

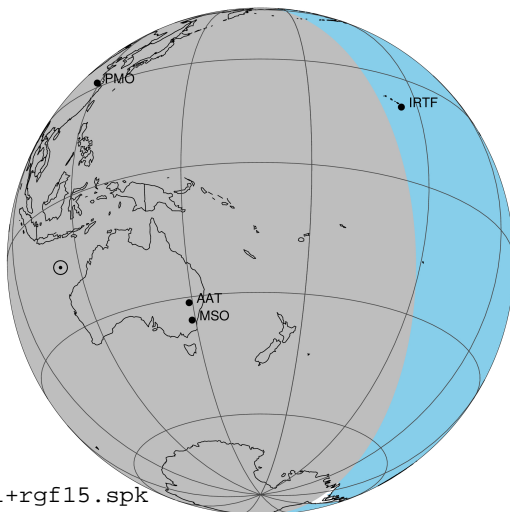
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-05-01T16:23:14.610
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066622202973255040
 2Mass ID (if available) : 18120378-2259127

Jupiter 2043-05-01T16:23:14 K8.35 G13.71 Pgt

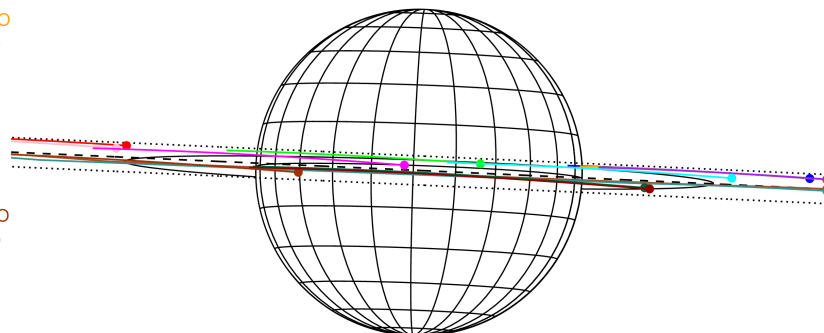
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s

RUWE (>1.4 is poor) : 1.01
 K magnitude : 8.354
 G magnitude : 13.711
 RP magnitude : 12.416
 BP magnitude : 15.626
 DUPflag : 0
 Distance (au) : 4.605
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -4.98
 Sun-Target sep (deg) : 127.83
 Sun-Moon sep (deg) : 30.04
 B (ring opening deg) : -2.43
 PA of pole (deg) : -2.13
 Pole direction: RA (deg): 268.05666
 Dec (deg): 64.49732
 C/A sky separation (") : 0.267
 C/A sky separation (km) : 891.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-05-01T16:23:14 K8.35 G13.71
 Pgt



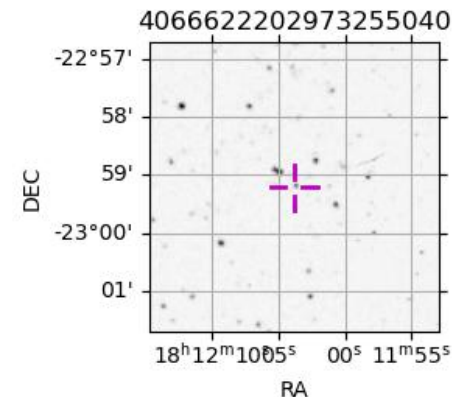
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-05-01T16:23:14.6100 α: 18 12 03.7845 δ: -22 59 12.763 C/A 0.256" PA 177.41 deg v_sky - 4.98 km/s D 04.61 AU
 Credit: Styled after SORA/Lucky Star

