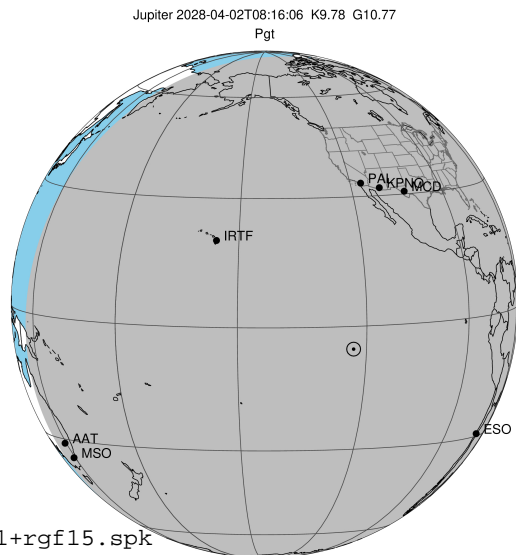


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2028-04-02T08:16:06.360
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 3814082352150979584
 2Mass ID (if available) : 11241285+0529303

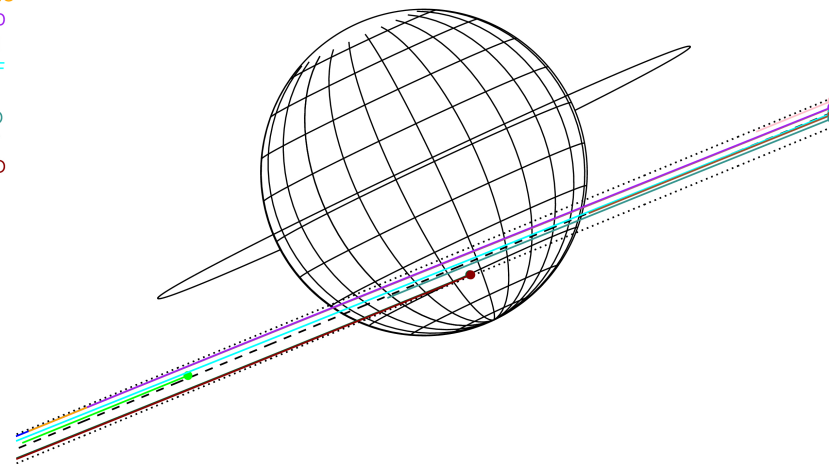
Jupiter 2028-04-02T08:16:06 K9.78 G10.77 Pgt

ICRS Star Coord at Epoch: 11h 24m 12.86861s +05:29:30.30705s

RUWE (>1.4 is poor) : 0.91
 K magnitude : 9.776
 G magnitude : 10.770
 RP magnitude : 10.390
 BP magnitude : 11.000
 DUPflag : 0
 Distance (au) : 4.503
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.12
 Sun-Target sep (deg) : 156.85
 Sun-Moon sep (deg) : 72.66
 B (ring opening deg) : -1.96
 PA of pole (deg) : 25.32
 Pole direction: RA (deg): 268.05761
 Dec (deg): 64.49661
 C/A sky separation (") : 13.437
 C/A sky separation (km) : 43887.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



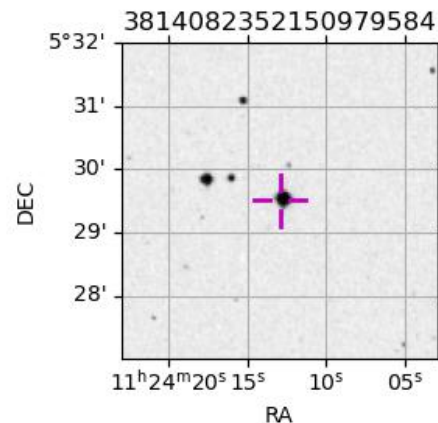
Earth
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 MSO



2028-04-02T08:16:06.3600 a: 11 24 12.8686 s: +05 29 30.307 C/A ***** PA 22.41 deg v_sky -15.12 km/s D 04.50 AU
 Credit: Styled after SORA/Lucky Star

