

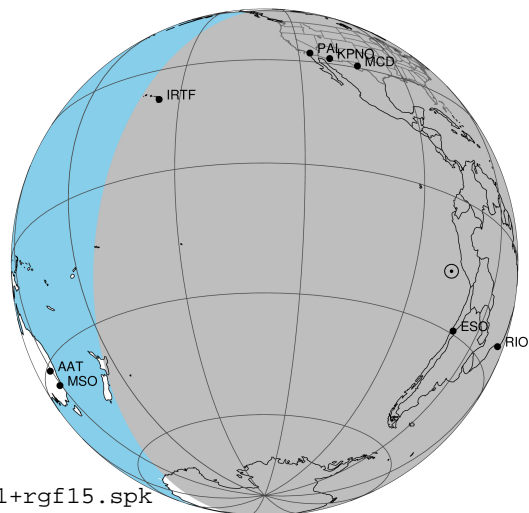
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-08-04T05:20:41.350
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4117423587186373248
 2Mass ID (if available) : 17320030-2302511

Jupiter 2043-08-04T05:20:41 K6.35 G14.31 Pgt

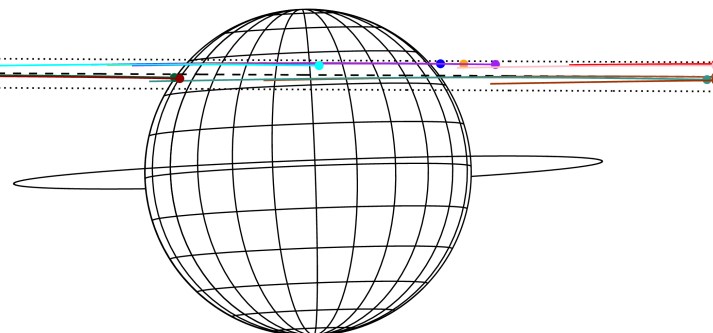
ICRS Star Coord at Epoch: 17h 32m 00.30826s -23°02'51.40325s

RUWE (>1.4 is poor) : 1.12
 K magnitude : 6.348
 G magnitude : 14.311
 RP magnitude : 12.655
 BP magnitude : 18.713
 DUPflag : 0
 Distance (au) : 4.513
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -6.93
 Sun-Target sep (deg) : 132.40
 Sun-Moon sep (deg) : 143.58
 B (ring opening deg) : -2.37
 PA of pole (deg) : 2.18
 Pole direction: RA (deg): 268.05671
 Dec (deg): 64.49731
 C/A sky separation (") : 13.058
 C/A sky separation (km) : 42738.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-08-04T05:20:41 K6.35 G14.31 Pgt



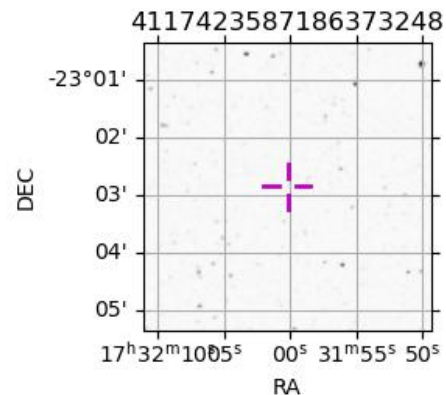
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-08-04T05:20:41.3500 α: 17 32 00.3083 δ: -23 02 51.403 C/A ***** PA 179.71 deg v_sky - 6.93 km/s D 04.51 AU
 Credit: Styled after SORA/Lucky Star

