

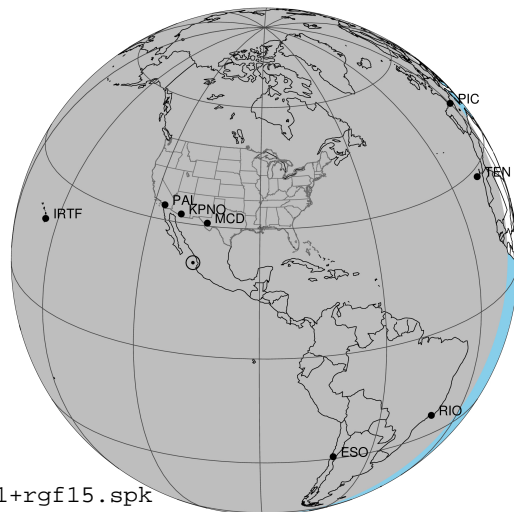
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2036-11-28T06:53:57.040  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 3416024263465907456  
 2Mass ID (if available) : 05273951+2239263

Jupiter 2036-11-28T06:53:57 K8.44 G11.88 Pgt

ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s

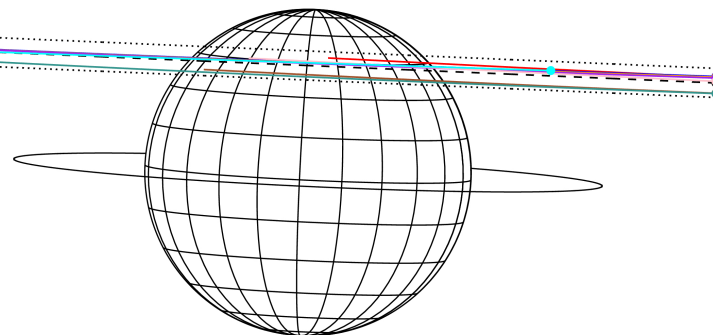
RUWE (>1.4 is poor) : 1.07  
 K magnitude : 8.437  
 G magnitude : 11.882  
 RP magnitude : 10.916  
 BP magnitude : 12.847  
 DUPflag : 0  
 Distance (au) : 4.133  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -15.75  
 Sun-Target sep (deg) : 163.56  
 Sun-Moon sep (deg) : 80.62  
 B (ring opening deg) : 2.72  
 PA of pole (deg) : -2.64  
 Pole direction: RA (deg): 268.05632  
 Dec (deg): 64.49687  
 C/A sky separation (") : 15.616  
 C/A sky separation (km) : 46814.3  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2036-11-28T06:53:57 K8.44 G11.88  
 Pgt



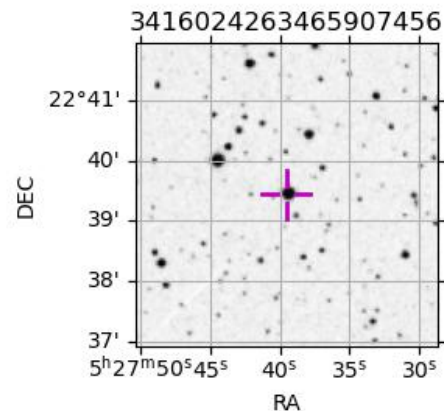
2036-11-28T06:53:57.0400 a: 05 27 39.5325 s: +22 39 26.217 C/A \*\*\*\*\* PA 177.55 deg v\_sky -15.75 km/s D 04.13 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 PIC  
 PAL  
 KPNO  
 MCD  
 TEN  
 IRTF  
 RIO  
 ESO