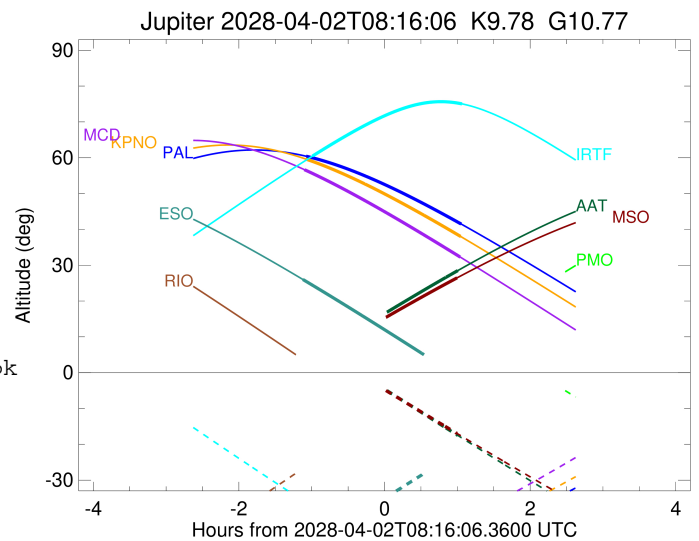
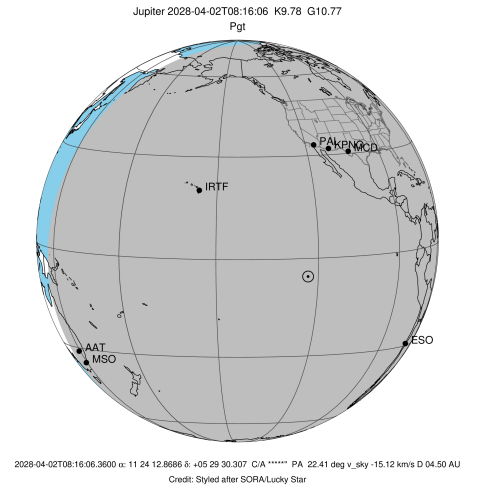
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	APR 02 07:11 - APR 02 09:19	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	APR 02 07:11 - APR 02 09:18	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	APR 02 07:10 - APR 02 09:18	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	APR 02 07:16 - APR 02 09:19	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	+	APR 02 07:08 - APR 02 07:08	Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+	APR 02 09:16 - APR 02 09:16	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	APR 02 09:15 - APR 02 09:15	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2028-04-02T08:15:21.450
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      : 3814082352150979584
2Mass ID (if available) : 11241285+0529303
ICRS Star Coord at Epoch: 11h 24m 12.86861s +05:29:30.30705s
RUWE (>1.4 is poor) : 0.91
K magnitude         : 9.776
G magnitude         : 10.770
RP magnitude        : 10.390
BP magnitude        : 11.000
DUPflag            : 0
Distance (au)       : 4.503
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -15.12
Sun-Target sep (deg) : 156.85
Sun-Moon sep (deg)  : 73.44
B (ring opening deg) : -1.96
PA of pole (deg)    : 25.32
Pole direction: RA (deg): 268.05761
Dec (deg): 64.49661
C/A sky separation (" ) : 12.300
C/A sky separation (km) : 40171.6
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
    