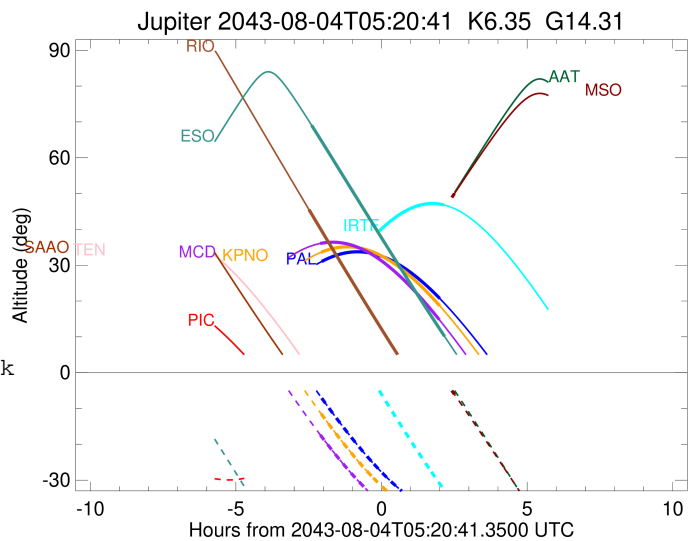
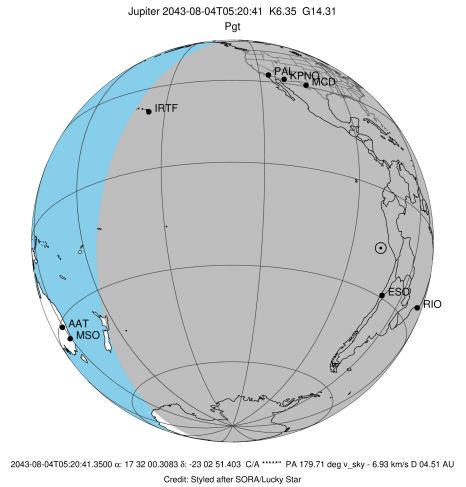
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	AUG 04 03:17 - AUG 04 07:20	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	AUG 04 03:16 - AUG 04 07:20	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	AUG 04 03:14 - AUG 04 07:19	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+ +	AUG 04 07:28 - AUG 04 07:28	Pne
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	AUG 04 02:51 - AUG 04 02:51	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	AUG 04 02:56 - AUG 04 07:30	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	+ +	AUG 04 07:50 - AUG 04 07:50	Pne



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-08-04T05:18:29.750
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        : 4117423587186373248
2Mass ID (if available) : 17320030-2302511
ICRS Star Coord at Epoch: 17h 32m 00.30826s -23:02:51.40325s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 6.348
G magnitude           : 14.311
RP magnitude          : 12.655
BP magnitude          : 18.713
DUPflag              : 0
Distance (au)         : 4.513
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -6.93
Sun-Target sep (deg)  : 132.40
Sun-Moon sep (deg)    : 143.86
B (ring opening deg) : -2.37
PA of pole (deg)     : 2.18
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 14.660
C/A sky separation (km): 47984.4
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
    
```

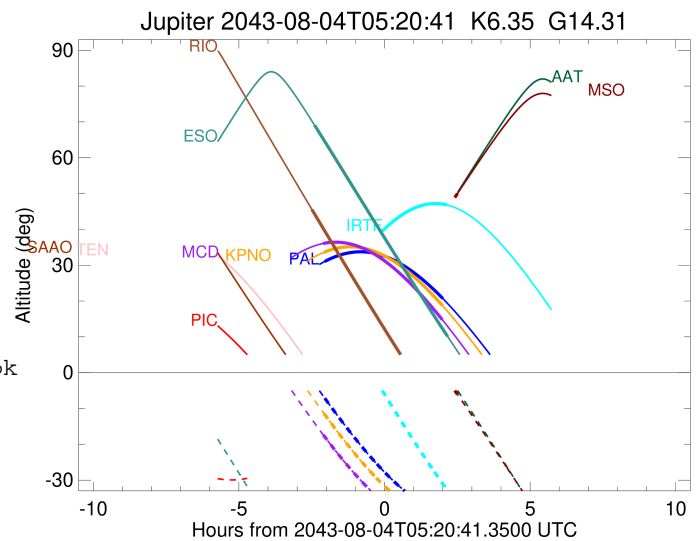
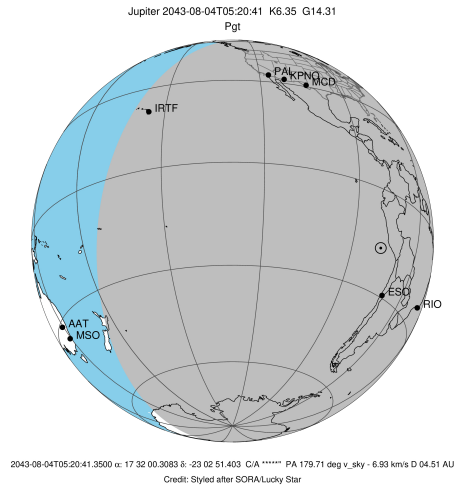


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-04T03:17:25.361	31.02	-7.09	71488.9	39.62	43.32
Jupiter	E	2043-08-04T07:20:45.105	20.70	-38.98	71488.3	44.02	47.73

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-04T05:17:33.800
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      : 4117423587186373248
2Mass ID (if available) : 17320030-2302511
ICRS Star Coord at Epoch: 17h 32m 00.30826s -23:02:51.40325s
RUWE (>1.4 is poor) : 1.12
K magnitude         : 6.348
G magnitude         : 14.311
RP magnitude        : 12.655
BP magnitude        : 18.713
DUPflag            : 0
Distance (au)       : 4.513
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -6.93
Sun-Target sep (deg) : 132.40
Sun-Moon sep (deg)  : 143.80
B (ring opening deg) : -2.37
PA of pole (deg)    : 2.18
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (" ) : 14.618
C/A sky separation (km) : 47846.9
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
    
```