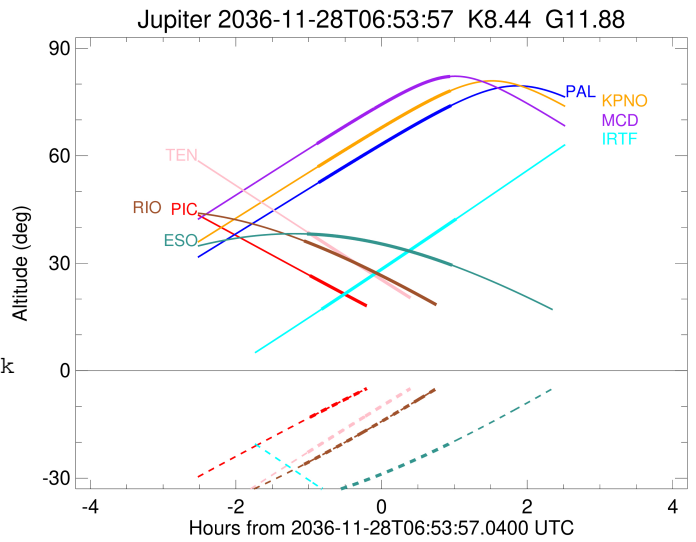
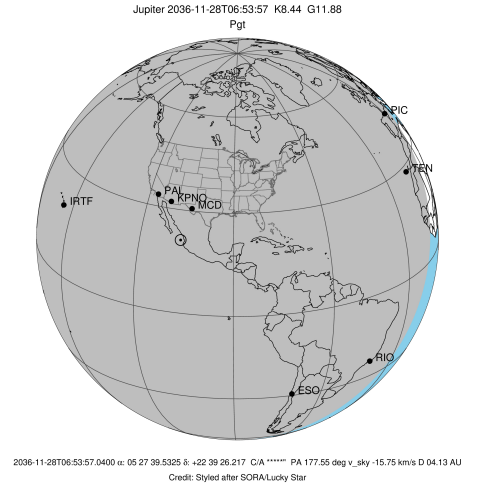
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	NOV 28 05:55 - NOV 28 05:55	Pin
PAL	Palomar Mt (200")	33.4	243.1	+ +	NOV 28 06:02 - NOV 28 07:51	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	NOV 28 06:01 - NOV 28 07:50	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	NOV 28 06:00 - NOV 28 07:50	Pie
TEN	Teide Obs./Tenerife	28.3	343.5	+	NOV 28 05:53 - NOV 28 05:53	Pin
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	NOV 28 06:04 - NOV 28 07:55	Pie
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	NOV 28 05:50 - NOV 28 05:50	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	NOV 28 05:52 - NOV 28 07:52	Pie
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



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-11-28T06:48:24.110
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 3416024263465907456
2Mass ID (if available) : 05273951+2239263
ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 8.437
G magnitude           : 11.882
RP magnitude          : 10.916
BP magnitude          : 12.847
DUPflag              : 0
Distance (au)         : 4.133
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.75
Sun-Target sep (deg) : 163.56
Sun-Moon sep (deg)   : 80.98
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.64
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 16.860
C/A sky separation (km) : 50544.0
NAIF SPICE kernels   : RAJobs_U111+rgf15.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
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

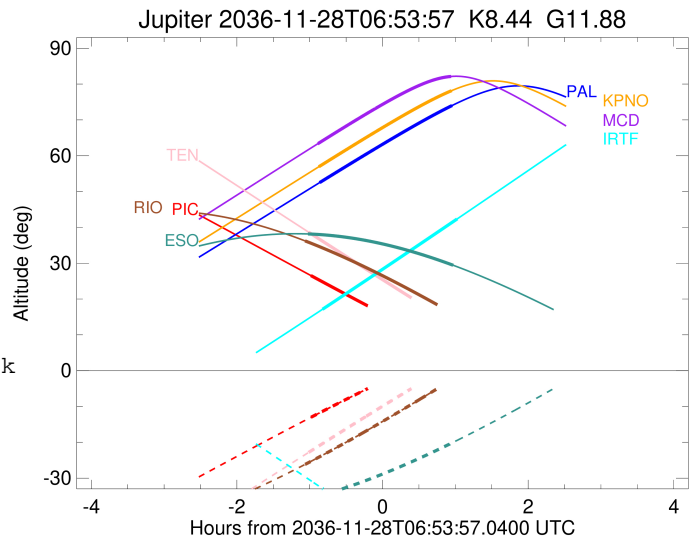
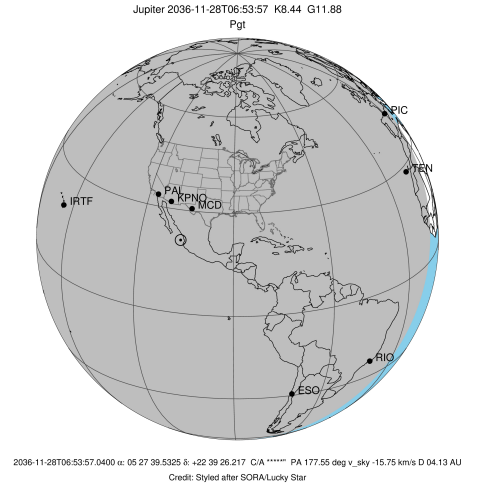