```

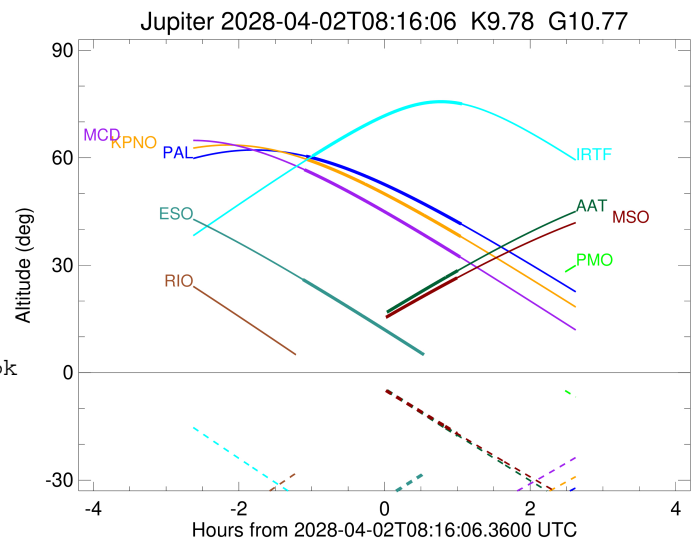
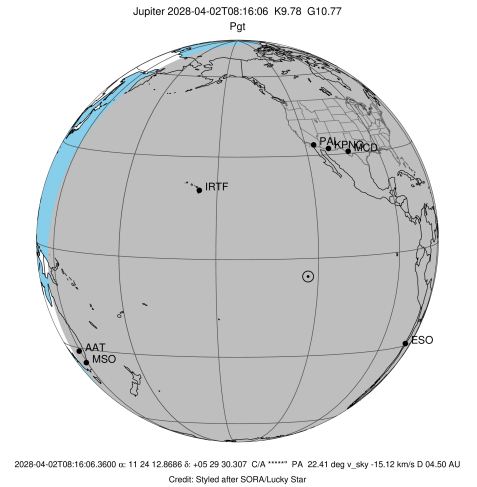


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2028-04-02T07:11:37.769	60.40	-50.54	71490.0	-37.62	-41.29
Jupiter	E	2028-04-02T09:19:18.848	41.48	-46.28	71490.6	-30.74	-34.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2028-04-02T08:14:50.110
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      : 3814082352150979584
2Mass ID (if available) : 11241285+0529303
ICRS Star Coord at Epoch: 11h 24m 12.86861s +05:29:30.30705s
RUWE (>1.4 is poor) : 0.91
K magnitude          : 9.776
G magnitude          : 10.770
RP magnitude         : 10.390
BP magnitude         : 11.000
DUPflag             : 0
Distance (au)       : 4.503
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.12
Sun-Target sep (deg) : 156.85
Sun-Moon sep (deg)  : 73.43
B (ring opening deg) : -1.96
PA of pole (deg)    : 25.32
Pole direction: RA (deg): 268.05761
Dec (deg): 64.49661
C/A sky separation ("): 12.278
C/A sky separation (km): 40101.2
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
    
```

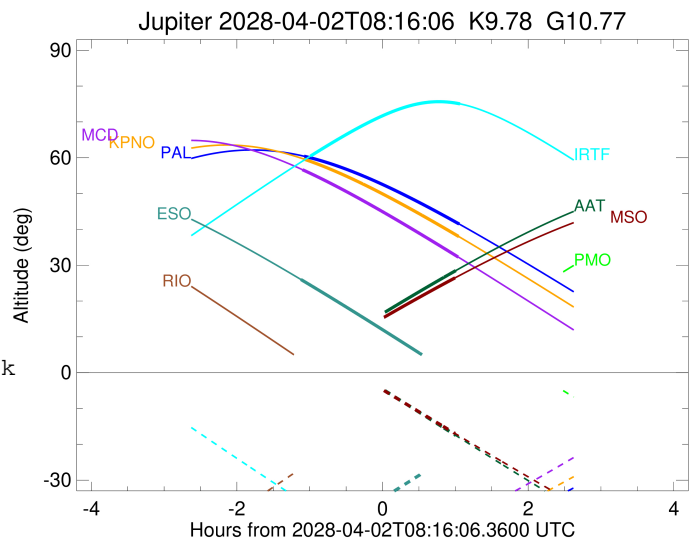
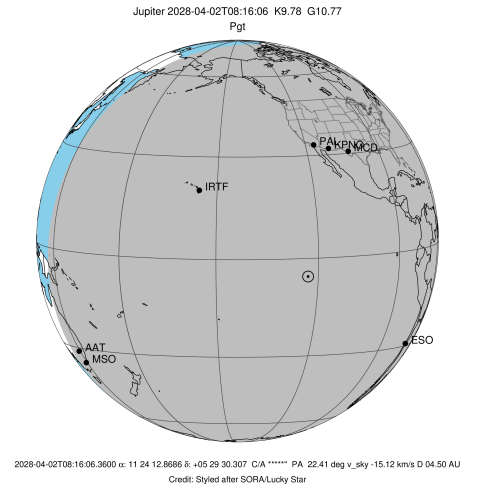


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2028-04-02T07:11:01.754	59.65	-52.77	71490.0	-37.56	-41.22
Jupiter	E	2028-04-02T09:18:54.349	38.01	-44.81	71490.6	-30.69	-34.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2028-04-02T08:14:09.120
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        : 3814082352150979584
2Mass ID (if available) : 11241285+0529303
ICRS Star Coord at Epoch: 11h 24m 12.86861s +05:29:30.30705s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.776
G magnitude           : 10.770
RP magnitude          : 10.390
BP magnitude          : 11.000
DUPflag              : 0
Distance (au)         : 4.503
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.12
Sun-Target sep (deg) : 156.85
Sun-Moon sep (deg)   : 73.40
B (ring opening deg) : -1.96
PA of pole (deg)     : 25.32
Pole direction: RA (deg): 268.05761
Dec (deg): 64.49661
C/A sky separation ("): 12.231
C/A sky separation (km): 39948.4
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
    
