

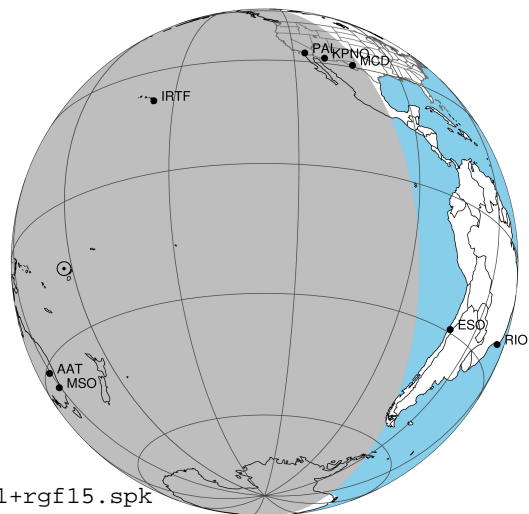
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-05-01T12:08:30.510
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066622306052469120
 2Mass ID (if available) : 18120536-2258558

Jupiter 2043-05-01T12:08:30 K8.72 G13.34 Pgt

ICRS Star Coord at Epoch: 18h 12m 05.36959s -22:58:55.87956s

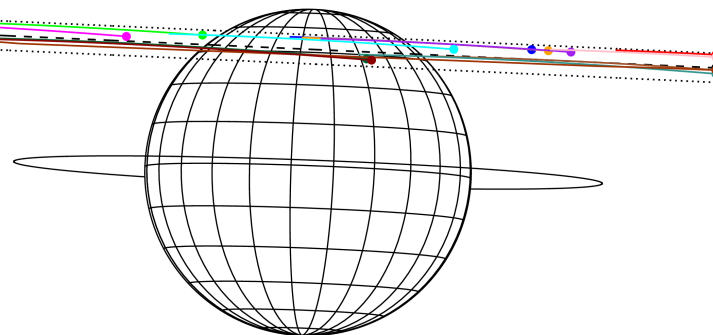
RUWE (>1.4 is poor) : 2.30
 K magnitude : 8.718
 G magnitude : 13.344
 RP magnitude : 12.155
 BP magnitude : 14.865
 DUPflag : 0
 Distance (au) : 4.608
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -4.91
 Sun-Target sep (deg) : 127.65
 Sun-Moon sep (deg) : 27.84
 B (ring opening deg) : -2.44
 PA of pole (deg) : -2.14
 Pole direction: RA (deg): 268.05666
 Dec (deg): 64.49732
 C/A sky separation (") : 16.139
 C/A sky separation (km) : 53932.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-05-01T12:08:30 K8.72 G13.34
 Pgt



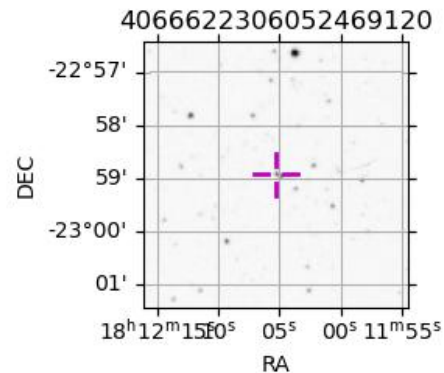
2043-05-01T12:08:30.5100 α: 18 12 05.3696 δ: -22 58 55.880 C/A ***** PA 177.41 deg v_sky - 4.91 km/s D 04.61 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



