874028149610496
2Mass ID (if available) : 13315922-0653106
ICRS Star Coord at Epoch: 13h 31m 59.23559s -06:53:10.60536s
RUWE (>1.4 is poor) : 1.05
K magnitude           : 14.796
G magnitude           : 18.086
RP magnitude          : 16.988
BP magnitude          : 19.240
DUPflag              : 0
Distance (au)         : 9.462
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 3.07
Sun-Target sep (deg) : 98.43
Sun-Moon sep (deg)   : 24.86
B (ring opening deg) : 13.18
PA of pole (deg)     : -1.91
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.156
C/A sky separation (km) : 1072.5
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	2041-01-22T11:25:22.252	45.99	-37.89	2575.2	-18.26	-18.27
Titan	E	2041-01-22T11:52:59.526	48.67	-32.03	2575.1	64.79	64.80



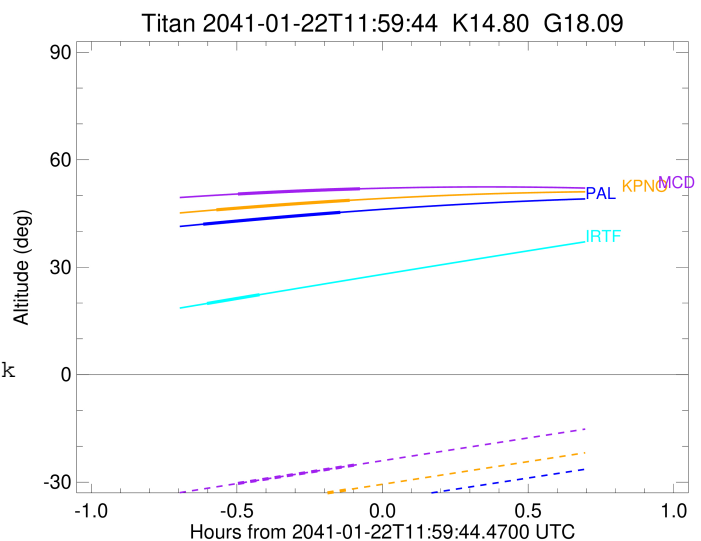
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2041-01-22T11:42:27.940
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       : 3630874028149610496
2Mass ID (if available) : 13315922-0653106
ICRS Star Coord at Epoch: 13h 31m 59.23559s -06:53:10.60536s
RUWE (>1.4 is poor) : 1.05
K magnitude          : 14.796
G magnitude          : 18.086
RP magnitude         : 16.988
BP magnitude         : 19.240
DUPflag             : 0
Distance (au)        : 9.462
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 3.07
Sun-Target sep (deg) : 98.43
Sun-Moon sep (deg)   : 24.96
B (ring opening deg) : 13.18
PA of pole (deg)     : -1.91
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.212
C/A sky separation (km): 1457.7
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

```

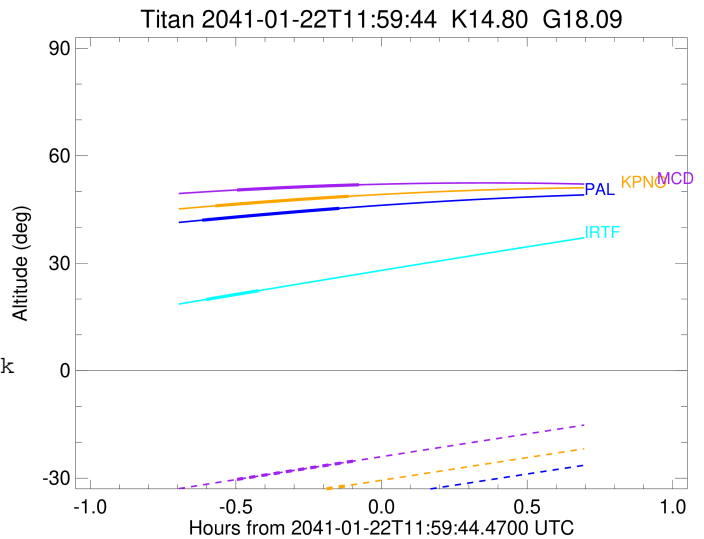
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2041-01-22T11:29:53.501	50.43	-30.37	2575.2	-8.92	-8.93
Titan	E	2041-01-22T11:55:08.692	51.88	-24.98	2575.1	72.49	72.50



```

target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2041-01-22T11:29:01.060
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        : 3630874028149610496
2Mass ID (if available) : 13315922-0653106
ICRS Star Coord at Epoch: 13h 31m 59.23559s -06:53:10.60536s
RUWE (>1.4 is poor)  : 1.05
K magnitude           : 14.796
G magnitude           : 18.086
RP magnitude          : 16.988
BP magnitude          : 19.240
DUPflag              : 0
Distance (au)         : 9.462
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 3.07
Sun-Target sep (deg) : 98.43
Sun-Moon sep (deg)   : 24.37
B (ring opening deg) : 13.18
PA of pole (deg)     : -1.91
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.347
C/A sky separation (km) : 2380.4
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   2041-01-22T11:23:33.213  19.86 -78.20  2575.1  -67.06  -67.07
Titan   E   2041-01-22T11:34:30.711  22.34 -75.62  2575.2  -25.26  -25.28
    
```