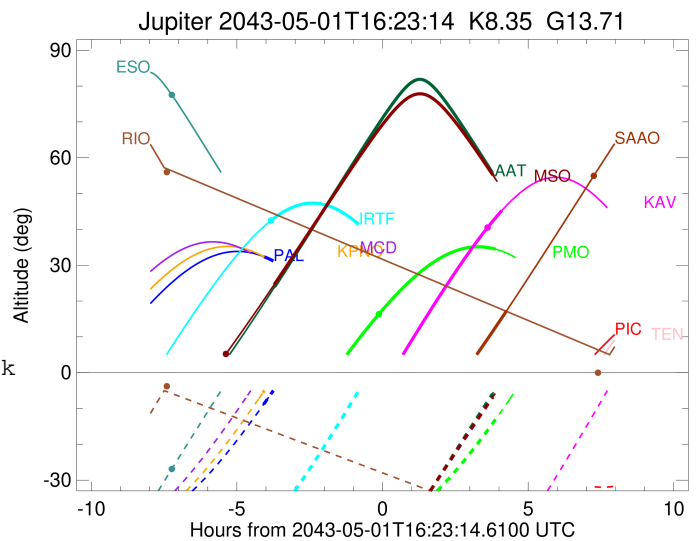
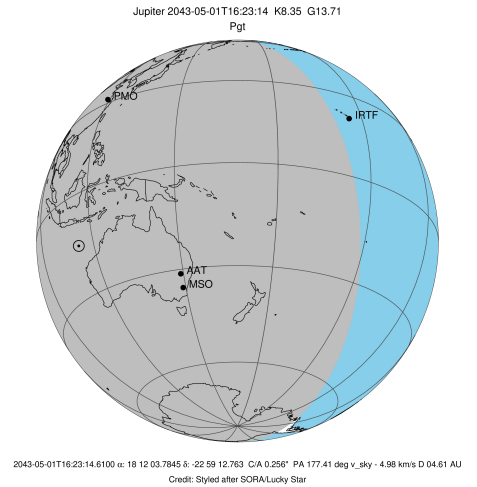
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAY 01 12:18 - MAY 01 12:18	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	MAY 01 20:16 - MAY 01 20:16	Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAY 01 12:16 - MAY 01 12:16	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	MAY 01 12:30 - MAY 01 12:30	Pin
KAV	Kavalur Observatory	12.6	78.8	+	MAY 01 20:29 - MAY 01 20:29	Pne
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	+	MAY 01 12:40 - MAY 01 20:10	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	MAY 01 20:38 - MAY 01 20:38	Pne
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	MAY 01 12:40 - MAY 01 20:10	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T16:06:13.750
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       : 4066622202973255040
2Mass ID (if available) : 18120378-2259127
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.354
G magnitude           : 13.711
RP magnitude         : 12.416
BP magnitude         : 15.626
DUPflag              : 0
Distance (au)        : 4.605
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.98
Sun-Target sep (deg) : 127.83
Sun-Moon sep (deg)   : 29.47
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 1.360
C/A sky separation (km): 4543.8
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
    