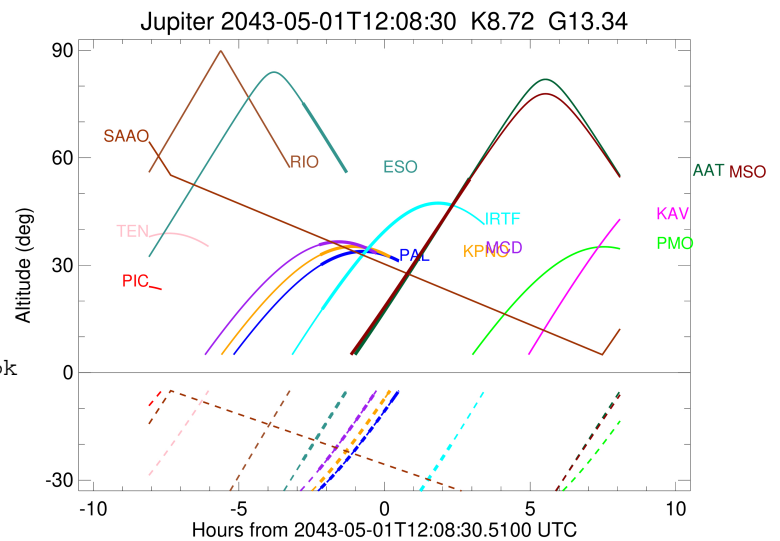
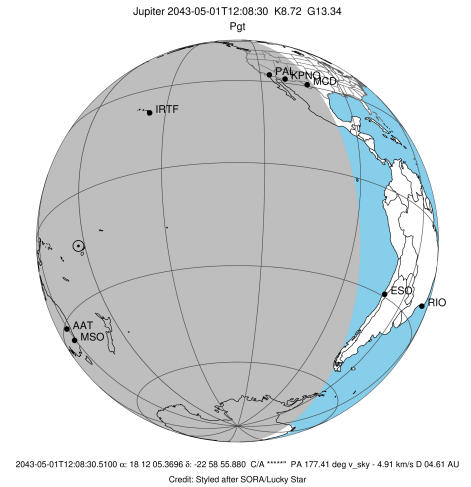
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAY 01 09:57 - MAY 01 09:57	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAY 01 09:56 - MAY 01 09:56	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAY 01 09:53 - MAY 01 09:53	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	MAY 01 10:00 - MAY 01 14:25	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	+	MAY 01 09:20 - MAY 01 09:20	Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+	MAY 01 15:03 - MAY 01 15:03	Pne
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAY 01 15:04 - MAY 01 15:04	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-01T12:06:07.840
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        : 4066622306052469120
2Mass ID (if available) : 18120536-2258558
ICRS Star Coord at Epoch: 18h 12m 05.36959s -22:58:55.87956s
RUWE (>1.4 is poor) : 2.30
K magnitude           : 8.718
G magnitude           : 13.344
RP magnitude          : 12.155
BP magnitude          : 14.865
DUPflag              : 0
Distance (au)         : 4.608
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.91
Sun-Target sep (deg)  : 127.65
Sun-Moon sep (deg)    : 28.08
B (ring opening deg) : -2.44
PA of pole (deg)     : -2.14
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 17.697
C/A sky separation (km) : 59140.0
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
    
```

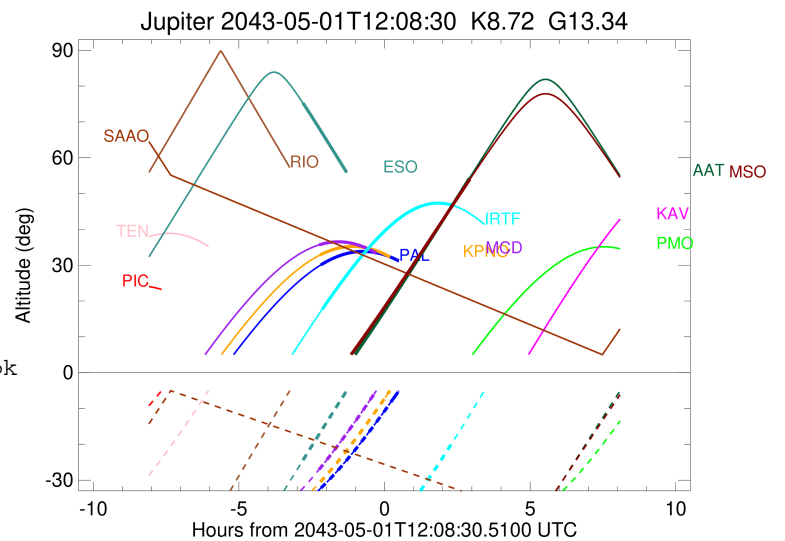
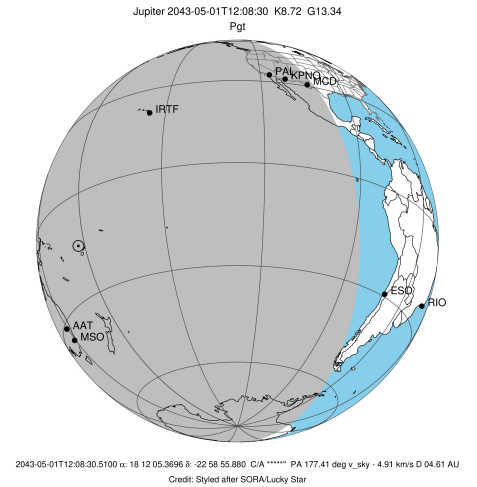


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T09:57:41.499	30.10	-32.20	71486.5	55.33	58.68
Jupiter	E	2043-05-01T14:14:33.240	20.75	14.40x	71486.5	55.28	58.64

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-01T12:05:02.770
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        : 4066622306052469120
2Mass ID (if available) : 18120536-2258558
ICRS Star Coord at Epoch: 18h 12m 05.36959s -22:58:55.87956s
RUWE (>1.4 is poor) : 2.30
K magnitude           : 8.718
G magnitude           : 13.344
RP magnitude          : 12.155
BP magnitude          : 14.865
DUPflag              : 0
Distance (au)         : 4.608
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.91
Sun-Target sep (deg)  : 127.65
Sun-Moon sep (deg)    : 28.01
B (ring opening deg) : -2.44
PA of pole (deg)      : -2.14
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 17.652
C/A sky separation (km) : 58989.7
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
    
```

