

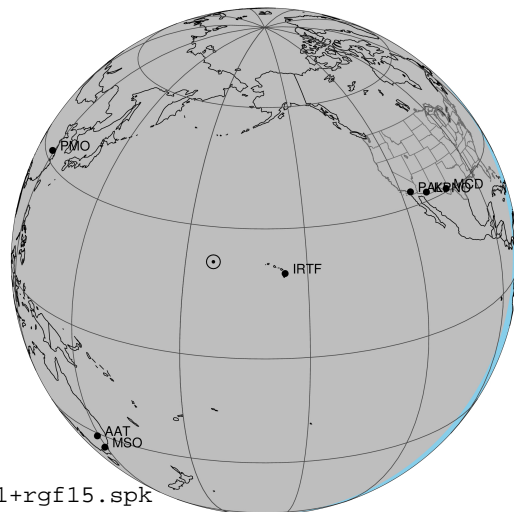
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2036-12-02T11:21:33.720
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3416064052043647360
 2Mass ID (if available) : 05251963+2237308

Jupiter 2036-12-02T11:21:33 K8.14 G11.63 Pgt

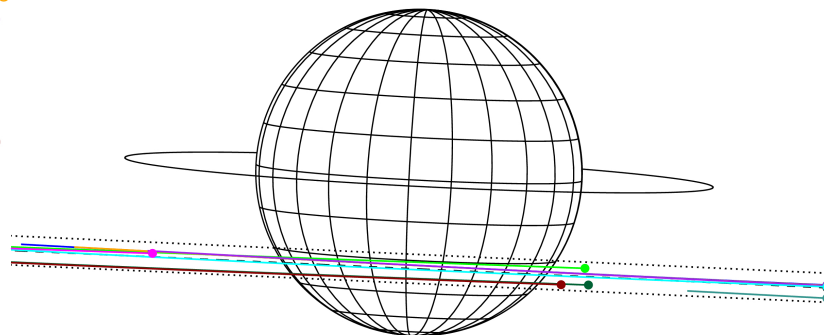
ICRS Star Coord at Epoch: 05h 25m 19.62776s +22:37:30.72344s

RUWE (>1.4 is poor) : 1.17
 K magnitude : 8.143
 G magnitude : 11.629
 RP magnitude : 10.577
 BP magnitude : 12.780
 DUPflag : 0
 Distance (au) : 4.119
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.32
 Sun-Target sep (deg) : 168.34
 Sun-Moon sep (deg) : 26.30
 B (ring opening deg) : 2.72
 PA of pole (deg) : -2.89
 Pole direction: RA (deg): 268.05632
 Dec (deg): 64.49687
 C/A sky separation (") : 14.145
 C/A sky separation (km) : 42258.6
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2036-12-02T11:21:33 K8.14 G11.63
 Pgt



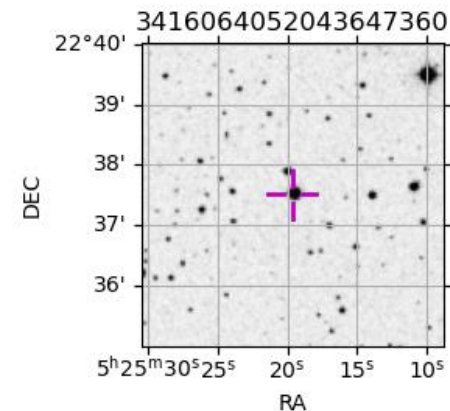
Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 ESO
 AAT
 MSO



2036-12-02T11:21:33.7200 a: 05 25 19.62776 s: +22 37 30.723 C/A ***** PA 357.38 deg v_sky -16.33 km/s D 04.12 AU
 Credit: Styled after SORA/Lucky Star