```

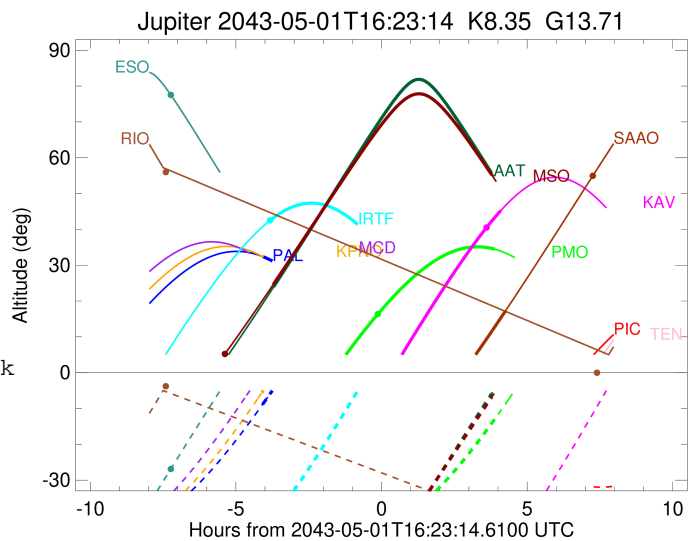
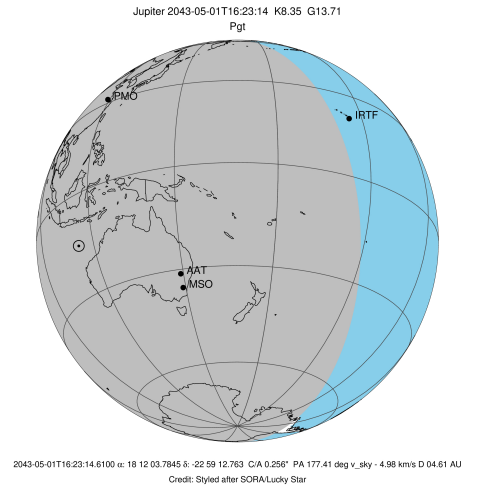


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T12:18:18.510	32.41	-8.85	71492.0	4.39	5.02
Jupiter	E	2043-05-01T20:07:03.458	-45.91x	71.34x	71492.0	2.48	2.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-01T16:35:14.660
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       : 4066622202973255040
2Mass ID (if available) : 18120378-2259127
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.354
G magnitude           : 13.711
RP magnitude         : 12.416
BP magnitude         : 15.626
DUPflag              : 0
Distance (au)        : 4.605
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.98
Sun-Target sep (deg) : 127.83
Sun-Moon sep (deg)   : 30.79
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 1.687
C/A sky separation (km): 5635.7
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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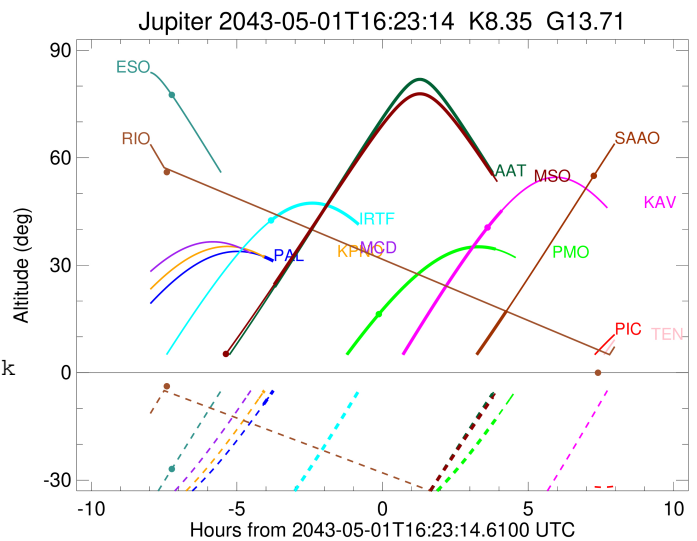
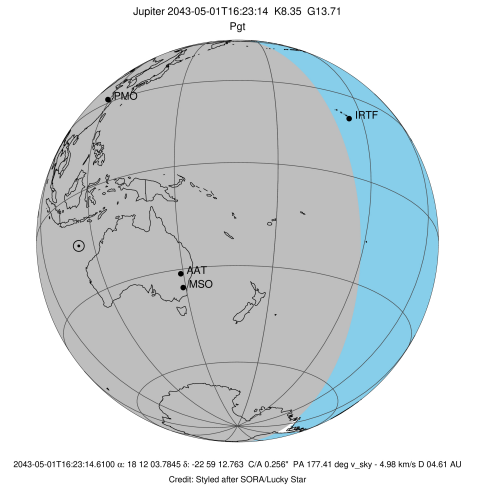


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T12:40:02.725	-24.51x	-22.59	71492.0	2.49	2.84
Jupiter	E	2043-05-01T20:16:21.223	34.47	-12.99	71491.9	5.28	6.04

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T16:05:31.870
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      : 4066622202973255040
2Mass ID (if available) : 18120378-2259127
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s
RUWE (>1.4 is poor) : 1.01
K magnitude         : 8.354
G magnitude         : 13.711
RP magnitude        : 12.416
BP magnitude        : 15.626
DUPflag            : 0
Distance (au)      : 4.605
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -4.98
Sun-Target sep (deg) : 127.83
Sun-Moon sep (deg)  : 29.41
B (ring opening deg) : -2.43
PA of pole (deg)    : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 1.271
C/A sky separation (km) : 4245.0
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
    
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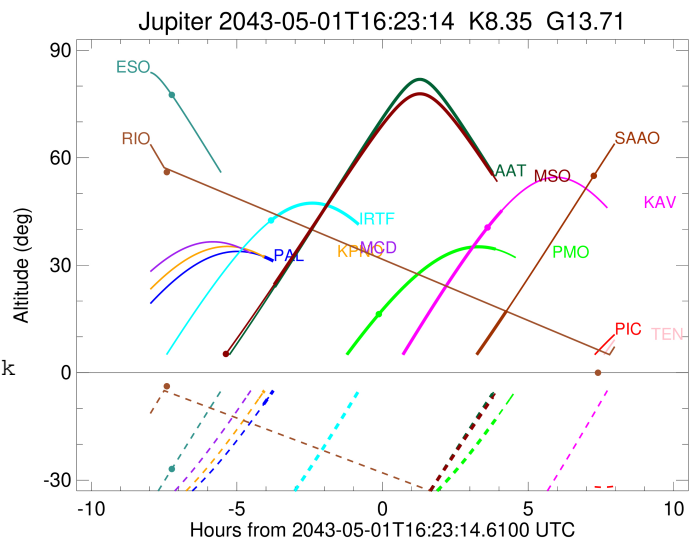
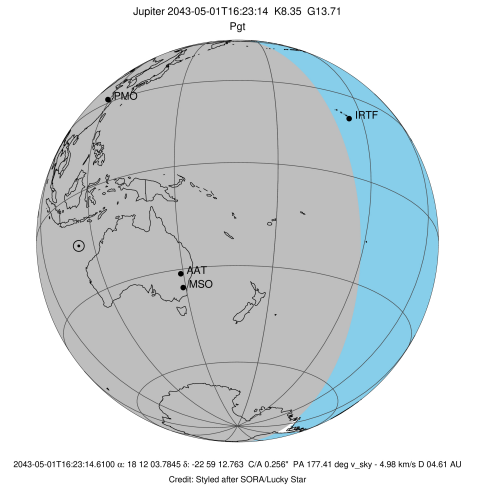


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T12:16:43.292	32.52	-5.63	71492.0	4.26	4.87
Jupiter	E	2043-05-01T20:08:07.037	-50.60x	70.56x	71492.0	2.26	2.59

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch             : 2043-05-01T16:11:53.060
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        : 4066622202973255040
2Mass ID (if available) : 18120378-2259127
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s
RUWE (>1.4 is poor)  : 1.01
K magnitude           : 8.354
G magnitude           : 13.711
RP magnitude          : 12.416
BP magnitude          : 15.626
DUPflag              : 0
Distance (au)         : 4.605
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : -4.98
Sun-Target sep (deg)  : 127.83
Sun-Moon sep (deg)    : 29.94
B (ring opening deg)  : -2.43
PA of pole (deg)      : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 1.396
C/A sky separation (km) : 4662.6
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
    
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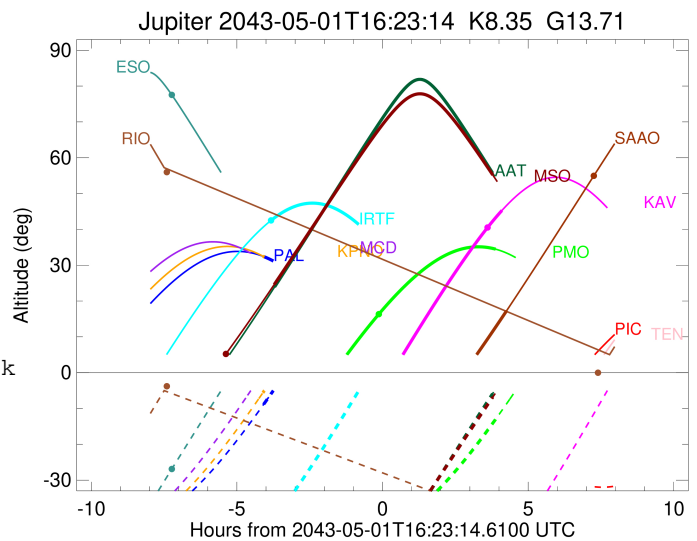
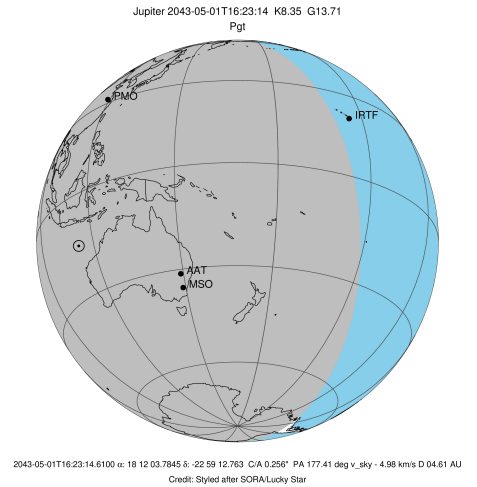


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T12:30:08.004	42.11	-42.52	71492.0	3.66	4.19
Jupiter	E	2043-05-01T20:00:31.493	-8.14x	56.75x	71492.0	2.49	2.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T16:43:22.470
Event type           : Pgt
                    : Jupiter occs: geocentric, topocentric
                    : Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)   : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 4066622202973255040
2Mass ID (if available) : 18120378-2259127
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.354
G magnitude           : 13.711
RP magnitude          : 12.416
BP magnitude          : 15.626
DUPflag              : 0
Distance (au)        : 4.605
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.98
Sun-Target sep (deg) : 127.83
Sun-Moon sep (deg)   : 30.80
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 0.810
C/A sky separation (km) : 2704.9
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
    
```

