

target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-07-08T04:47:45.900
 Event type : Pt
 : Titan occs: topocentric, not geocentric
 : Not a ringed target
 Gaia source ID : 4070279797095185152
 2Mass ID (if available) : 17575743-2221545

ICRS Star Coord at Epoch: 17h 57m 57.41478s -22:21:54.67701s
 RUWE (>1.4 is poor) : 1.33
 K magnitude : 10.283
 G magnitude : 18.406
 RP magnitude : 16.578
 BP magnitude : 21.321
 DUPflag : 0
 Distance (au) : 9.072
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.53
 Sun-Target sep (deg) : 164.15
 Sun-Moon sep (deg) : 25.66
 B (ring opening deg) : 26.49
 PA of pole (deg) : 5.62
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 1.128
 C/A sky separation (km) : 7418.6
 NAIF SPICE kernels : RAJobs_U111+rgf16.spk

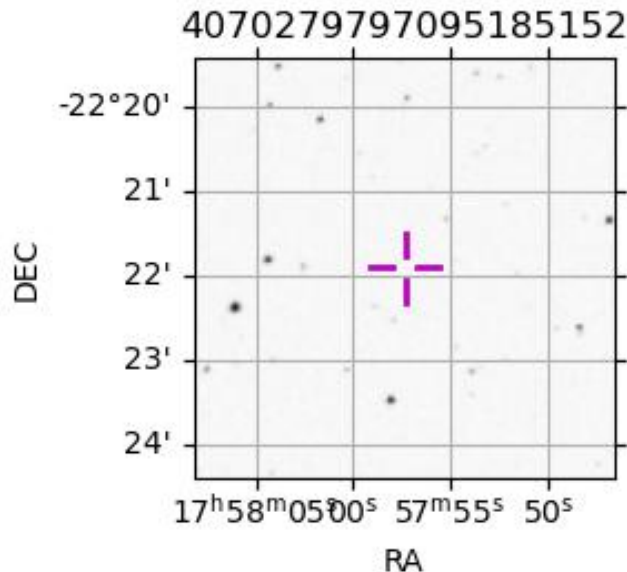
URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp

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	+ +	JUL 08 04:48 - JUL 08 04:51	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUL 08 04:48 - JUL 08 04:51	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUL 08 04:47 - JUL 08 04:50	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



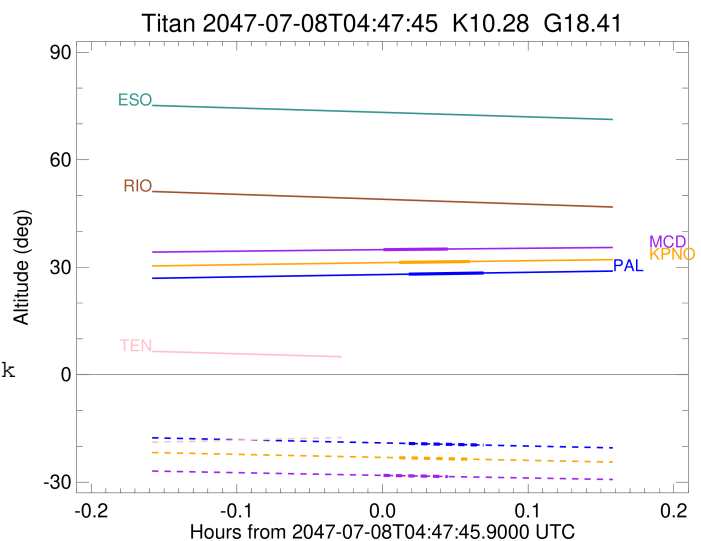
2047-07-08T04:47:45.9000 cc: 17 57 57.41478 & -22 21 54.677 C/A 1.128" PA 355.77 deg v_sky -13.52 km/s D 09.07 AU
 Credit: Styled after SORA/Lucky Star



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-07-08T04:50:24.030
 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 : 4070279797095185152
 2Mass ID (if available) : 17575743-2221545
 ICRS Star Coord at Epoch: 17h 57m 57.41478s -22:21:54.67701s
 RUWE (>1.4 is poor) : 1.33
 K magnitude : 10.283
 G magnitude : 18.406
 RP magnitude : 16.578
 BP magnitude : 21.321
 DUPflag : 0
 Distance (au) : 9.072
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.53
 Sun-Target sep (deg) : 164.15
 Sun-Moon sep (deg) : 26.22
 B (ring opening deg) : 26.49
 PA of pole (deg) : 5.62
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.338
 C/A sky separation (km) : 2222.6
 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	2047-07-08T04:48:50.287	28.05	-19.21	2575.0	-57.09	-57.10
Titan	E	2047-07-08T04:51:57.766	28.38	-19.66	2575.1	-42.99	-43.01