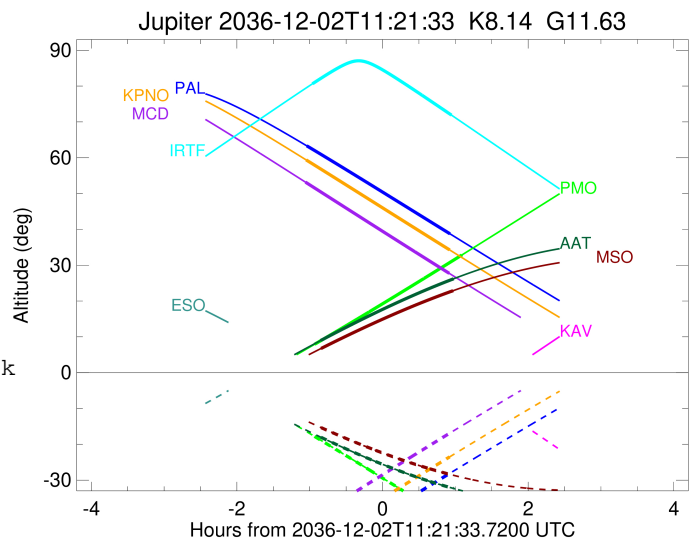
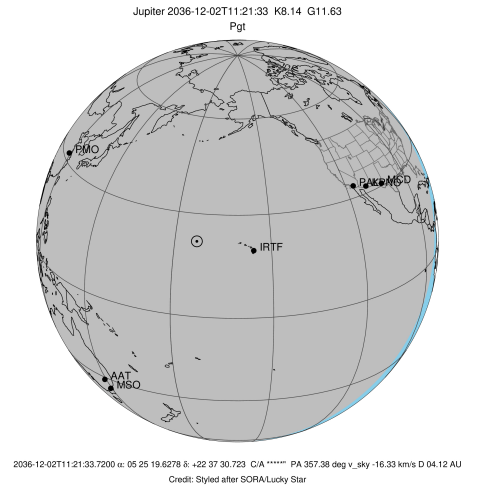
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	DEC 02 10:19 - DEC 02 12:17	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	DEC 02 10:25 - DEC 02 12:27	Pie
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	DEC 02 10:18 - DEC 02 12:16	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	DEC 02 10:18 - DEC 02 12:16	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	DEC 02 10:23 - DEC 02 12:18	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	+ +	DEC 02 10:30 - DEC 02 12:20	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	DEC 02 10:30 - DEC 02 12:19	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-12-02T11:18:01.580
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        : 3416064052043647360
2Mass ID (if available) : 05251963+2237308
ICRS Star Coord at Epoch: 05h 25m 19.62776s +22:37:30.72344s
RUWE (>1.4 is poor) : 1.17
K magnitude           : 8.143
G magnitude           : 11.629
RP magnitude          : 10.577
BP magnitude          : 12.780
DUPflag              : 0
Distance (au)         : 4.119
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.32
Sun-Target sep (deg) : 168.34
Sun-Moon sep (deg)   : 27.17
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.89
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation ("): 13.625
C/A sky separation (km): 40704.2
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
    
```

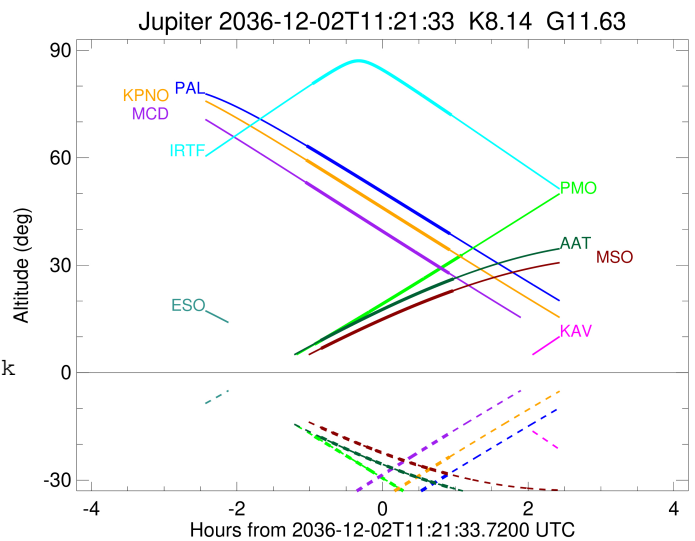
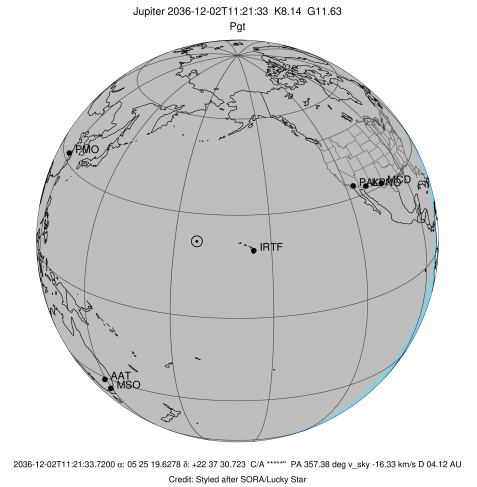


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-12-02T10:19:07.903	63.32	-52.67	71488.7	-34.64	-38.22
Jupiter	E	2036-12-02T12:17:08.206	38.76	-28.08	71488.7	-34.58	-38.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-12-02T11:26:29.980
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PMO
Location              : Purple Mtn Obs. Nanking
Latitude (deg)        : 32.06667
E. Longitude (deg)    : 118.82089
Altitude (km)         : 0.364
Gaia source ID        : 3416064052043647360
2Mass ID (if available) : 05251963+2237308
ICRS Star Coord at Epoch: 05h 25m 19.62776s +22:37:30.72344s
RUWE (>1.4 is poor) : 1.17
K magnitude           : 8.143
G magnitude           : 11.629
RP magnitude          : 10.577
BP magnitude          : 12.780
DUPflag              : 0
Distance (au)         : 4.119
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.32
Sun-Target sep (deg)  : 168.34
Sun-Moon sep (deg)    : 25.82
B (ring opening deg) : 2.72
PA of pole (deg)      : -2.89
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 13.158
C/A sky separation (km) : 39311.0
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
    
```