```

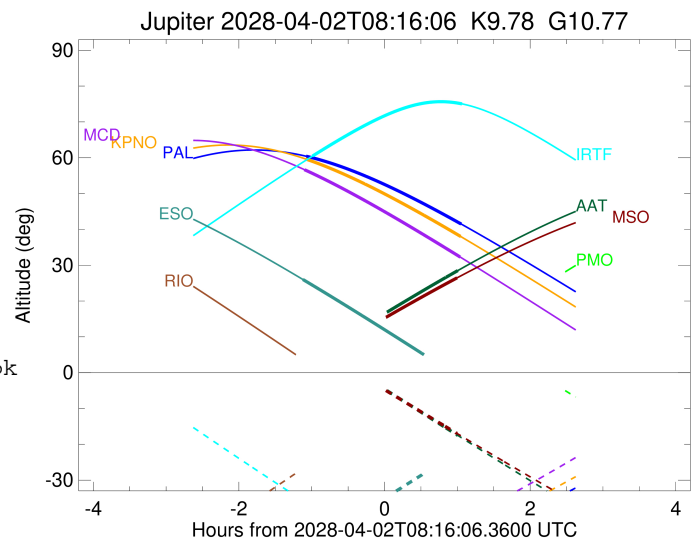
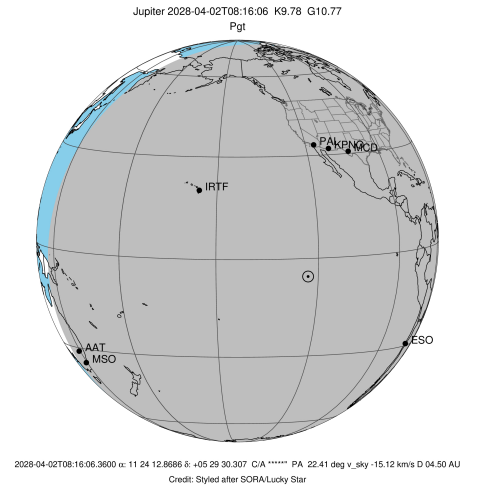


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2028-04-02T07:10:09.811	56.65	-54.24	71490.1	-37.40	-41.06
Jupiter	E	2028-04-02T09:18:27.315	32.28	-41.24	71490.6	-30.57	-33.97

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2028-04-02T08:18:25.760
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        : 3814082352150979584
2Mass ID (if available) : 11241285+0529303
ICRS Star Coord at Epoch: 11h 24m 12.86861s +05:29:30.30705s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.776
G magnitude           : 10.770
RP magnitude          : 10.390
BP magnitude          : 11.000
DUPflag              : 0
Distance (au)         : 4.503
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.12
Sun-Target sep (deg) : 156.85
Sun-Moon sep (deg)   : 73.46
B (ring opening deg) : -1.96
PA of pole (deg)     : 25.32
Pole direction: RA (deg): 268.05761
Dec (deg): 64.49661
C/A sky separation ("): 13.122
C/A sky separation (km): 42856.8
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
    
```