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-11-28T05:55:05.742	26.52	-13.00	71487.0	44.67	48.37
Jupiter	E	2036-11-28T07:41:57.919	7.62	4.57x	71486.9	45.21	48.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-11-28T06:56:44.950
Event type            : Pgt
: Jupiter 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       : 3416024263465907456
2Mass ID (if available) : 05273951+2239263
ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 8.437
G magnitude           : 11.882
RP magnitude          : 10.916
BP magnitude          : 12.847
DUPflag              : 0
Distance (au)        : 4.133
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.75
Sun-Target sep (deg) : 163.56
Sun-Moon sep (deg)   : 81.38
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.64
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 16.112
C/A sky separation (km) : 48300.6
NAIF SPICE kernels   : RAJobs_U111+rgf15.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
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

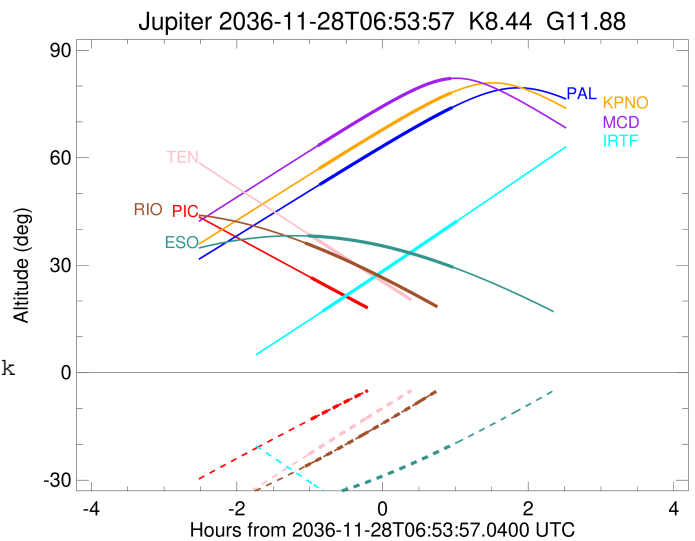
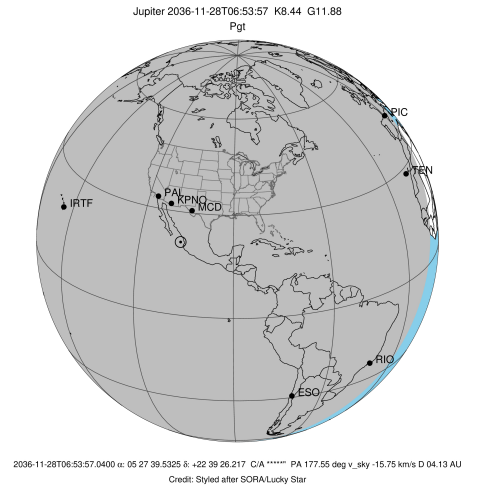


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-11-28T06:02:06.352	52.48	-66.23	71487.3	42.99	46.70
Jupiter	E	2036-11-28T07:51:13.282	74.00	-77.73	71487.5	42.01	45.73