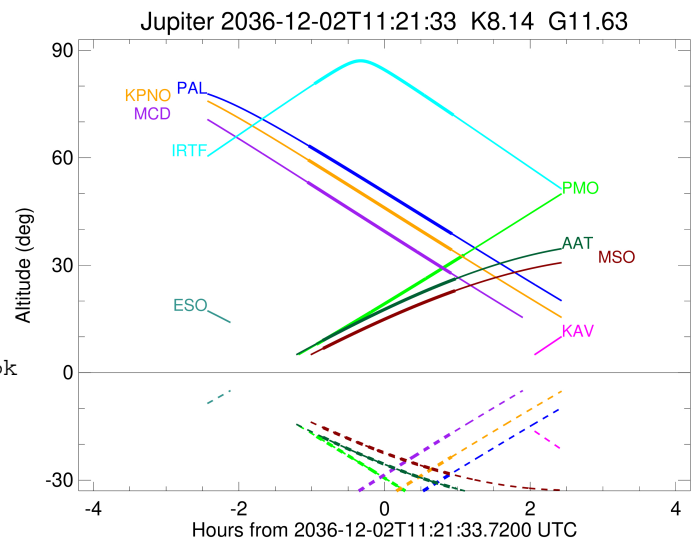
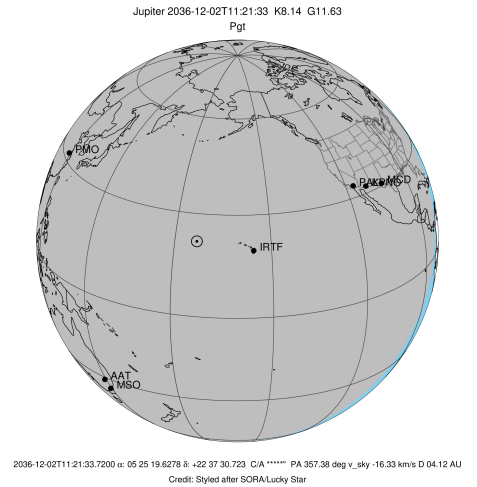


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-12-02T10:25:34.973	7.92	-17.80	71489.1	-32.51	-36.01
Jupiter	E	2036-12-02T12:27:01.690	32.86	-43.23	71488.8	-34.11	-37.67

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-12-02T11:17:38.920
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      : 3416064052043647360
2Mass ID (if available) : 05251963+2237308
ICRS Star Coord at Epoch: 05h 25m 19.62776s +22:37:30.72344s
RUWE (>1.4 is poor) : 1.17
K magnitude          : 8.143
G magnitude          : 11.629
RP magnitude         : 10.577
BP magnitude         : 12.780
DUPflag             : 0
Distance (au)       : 4.119
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.32
Sun-Target sep (deg) : 168.34
Sun-Moon sep (deg)  : 27.20
B (ring opening deg) : 2.72
PA of pole (deg)    : -2.89
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 13.634
C/A sky separation (km) : 40731.1
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
    