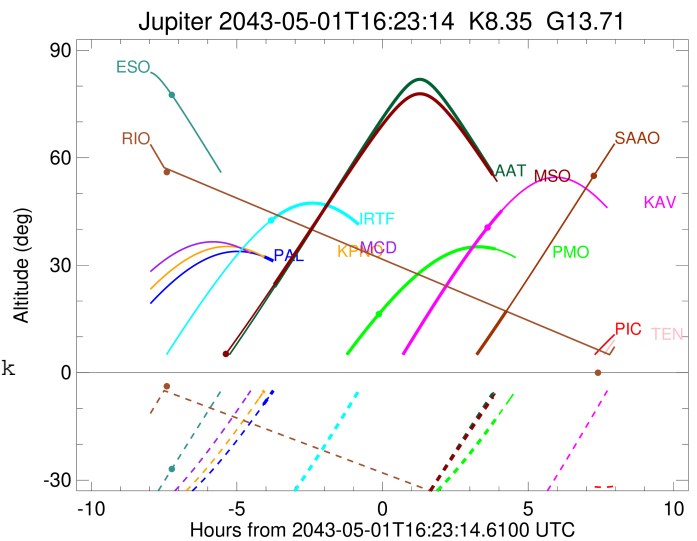
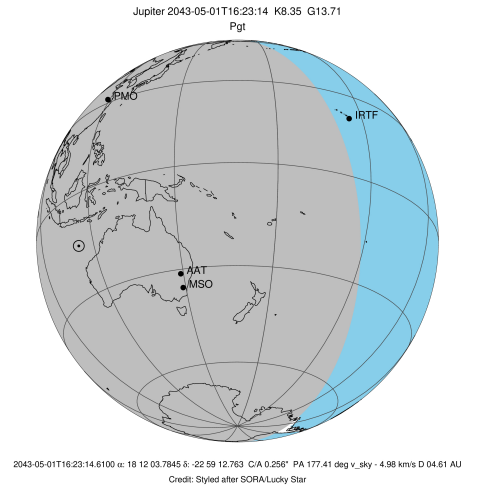