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-11-28T06:56:17.810
Event type           : Pgt
: Jupiter 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      : 3416024263465907456
2Mass ID (if available) : 05273951+2239263
ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 8.437
G magnitude          : 11.882
RP magnitude         : 10.916
BP magnitude         : 12.847
DUPflag             : 0
Distance (au)       : 4.133
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.75
Sun-Target sep (deg) : 163.56
Sun-Moon sep (deg)  : 81.42
B (ring opening deg) : 2.72
PA of pole (deg)    : -2.64
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 16.031
C/A sky separation (km) : 48057.7
NAIF SPICE kernels  : RAJobs_U111+rgf15.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
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

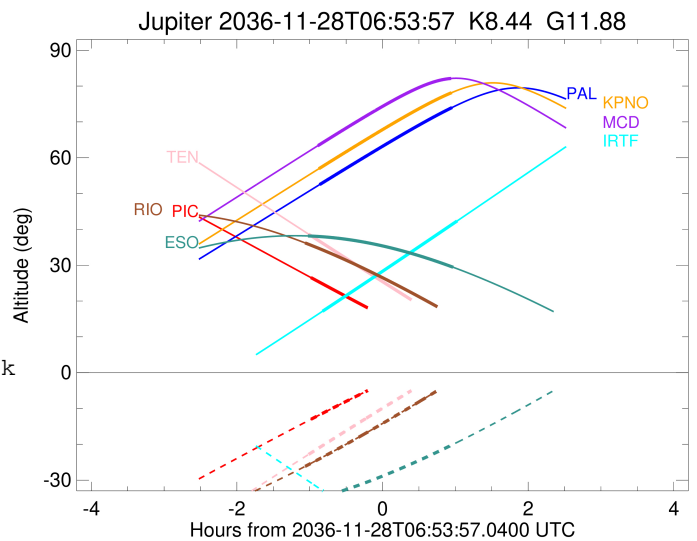
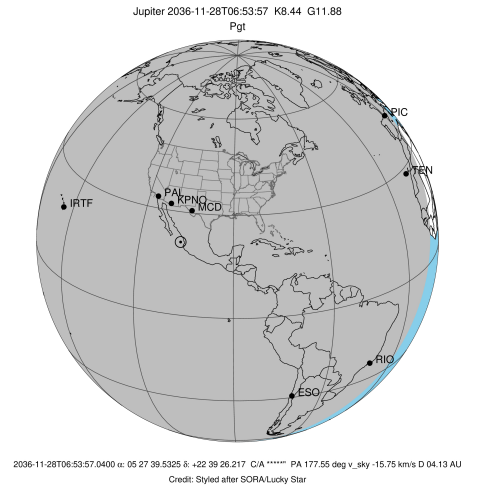


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-11-28T06:01:30.487	56.92	-70.72	71487.3	42.69	46.41
Jupiter	E	2036-11-28T07:50:56.264	78.16	-76.82	71487.5	41.79	45.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-11-28T06:55:34.180
Event type           : Pgt
: Jupiter 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       : 3416024263465907456
2Mass ID (if available) : 05273951+2239263
ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 8.437
G magnitude           : 11.882
RP magnitude         : 10.916
BP magnitude         : 12.847
DUPflag              : 0
Distance (au)        : 4.133
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.75
Sun-Target sep (deg) : 163.56
Sun-Moon sep (deg)   : 81.46
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.64
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 15.947
C/A sky separation (km) : 47806.3
NAIF SPICE kernels   : RAJobs_U111+rgf15.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
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