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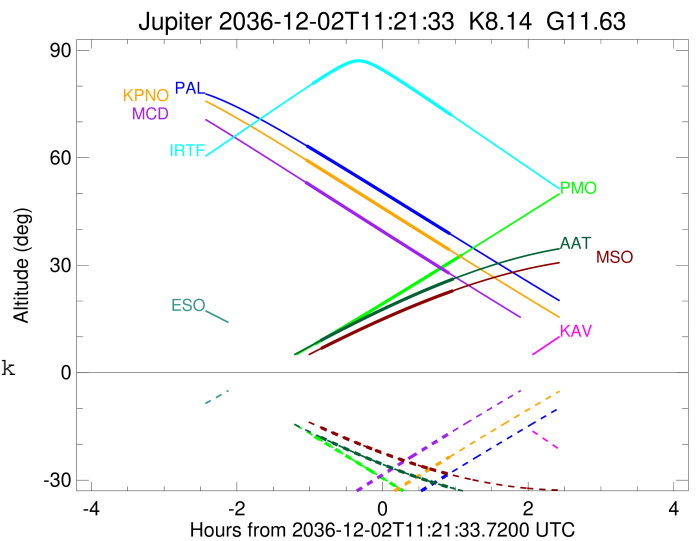
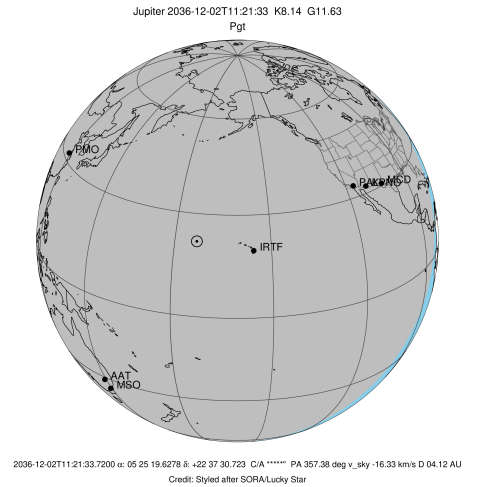


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-12-02T10:18:43.006	59.37	-48.43	71488.7	-34.71	-38.30
Jupiter	E	2036-12-02T12:16:49.403	34.27	-23.52	71488.7	-34.56	-38.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2036-12-02T11:17:10.490
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       : 3416064052043647360
2Mass ID (if available) : 05251963+2237308
ICRS Star Coord at Epoch: 05h 25m 19.62776s +22:37:30.72344s
RUWE (>1.4 is poor) : 1.17
K magnitude           : 8.143
G magnitude           : 11.629
RP magnitude         : 10.577
BP magnitude         : 12.780
DUPflag              : 0
Distance (au)        : 4.119
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.32
Sun-Target sep (deg) : 168.34
Sun-Moon sep (deg)   : 27.23
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.89
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 13.613
C/A sky separation (km) : 40669.0
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
    