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T12:34:07.993	-56.92x	5.03x	71492.0	-0.23	-0.26
Jupiter	E	2043-05-01T20:29:22.156	45.29	-51.54	71492.0	4.02	4.59

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-01T16:28:59.680
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        : 4066622202973255040
2Mass ID (if available) : 18120378-2259127
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.354
G magnitude           : 13.711
RP magnitude          : 12.416
BP magnitude          : 15.626
DUPflag              : 0
Distance (au)         : 4.605
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -4.98
Sun-Target sep (deg) : 127.83
Sun-Moon sep (deg)   : 30.70
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 0.010
C/A sky separation (km) : 31.8
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
    
```

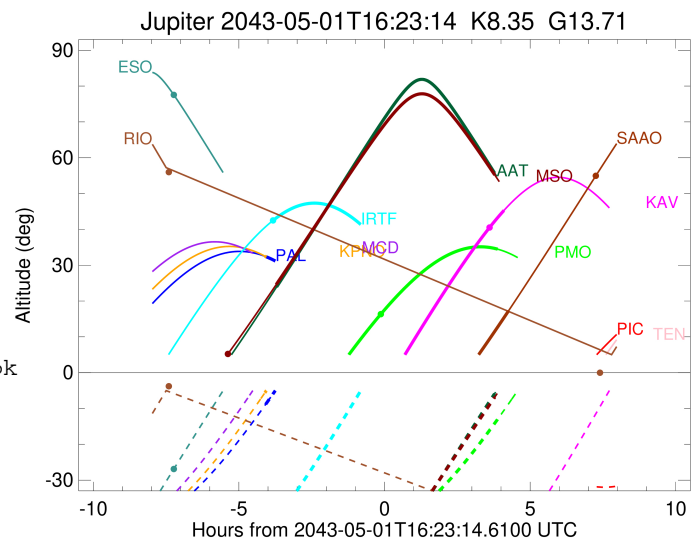
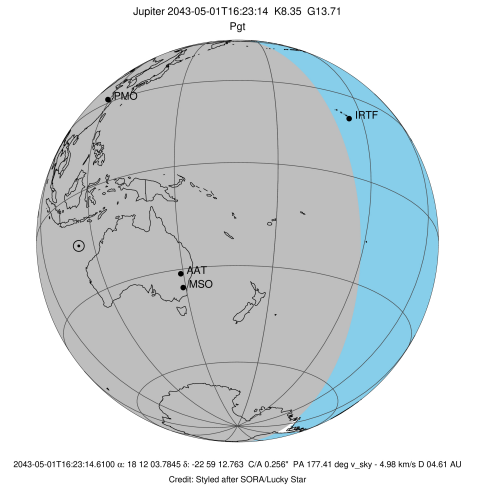


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T12:40:48.576	23.90	-65.73	71492.0	-1.53	-1.74
Jupiter	E	2043-05-01T20:10:02.703	55.72	-5.87	71492.0	-0.04	-0.05


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T16:34:45.320
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : SAAO
Location             : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)       : -32.37953
E. Longitude (deg)   : 20.81070
Altitude (km)        : 1.768
Gaia source ID       : 4066622202973255040
2Mass ID (if available) : 18120378-2259127
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 8.354
G magnitude           : 13.711
RP magnitude          : 12.416
BP magnitude          : 15.626
DUPflag              : 0
Distance (au)        : 4.605
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.98
Sun-Target sep (deg) : 127.83
Sun-Moon sep (deg)   : 30.11
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (") : 1.135
C/A sky separation (km) : 3792.4
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
    
```