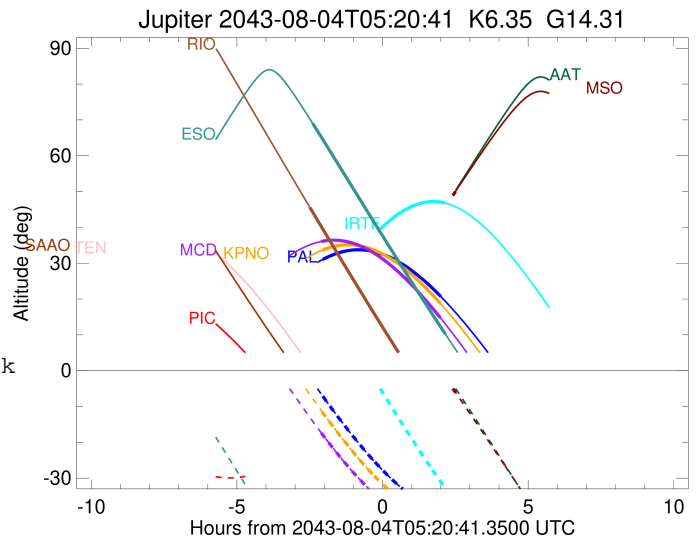
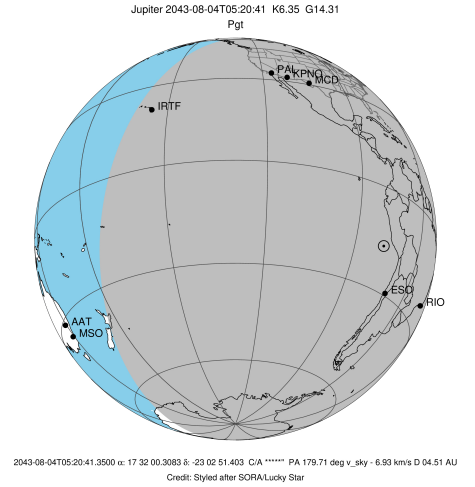


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-04T03:16:18.833	33.61	-11.46	71488.9	39.58	43.28
Jupiter	E	2043-08-04T07:20:17.375	18.71	-40.89	71488.3	43.77	47.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-04T05:16:14.960
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       : 4117423587186373248
2Mass ID (if available) : 17320030-2302511
ICRS Star Coord at Epoch: 17h 32m 00.30826s -23:02:51.40325s
RUWE (>1.4 is poor) : 1.12
K magnitude          : 6.348
G magnitude          : 14.311
RP magnitude         : 12.655
BP magnitude         : 18.713
DUPflag             : 0
Distance (au)        : 4.513
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -6.93
Sun-Target sep (deg) : 132.40
Sun-Moon sep (deg)   : 143.70
B (ring opening deg) : -2.37
PA of pole (deg)     : 2.18
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (") : 14.562
C/A sky separation (km) : 47661.6
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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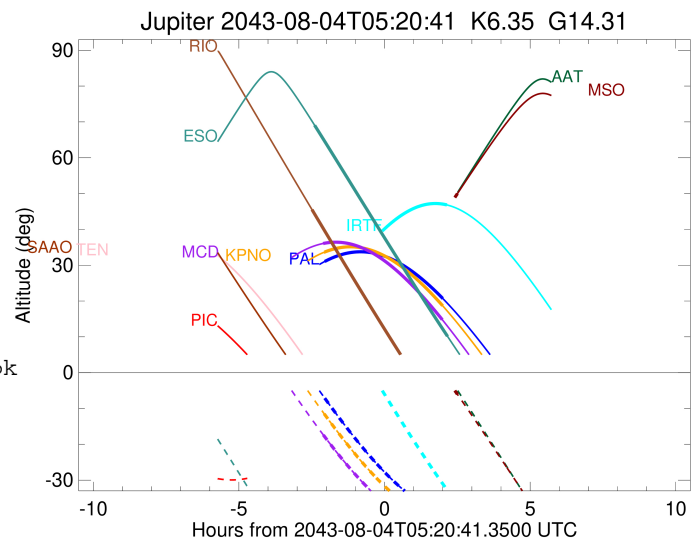
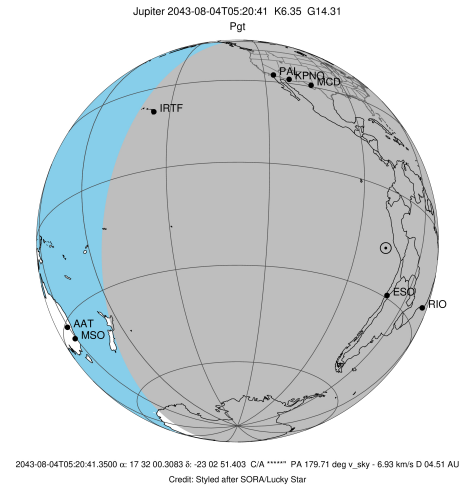