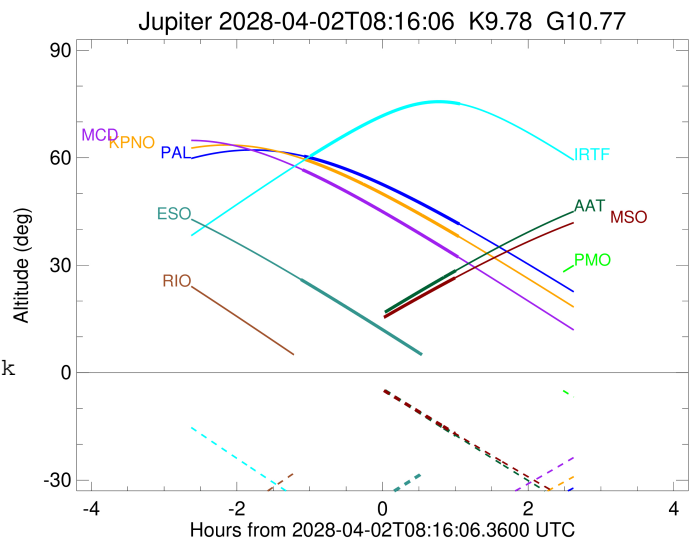
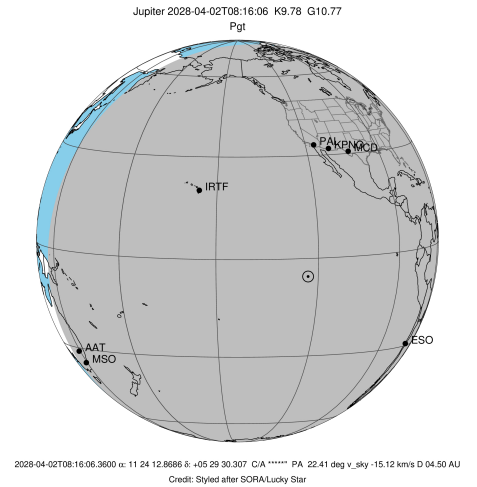


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2028-04-02T07:16:55.830	60.49	-37.43	71489.8	-40.24	-43.95
Jupiter	E	2028-04-02T09:19:53.153	75.03	-60.35	71490.4	-33.30	-36.83

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2028-04-02T08:09:37.560
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        : 3814082352150979584
2Mass ID (if available) : 11241285+0529303
ICRS Star Coord at Epoch: 11h 24m 12.86861s +05:29:30.30705s
RUWE (>1.4 is poor)  : 0.91
K magnitude            : 9.776
G magnitude            : 10.770
RP magnitude           : 10.390
BP magnitude           : 11.000
DUPflag                : 0
Distance (au)         : 4.503
f0 (km)                : 0.00
g0 (km)                : 0.00
skyplane vel. (km/s)  : -15.12
Sun-Target sep (deg)  : 156.85
Sun-Moon sep (deg)    : 73.12
B (ring opening deg)  : -1.96
PA of pole (deg)      : 25.32
Pole direction: RA (deg): 268.05761
Dec (deg): 64.49661
C/A sky separation (") : 13.741
C/A sky separation (km) : 44877.2
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
    
```

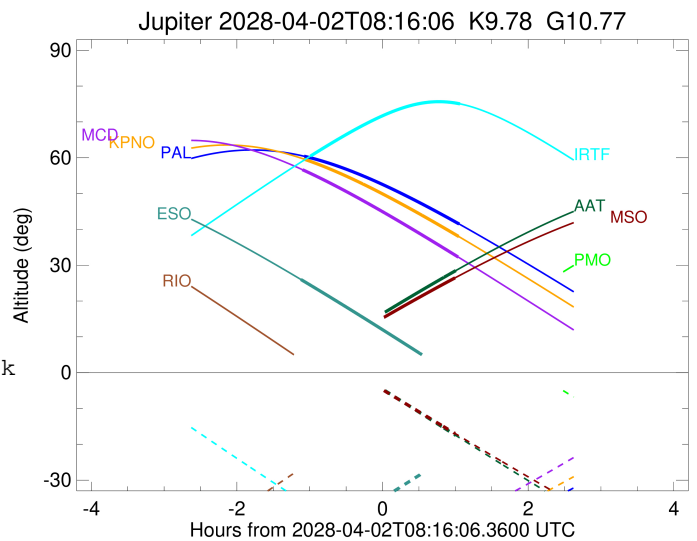
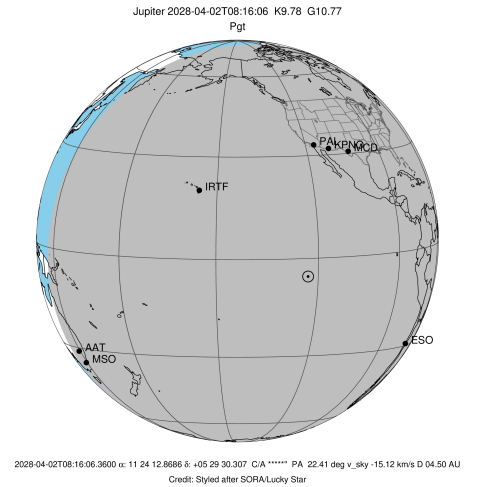


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2028-04-02T07:08:59.070	25.98	-48.68	71489.6	-42.13	-45.85
Jupiter	E	2028-04-02T09:10:40.706	0.22x	-23.39	71490.2	-35.72	-39.34

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2028-04-02T08:19:49.950
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       : 3814082352150979584
2Mass ID (if available) : 11241285+0529303
ICRS Star Coord at Epoch: 11h 24m 12.86861s +05:29:30.30705s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 9.776
G magnitude           : 10.770
RP magnitude          : 10.390
BP magnitude          : 11.000
DUPflag              : 0
Distance (au)        : 4.503
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.12
Sun-Target sep (deg) : 156.85
Sun-Moon sep (deg)   : 72.78
B (ring opening deg) : -1.96
PA of pole (deg)     : 25.32
Pole direction: RA (deg): 268.05761
Dec (deg): 64.49661
C/A sky separation ("): 15.007
C/A sky separation (km): 49012.6
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
    
```