```

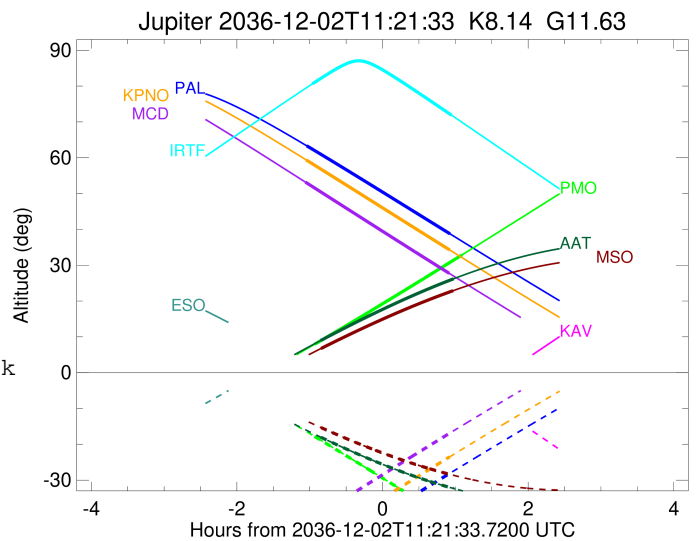
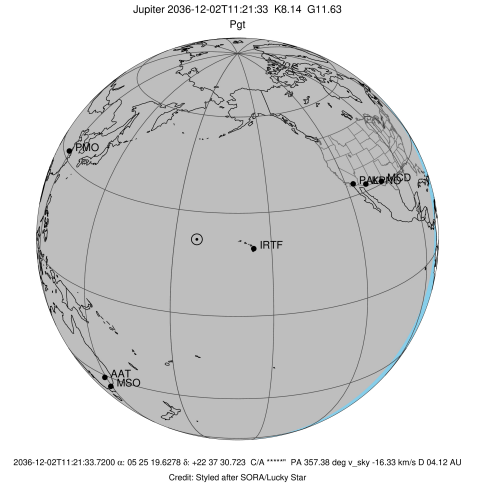


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-12-02T10:18:05.526	53.17	-42.06	71488.7	-34.71	-38.30
Jupiter	E	2036-12-02T12:16:32.128	27.73	-16.98	71488.8	-34.45	-38.03

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-12-02T11:21:03.130
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       : 3416064052043647360
2Mass ID (if available) : 05251963+2237308
ICRS Star Coord at Epoch: 05h 25m 19.62776s +22:37:30.72344s
RUWE (>1.4 is poor) : 1.17
K magnitude           : 8.143
G magnitude           : 11.629
RP magnitude         : 10.577
BP magnitude         : 12.780
DUPflag              : 0
Distance (au)        : 4.119
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.32
Sun-Target sep (deg) : 168.34
Sun-Moon sep (deg)   : 26.79
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.89
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation ("): 14.259
C/A sky separation (km): 42599.5
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
    
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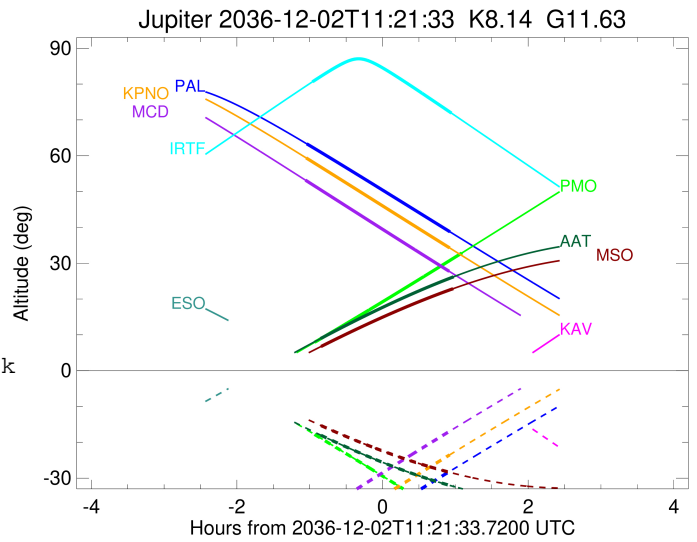
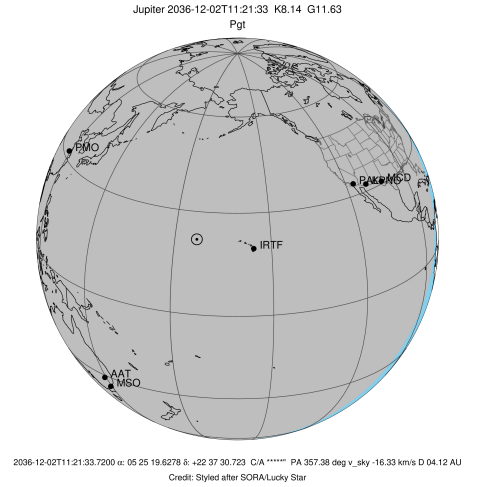


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-12-02T10:23:54.244	80.64	-86.25	71488.5	-36.17	-39.80
Jupiter	E	2036-12-02T12:18:12.701	71.93	-60.35	71488.4	-36.74	-40.39

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-12-02T11:25:37.180
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : AAT
Location             : Siding Spring (AAT)
Latitude (deg)       : -31.27703
E. Longitude (deg)   : 149.06608
Altitude (km)        : 1.164
Gaia source ID       : 3416064052043647360
2Mass ID (if available) : 05251963+2237308
ICRS Star Coord at Epoch: 05h 25m 19.62776s +22:37:30.72344s
RUWE (>1.4 is poor) : 1.17
K magnitude           : 8.143
G magnitude           : 11.629
RP magnitude          : 10.577
BP magnitude          : 12.780
DUPflag              : 0
Distance (au)        : 4.119
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.32
Sun-Target sep (deg) : 168.34
Sun-Moon sep (deg)   : 25.73
B (ring opening deg) : 2.72
PA of pole (deg)     : -2.89
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 15.560
C/A sky separation (km) : 46485.6
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
    
```