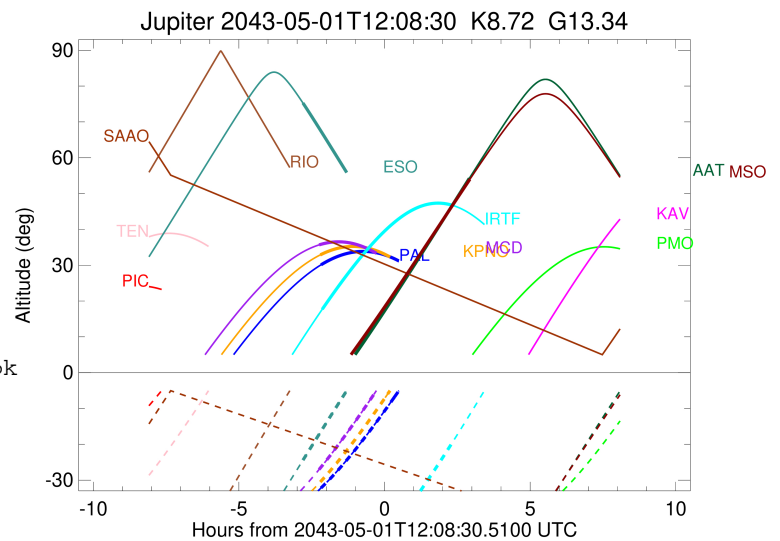
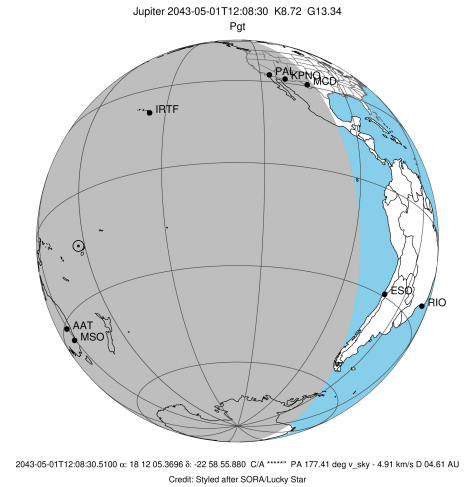