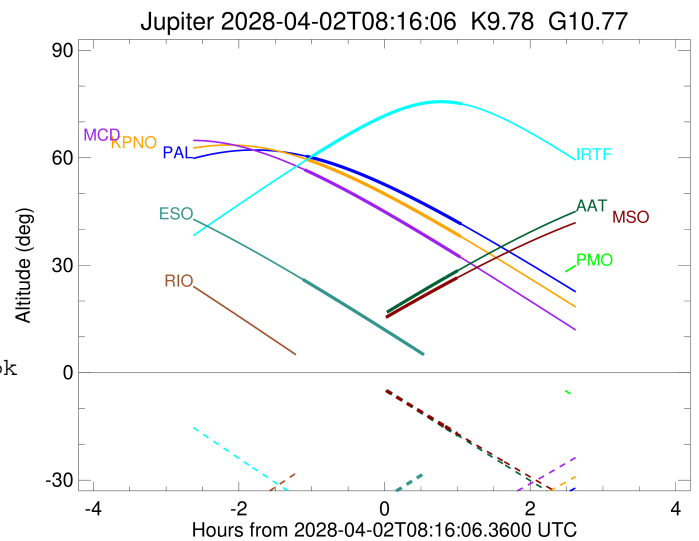
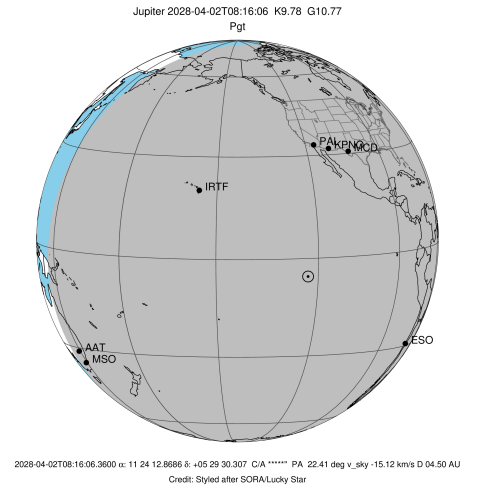


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2028-04-02T07:22:52.268	5.34	6.74x	71489.3	-46.19	-49.87
Jupiter	E	2028-04-02T09:16:31.060	28.49	-17.51	71489.8	-40.17	-43.88


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2028-04-02T08:19:27.030
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      : 3814082352150979584
2Mass ID (if available) : 11241285+0529303
ICRS Star Coord at Epoch: 11h 24m 12.86861s +05:29:30.30705s
RUWE (>1.4 is poor) : 0.91
K magnitude         : 9.776
G magnitude         : 10.770
RP magnitude        : 10.390
BP magnitude        : 11.000
DUPflag            : 0
Distance (au)       : 4.503
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -15.12
Sun-Target sep (deg) : 156.85
Sun-Moon sep (deg)  : 72.78
B (ring opening deg) : -1.96
PA of pole (deg)    : 25.32
Pole direction: RA (deg): 268.05761
Dec (deg): 64.49661
C/A sky separation (" ) : 15.084
C/A sky separation (km) : 49263.7
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	2028-04-02T07:22:43.759	4.59x	6.09x	71489.2	-46.46	-50.14
Jupiter	E	2028-04-02T09:15:54.652	26.47	-16.97	71489.8	-40.46	-44.17