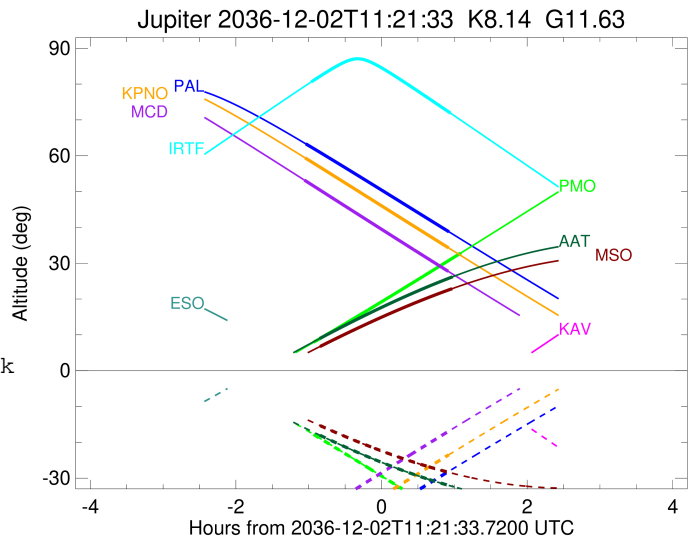
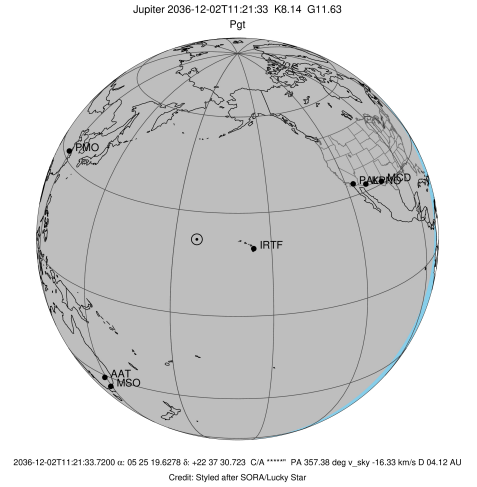


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2036-12-02T10:30:51.607	9.01	-18.03	71487.9	-39.76	-43.47
Jupiter	E	2036-12-02T12:20:07.950	26.20	-32.32	71487.6	-41.18	-44.89

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2036-12-02T11:25:27.600
Event type          : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code       : MSO
Location            : Mt. Stromlo Observatory
Latitude (deg)      : -35.32000
E. Longitude (deg)  : 149.00833
Altitude (km)       : 0.770
Gaia source ID      : 3416064052043647360
2Mass ID (if available) : 05251963+2237308
ICRS Star Coord at Epoch: 05h 25m 19.62776s +22:37:30.72344s
RUWE (>1.4 is poor) : 1.17
K magnitude         : 8.143
G magnitude         : 11.629
RP magnitude        : 10.577
BP magnitude        : 12.780
DUPflag            : 0
Distance (au)       : 4.119
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.32
Sun-Target sep (deg) : 168.34
Sun-Moon sep (deg)  : 25.73
B (ring opening deg) : 2.72
PA of pole (deg)    : -2.89
Pole direction: RA (deg): 268.05632
Dec (deg): 64.49687
C/A sky separation (") : 15.656
C/A sky separation (km) : 46774.3
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	2036-12-02T10:30:55.123	6.75	-15.33	71487.8	-40.09	-43.79
Jupiter	E	2036-12-02T12:19:45.989	22.88	-28.62	71487.6	-41.46	-45.18