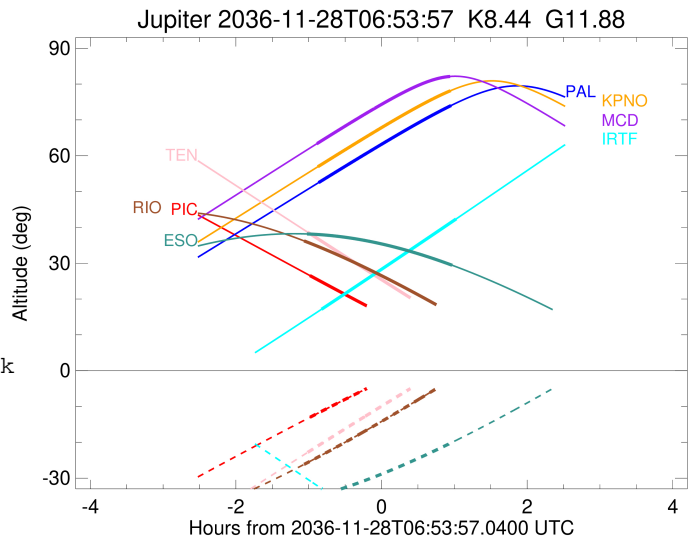
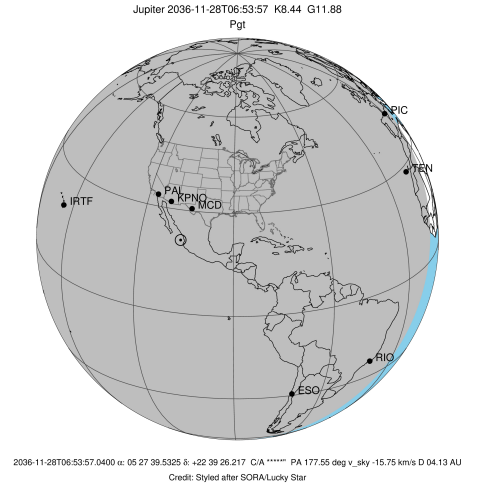


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-11-28T06:00:38.551	63.34	-76.67	71487.4	42.36	46.08
Jupiter	E	2036-11-28T07:50:23.234	82.12	-72.59	71487.5	41.59	45.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-11-28T06:47:47.110
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : TEN
Location             : Teide Obs./Tenerife
Latitude (deg)       : 28.30050
E. Longitude (deg)   : 343.48909
Altitude (km)        : 2.395
Gaia source ID       : 3416024263465907456
2Mass ID (if available) : 05273951+2239263
ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 8.437
G magnitude           : 11.882
RP magnitude          : 10.916
BP magnitude          : 12.847
DUPflag              : 0
Distance (au)        : 4.133
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.75
Sun-Target sep (deg) : 163.56
Sun-Moon sep (deg)   : 81.13
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.64
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 16.234
C/A sky separation (km) : 48667.3
NAIF SPICE kernels   : RAJobs_U111+rgf15.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
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

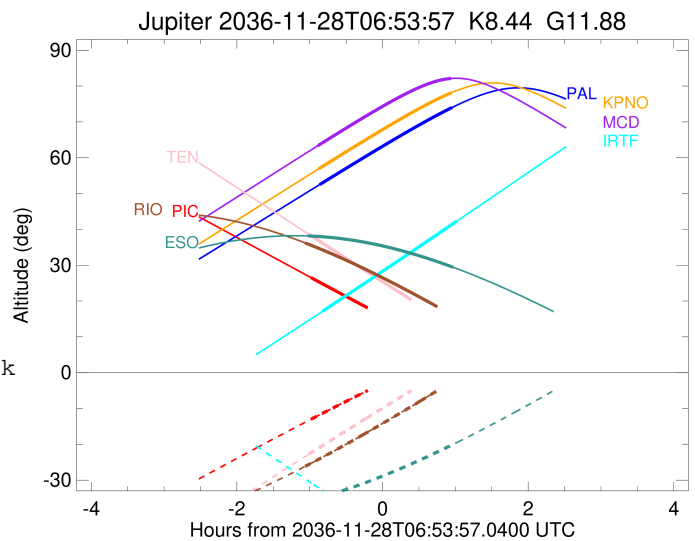
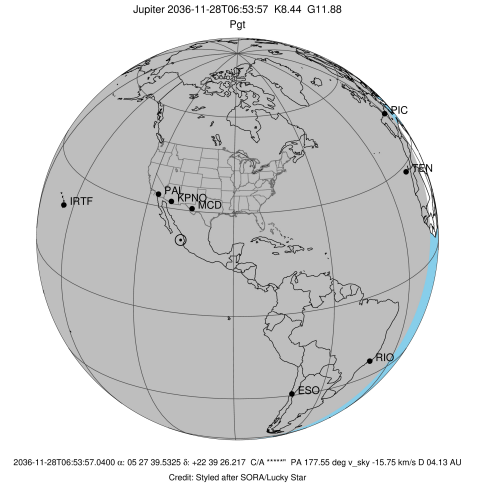