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T09:56:04.427	32.87	-30.53	71486.5	55.26	58.61
Jupiter	E	2043-05-01T14:14:25.805	18.69	18.59x	71486.6	54.93	58.31

```

target           : Jupiter
target radius (km) : 71492.00
C/A epoch       : 2043-05-01T12:03:29.830
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  : 4066622306052469120
2Mass ID (if available) : 18120536-2258558
ICRS Star Coord at Epoch: 18h 12m 05.36959s -22:58:55.87956s
RUWE (>1.4 is poor) : 2.30
K magnitude     : 8.718
G magnitude     : 13.344
RP magnitude    : 12.155
BP magnitude    : 14.865
DUPflag        : 0
Distance (au)   : 4.608
f0 (km)        : 0.00
g0 (km)        : 0.00
skyplane vel. (km/s) : -4.91
Sun-Target sep (deg) : 127.65
Sun-Moon sep (deg) : 27.91
B (ring opening deg) : -2.44
PA of pole (deg) : -2.14
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 17.592
C/A sky separation (km) : 58787.3
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
    
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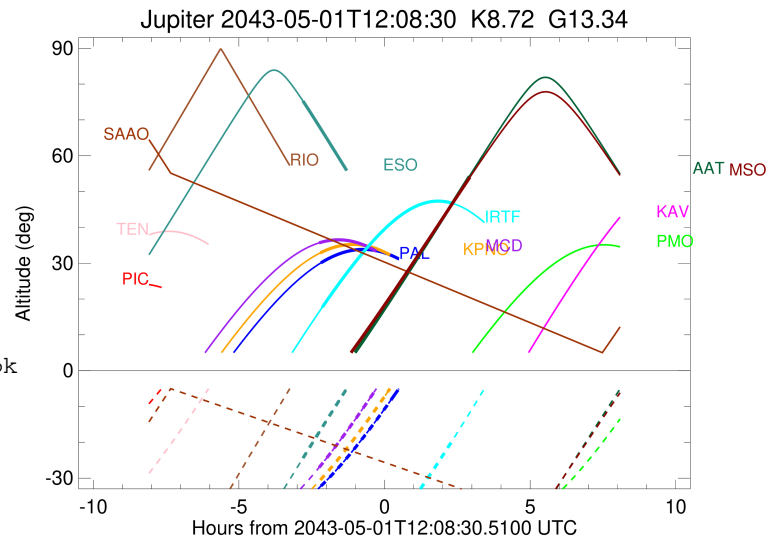
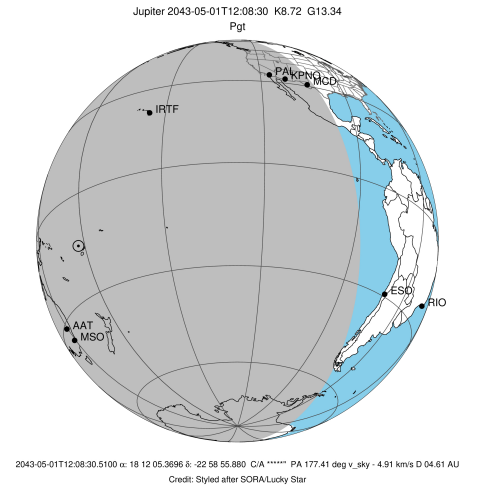


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T09:53:39.347	35.66	-27.04	71486.6	55.18	58.54
Jupiter	E	2043-05-01T14:14:22.428	14.66	24.92x	71486.6	54.47	57.87

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2043-05-01T12:14:43.050
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        : 4066622306052469120
2Mass ID (if available) : 18120536-2258558
ICRS Star Coord at Epoch: 18h 12m 05.36959s -22:58:55.87956s
RUWE (>1.4 is poor) : 2.30
K magnitude           : 8.718
G magnitude           : 13.344
RP magnitude          : 12.155
BP magnitude          : 14.865
DUPflag              : 0
Distance (au)         : 4.607
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.91
Sun-Target sep (deg)  : 127.65
Sun-Moon sep (deg)    : 28.57
B (ring opening deg) : -2.44
PA of pole (deg)      : -2.14
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 17.401
C/A sky separation (km) : 58147.2
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
    
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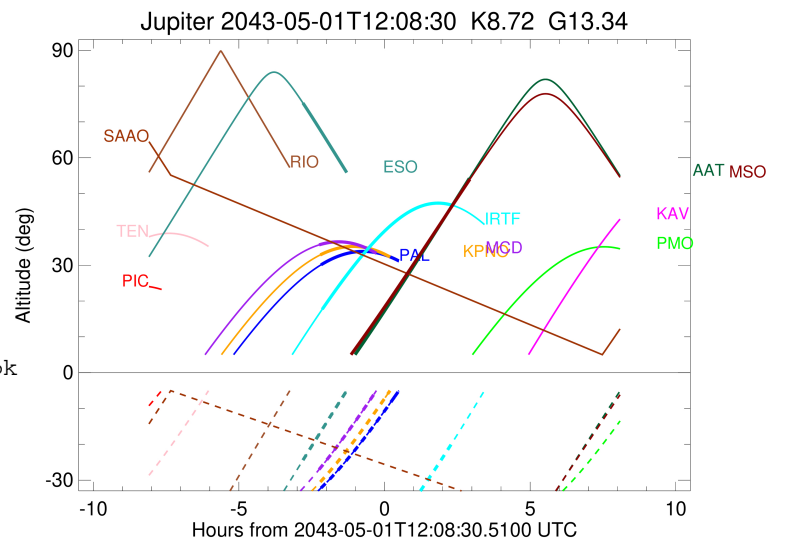
