

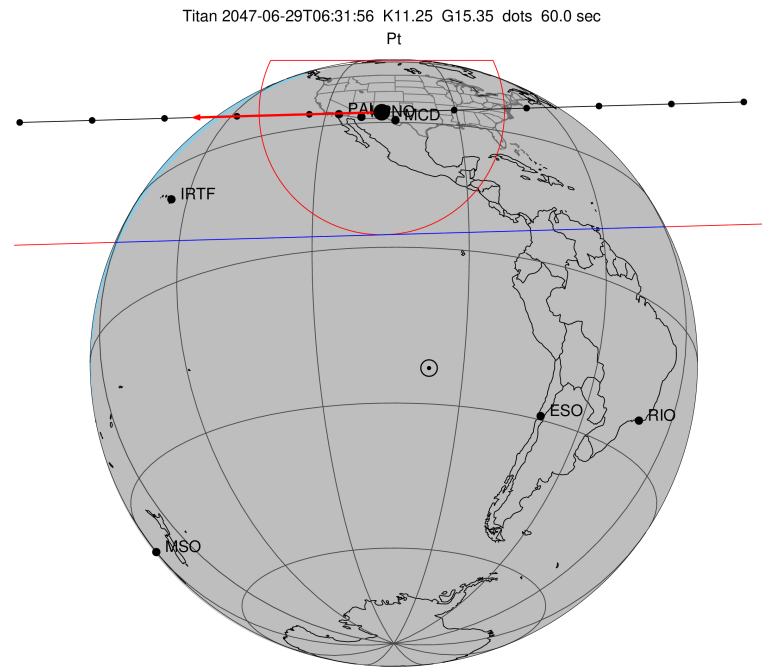
target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-29T06:31:56.050
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4069540611722438144
 2Mass ID (if available) : 18004635-2223463

ICRS Star Coord at Epoch: 18h 00m 46.36424s -22:23:46.36479s
 RUWE (>1.4 is poor) : 0.93
 K magnitude : 11.254
 G magnitude : 15.353
 RP magnitude : 14.452
 BP magnitude : 16.170
 DUPflag : 0
 Distance (au) : 9.029
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -25.34
 Sun-Target sep (deg) : 173.27
 Sun-Moon sep (deg) : 102.42
 B (ring opening deg) : 26.46
 PA of pole (deg) : 5.68
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.804
 C/A sky separation (km) : 5267.5
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

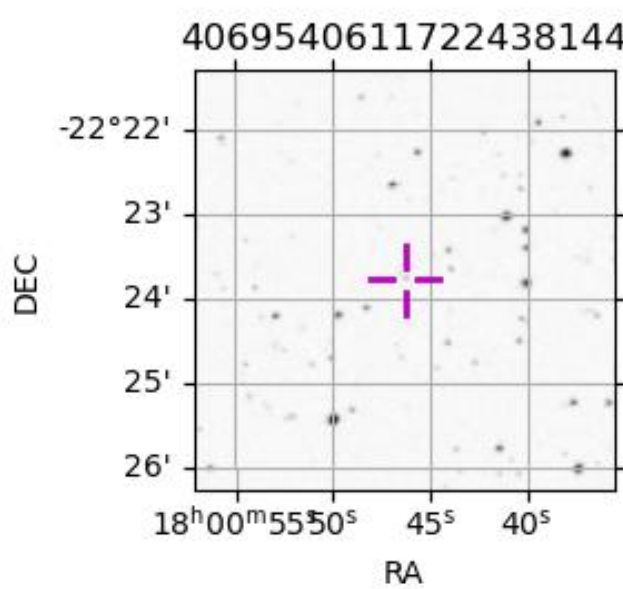
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

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

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	JUN 29 06:30 - JUN 29 06:34	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUN 29 06:30 - JUN 29 06:33	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUN 29 06:30 - JUN 29 06:33	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	JUN 29 06:33 - JUN 29 06:36	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