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-11-28T05:53:01.613	38.66	-22.83	71487.4	42.56	46.28
Jupiter	E	2036-11-28T07:42:50.967	15.01	0.08x	71487.3	43.19	46.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-11-28T07:00:11.030
Event type          : Pgt
                    : Jupiter 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      : 3416024263465907456
2Mass ID (if available) : 05273951+2239263
ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 8.437
G magnitude          : 11.882
RP magnitude         : 10.916
BP magnitude         : 12.847
DUPflag             : 0
Distance (au)        : 4.133
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.75
Sun-Target sep (deg) : 163.56
Sun-Moon sep (deg)  : 80.93
B (ring opening deg) : 2.72
PA of pole (deg)    : -2.64
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 16.024
C/A sky separation (km) : 48037.8
NAIF SPICE kernels  : RAJobs_U111+rgf15.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
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```

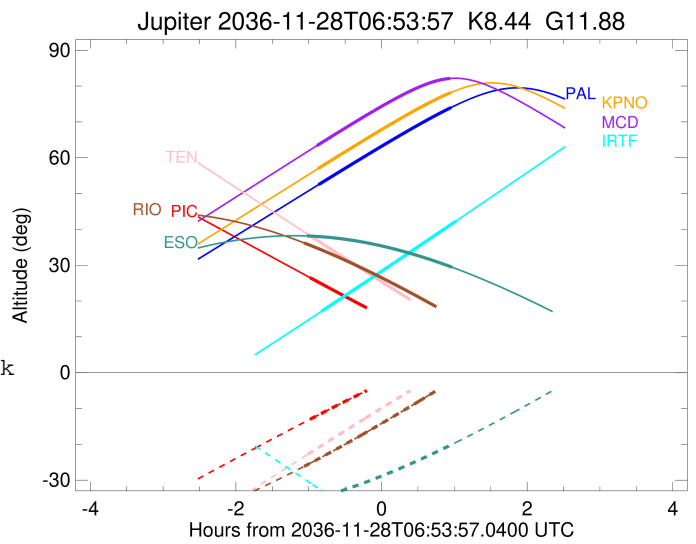
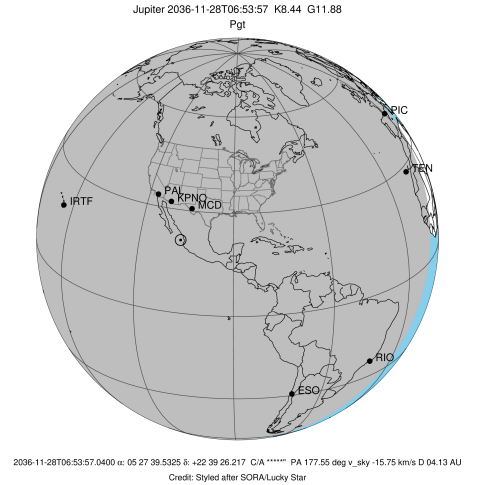


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-11-28T06:04:36.779	17.15	-32.94	71487.3	42.95	46.67
Jupiter	E	2036-11-28T07:55:23.447	42.33	-58.52	71487.6	41.42	45.14