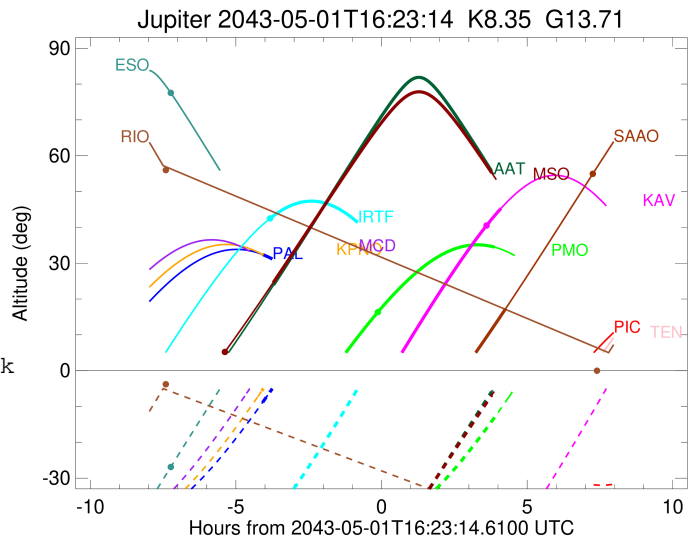
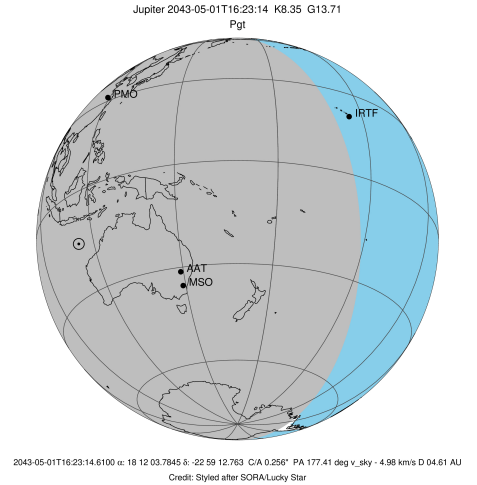


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-01T12:14:40.280	-27.88x	36.85x	71492.0	-3.82	-4.37
Jupiter	E	2043-05-01T20:38:52.366	17.28	-58.87	71492.0	-0.93	-1.07


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-01T16:28:51.000
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      : 4066622202973255040
2Mass ID (if available) : 18120378-2259127
ICRS Star Coord at Epoch: 18h 12m 03.78452s -22:59:12.76272s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 8.354
G magnitude          : 13.711
RP magnitude         : 12.416
BP magnitude         : 15.626
DUPflag             : 0
Distance (au)       : 4.605
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -4.98
Sun-Target sep (deg) : 127.83
Sun-Moon sep (deg)  : 30.67
B (ring opening deg) : -2.43
PA of pole (deg)    : -2.13
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 0.140
C/A sky separation (km): 467.9
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	2043-05-01T12:40:06.851	24.58	-63.00	71492.0	-1.84	-2.10
Jupiter	E	2043-05-01T20:10:34.597	55.15	-6.79	71492.0	-0.38	-0.43