2047-06-29T06:31:56.0500 cc: 18 00 46.3642 d: -22 23 46.365 C/A 0.805" PA 358.37 deg v_sky -25.35 km/s D 09.03 AU
 Credit: Styled after SORA/Lucky Star



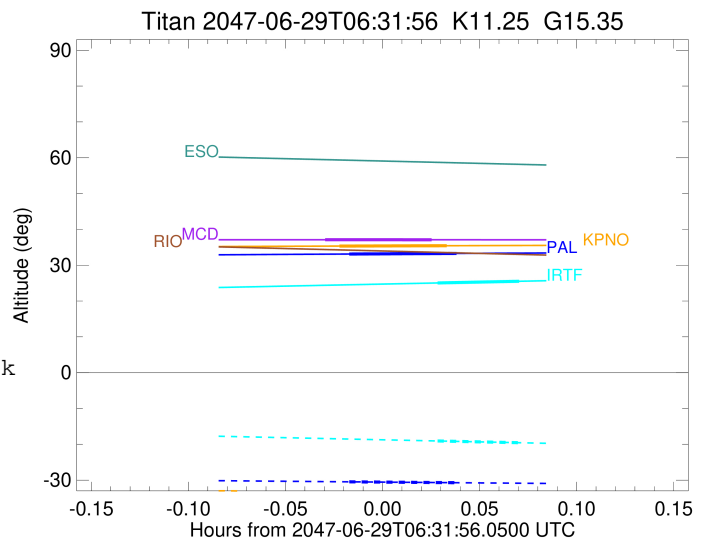
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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-06-29T06:32:34.100
Event type            : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code         : PAL
Location              : Palomar Mt (200")
Latitude (deg)        : 33.35622
E. Longitude (deg)    : 243.13601
Altitude (km)         : 1.706
Gaia source ID        : 4069540611722438144
2Mass ID (if available) : 18004635-2223463
ICRS Star Coord at Epoch: 18h 00m 46.36424s -22:23:46.36479s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 11.254
G magnitude           : 15.353
RP magnitude          : 14.452
BP magnitude          : 16.170
DUPflag              : 0
Distance (au)         : 9.029
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -25.34
Sun-Target sep (deg)  : 173.27
Sun-Moon sep (deg)    : 102.96
B (ring opening deg)  : 26.46
PA of pole (deg)      : 5.68
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (" ) : 0.004
C/A sky separation (km) : 23.1
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

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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	2047-06-29T06:30:54.010	33.11	-30.47	2575.1	-7.01	-7.02
Titan	E	2047-06-29T06:34:14.177	33.28	-30.72	2575.1	6.13	6.13