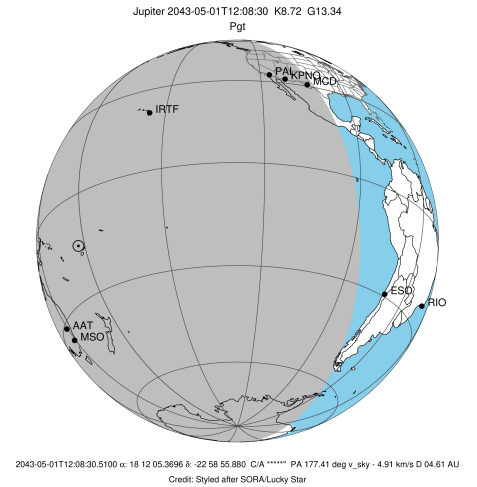


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T10:00:12.458	17.69	-54.88	71486.9	52.81	56.29
Jupiter	E	2043-05-01T14:25:47.127	46.82	-20.03	71486.6	54.88	58.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-01T11:58:14.590
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        : 4066622306052469120
2Mass ID (if available) : 18120536-2258558
ICRS Star Coord at Epoch: 18h 12m 05.36959s -22:58:55.87956s
RUWE (>1.4 is poor)  : 2.30
K magnitude           : 8.718
G magnitude           : 13.344
RP magnitude          : 12.155
BP magnitude          : 14.865
DUPflag              : 0
Distance (au)         : 4.608
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -4.91
Sun-Target sep (deg)  : 127.65
Sun-Moon sep (deg)    : 27.48
B (ring opening deg)  : -2.44
PA of pole (deg)      : -2.14
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 15.601
C/A sky separation (km) : 52136.7
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
    
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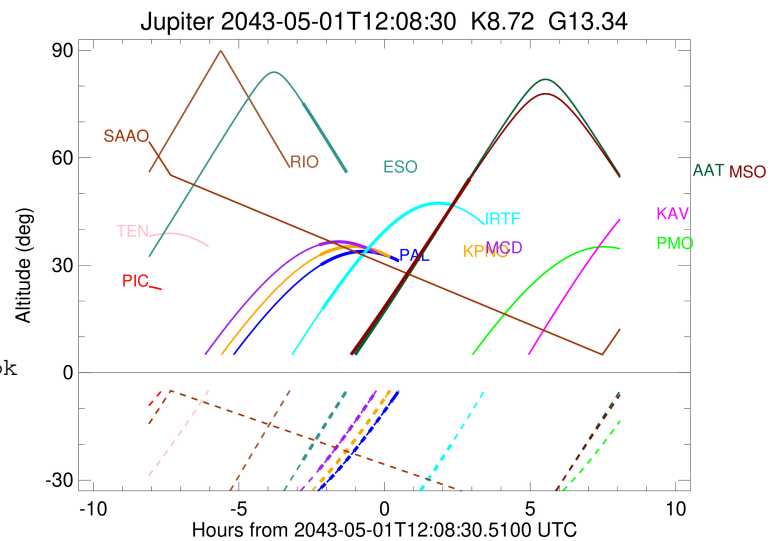
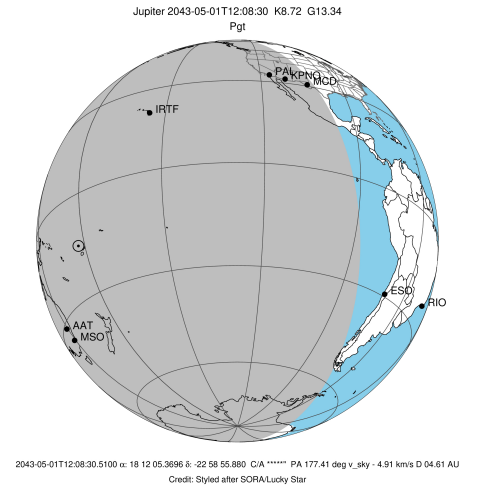


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T09:20:30.105	75.26	-24.43	71487.6	47.46	51.12
Jupiter	E	2043-05-01T14:40:58.804	6.64	37.22x	71487.9	45.46	49.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T12:21:56.060
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       : 4066622306052469120
2Mass ID (if available) : 18120536-2258558
ICRS Star Coord at Epoch: 18h 12m 05.36959s -22:58:55.87956s
RUWE (>1.4 is poor) : 2.30
K magnitude          : 8.718
G magnitude          : 13.344
RP magnitude         : 12.155
BP magnitude         : 14.865
DUPflag             : 0
Distance (au)        : 4.607
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.91
Sun-Target sep (deg) : 127.65
Sun-Moon sep (deg)   : 28.61
B (ring opening deg) : -2.44
PA of pole (deg)     : -2.14
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 15.433
C/A sky separation (km) : 51572.2
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
    
```