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-11-28T06:49:27.870
Event type           : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code        : RIO
Location             : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)   : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 3416024263465907456
2Mass ID (if available) : 05273951+2239263
ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 8.437
G magnitude          : 11.882
RP magnitude         : 10.916
BP magnitude         : 12.847
DUPflag             : 0
Distance (au)        : 4.133
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.75
Sun-Target sep (deg) : 163.56
Sun-Moon sep (deg)   : 81.10
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.64
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 14.265
C/A sky separation (km) : 42764.4
NAIF SPICE kernels   : RAJobs_U111+rgf15.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
uranus_ringframes_rfrench20220627_v1.tf
neptune_ringframes_rfrench20220702a_v1.tf
earth_flat_IAU.spk
    
```



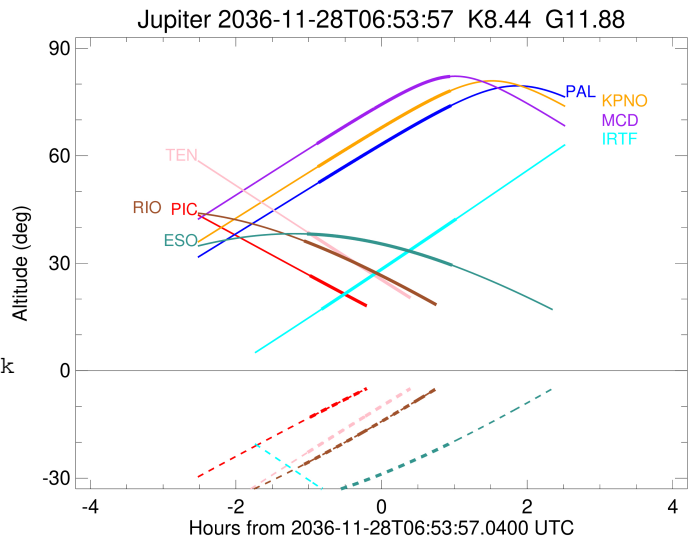
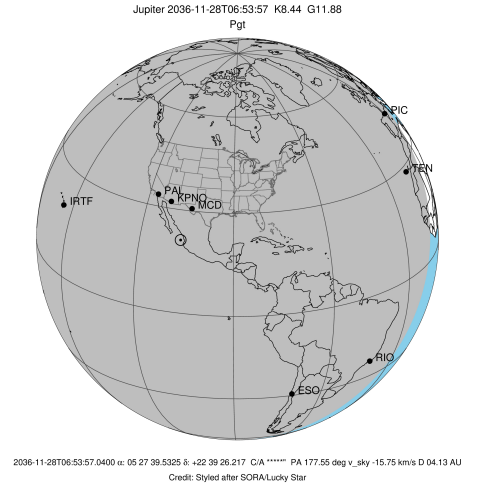
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-11-28T05:50:09.979	36.22	-26.16	71488.4	36.59	40.23
Jupiter	E	2036-11-28T07:49:01.671	16.51	-2.96x	71488.3	36.92	40.58



```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2036-11-28T06:52:16.690
Event type             : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code          : ESO
Location               : European Southern Obs. (3.6m)
Latitude (deg)         : -29.26097
E. Longitude (deg)    : 289.26831
Altitude (km)         : 2.400
Gaia source ID        : 3416024263465907456
2Mass ID (if available) : 05273951+2239263
ICRS Star Coord at Epoch: 05h 27m 39.53250s +22:39:26.21700s
RUWE (>1.4 is poor)  : 1.07
K magnitude            : 8.437
G magnitude            : 11.882
RP magnitude           : 10.916
BP magnitude           : 12.847
DUPflag               : 0
Distance (au)         : 4.133
f0 (km)                : 0.00
g0 (km)                : 0.00
skyplane vel. (km/s)  : -15.75
Sun-Target sep (deg)  : 163.56
Sun-Moon sep (deg)    : 81.17
B (ring opening deg)  : 2.72
PA of pole (deg)      : -2.64
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 13.958
C/A sky separation (km) : 41844.7
NAIF SPICE kernels    : RAJobs_U111+rgf15.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
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
Jupiter	I	2036-11-28T05:52:29.286	38.16	-35.81	71488.5	35.94	39.56
Jupiter	E	2036-11-28T07:52:09.589	29.42	-20.00	71488.5	35.77	39.39