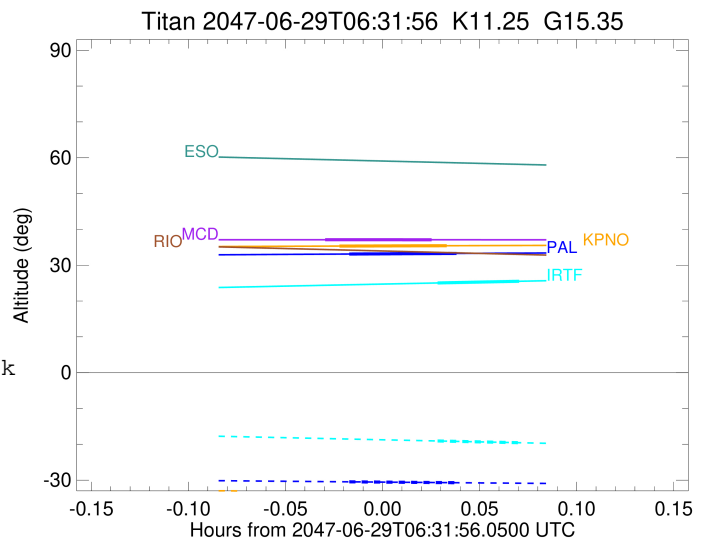
```

target                : Titan
target radius (km)   : 2575.15
C/A epoch            : 2047-06-29T06:32:15.820
Event type           : Pt
: Titan occs: topocentric, not geocentric
: 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       : 4069540611722438144
2Mass ID (if available) : 18004635-2223463
ICRS Star Coord at Epoch: 18h 00m 46.36424s -22:23:46.36479s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 11.254
G magnitude           : 15.353
RP magnitude          : 14.452
BP magnitude          : 16.170
DUPflag              : 0
Distance (au)        : 9.029
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -25.34
Sun-Target sep (deg) : 173.27
Sun-Moon sep (deg)   : 102.97
B (ring opening deg) : 26.46
PA of pole (deg)     : 5.68
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation (") : 0.015
C/A sky separation (km) : 95.0
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

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

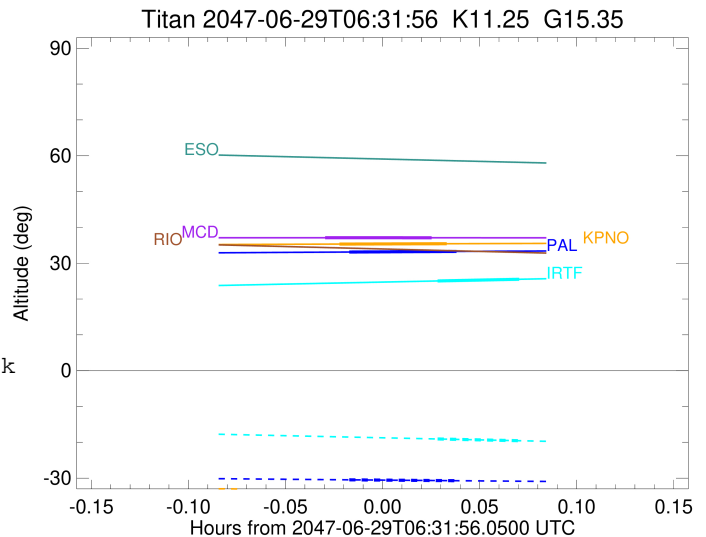
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-06-29T06:30:35.843	35.33	-33.20	2575.1	-8.43	-8.44
Titan	E	2047-06-29T06:33:55.792	35.43	-33.39	2575.1	4.65	4.66



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-29T06:31:48.130
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : 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 : 4069540611722438144
 2Mass ID (if available) : 18004635-2223463
 ICRS Star Coord at Epoch: 18h 00m 46.36424s -22:23:46.36479s
 RUWE (>1.4 is poor) : 0.93
 K magnitude : 11.254
 G magnitude : 15.353
 RP magnitude : 14.452
 BP magnitude : 16.170
 DUPflag : 0
 Distance (au) : 9.029
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -25.34
 Sun-Target sep (deg) : 173.27
 Sun-Moon sep (deg) : 102.97
 B (ring opening deg) : 26.46
 PA of pole (deg) : 5.68
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.029
 C/A sky separation (km) : 187.7
 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	2047-06-29T06:30:08.384	37.10	-35.82	2575.1	-10.23	-10.24
Titan	E	2047-06-29T06:33:27.879	37.10	-35.92	2575.2	2.77	2.78



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-06-29T06:34:54.150
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : 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 : 4069540611722438144
 2Mass ID (if available) : 18004635-2223463
 ICRS Star Coord at Epoch: 18h 00m 46.36424s -22:23:46.36479s
 RUWE (>1.4 is poor) : 0.93
 K magnitude : 11.254
 G magnitude : 15.353
 RP magnitude : 14.452
 BP magnitude : 16.170
 DUPflag : 0
 Distance (au) : 9.029
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -25.34
 Sun-Target sep (deg) : 173.27
 Sun-Moon sep (deg) : 102.96
 B (ring opening deg) : 26.46
 PA of pole (deg) : 5.68
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.254
 C/A sky separation (km) : 1666.4
 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	2047-06-29T06:33:37.560	25.04	-19.06	2575.1	-41.62	-41.63
Titan	E	2047-06-29T06:36:10.735	25.51	-19.56	2575.1	-28.98	-28.99