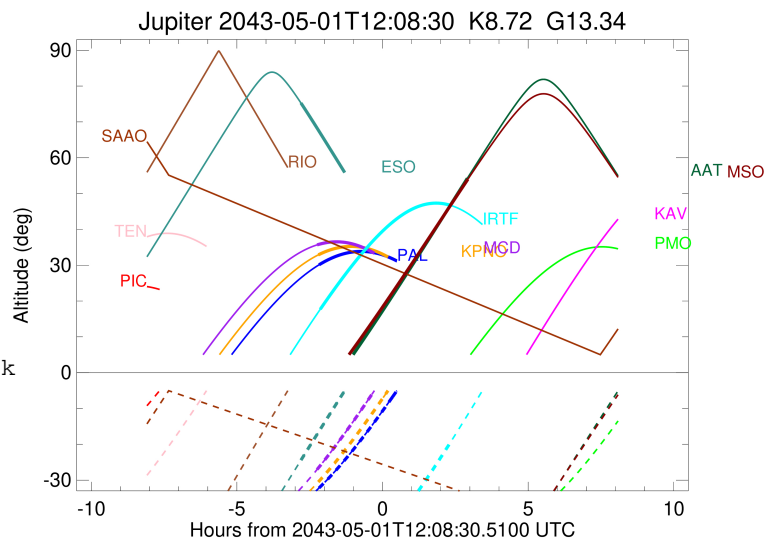
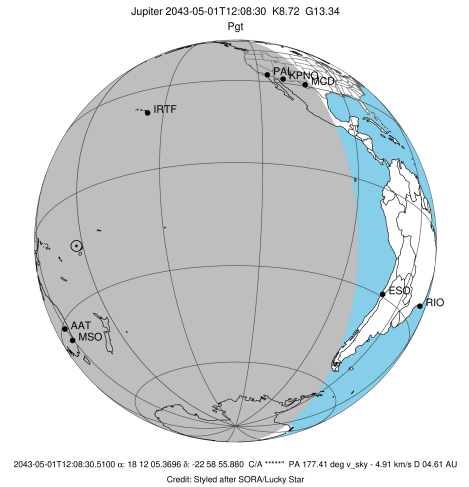


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T09:30:33.363	-12.99x	-26.75	71488.1	43.85	47.57
Jupiter	E	2043-05-01T15:03:29.619	54.28	-68.57	71487.5	47.91	51.56


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T12:21:26.840
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       : 4066622306052469120
2Mass ID (if available) : 18120536-2258558
ICRS Star Coord at Epoch: 18h 12m 05.36959s -22:58:55.87956s
RUWE (>1.4 is poor) : 2.30
K magnitude          : 8.718
G magnitude          : 13.344
RP magnitude         : 12.155
BP magnitude         : 14.865
DUPflag             : 0
Distance (au)        : 4.607
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.91
Sun-Target sep (deg) : 127.65
Sun-Moon sep (deg)   : 28.58
B (ring opening deg) : -2.44
PA of pole (deg)     : -2.14
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 15.319
C/A sky separation (km): 51190.4
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	2043-05-01T09:28:44.980	-10.85x	-26.41	71488.2	43.50	47.21
Jupiter	E	2043-05-01T15:04:31.793	54.02	-65.48	71487.6	47.41	51.07