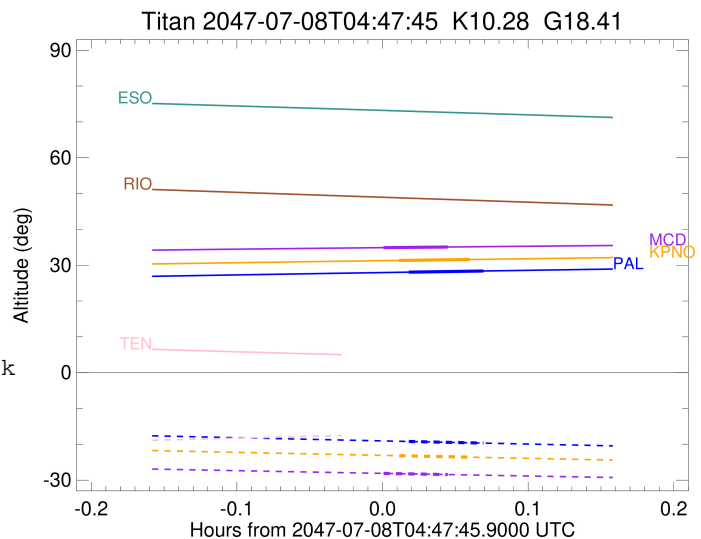
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target                : Titan
target radius (km)   : 2575.15
C/A epoch             : 2047-07-08T04:49:54.630
Event type           : Pt
: Titan occs: topocentric, not geocentric
: Not a ringed target
Observer code        : KPNO
Location             : Kitt Peak Natl Obs
Latitude (deg)       : 31.96333
E. Longitude (deg)  : 248.40000
Altitude (km)        : 2.120
Gaia source ID       : 4070279797095185152
2Mass ID (if available) : 17575743-2221545
ICRS Star Coord at Epoch: 17h 57m 57.41478s -22:21:54.67701s
RUWE (>1.4 is poor) : 1.33
K magnitude           : 10.283
G magnitude           : 18.406
RP magnitude         : 16.578
BP magnitude         : 21.321
DUPflag              : 0
Distance (au)        : 9.072
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -13.53
Sun-Target sep (deg) : 164.15
Sun-Moon sep (deg)  : 26.19
B (ring opening deg) : 26.49
PA of pole (deg)    : 5.62
Pole direction: RA (deg): 39.48270
Dec (deg): 83.42790
C/A sky separation ("): 0.344
C/A sky separation (km): 2265.6
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

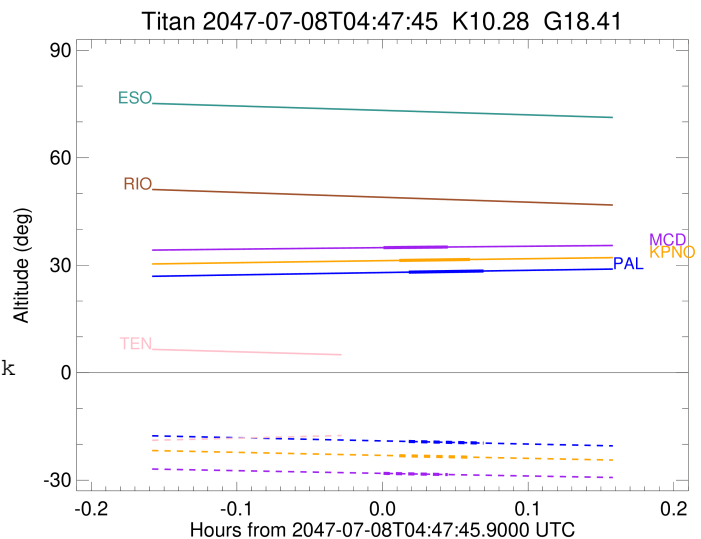
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x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Titan	I	2047-07-08T04:48:26.517	31.32	-23.19	2575.1	-58.14	-58.15
Titan	E	2047-07-08T04:51:22.738	31.59	-23.59	2575.1	-44.57	-44.58



target : Titan
 target radius (km) : 2575.15
 C/A epoch : 2047-07-08T04:49:07.420
 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 : 4070279797095185152
 2Mass ID (if available) : 17575743-2221545
 ICRS Star Coord at Epoch: 17h 57m 57.41478s -22:21:54.67701s
 RUWE (>1.4 is poor) : 1.33
 K magnitude : 10.283
 G magnitude : 18.406
 RP magnitude : 16.578
 BP magnitude : 21.321
 DUPflag : 0
 Distance (au) : 9.072
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -13.53
 Sun-Target sep (deg) : 164.15
 Sun-Moon sep (deg) : 26.12
 B (ring opening deg) : 26.49
 PA of pole (deg) : 5.62
 Pole direction: RA (deg): 39.48270
 Dec (deg): 83.42790
 C/A sky separation (") : 0.352
 C/A sky separation (km) : 2313.1
 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



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	2047-07-08T04:47:46.076	34.89	-28.11	2575.0	-59.27	-59.29
Titan	E	2047-07-08T04:50:28.765	35.07	-28.44	2575.1	-46.41	-46.43