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-04T03:14:38.699	36.06	-17.38	71488.9	39.53	43.23
Jupiter	E	2043-08-04T07:19:45.324	14.78	-42.08	71488.4	43.43	47.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-08-04T05:25:38.630
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       : 4117423587186373248
2Mass ID (if available) : 17320030-2302511
ICRS Star Coord at Epoch: 17h 32m 00.30826s -23:02:51.40325s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 6.348
G magnitude           : 14.311
RP magnitude          : 12.655
BP magnitude          : 18.713
DUPflag              : 0
Distance (au)        : 4.513
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -6.93
Sun-Target sep (deg) : 132.40
Sun-Moon sep (deg)   : 144.36
B (ring opening deg) : -2.37
PA of pole (deg)     : 2.18
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 14.322
C/A sky separation (km): 46877.7
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
    
```

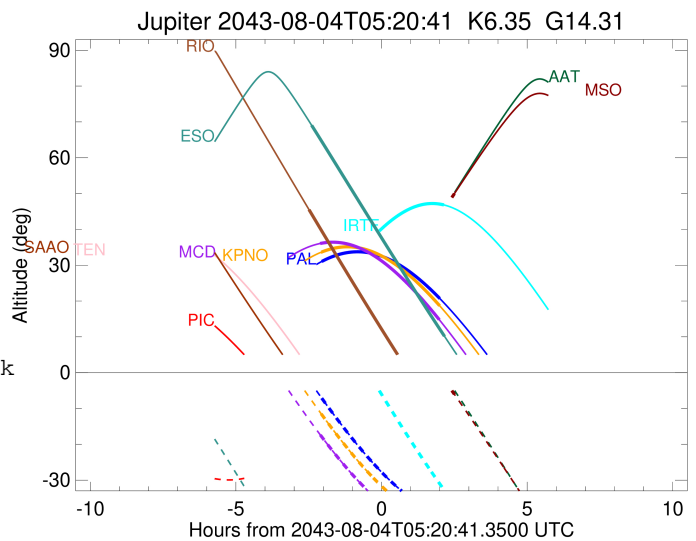
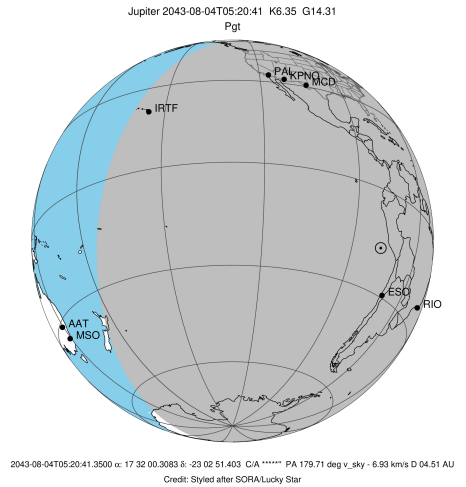


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-04T03:21:26.145	20.50	20.95x	71489.2	37.63	41.30
Jupiter	E	2043-08-04T07:28:49.851	46.83	-32.57	71488.4	43.59	47.30

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-08-04T05:09:03.080
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        : 4117423587186373248
2Mass ID (if available) : 17320030-2302511
ICRS Star Coord at Epoch: 17h 32m 00.30826s -23:02:51.40325s
RUWE (>1.4 is poor) : 1.12
K magnitude           : 6.348
G magnitude           : 14.311
RP magnitude          : 12.655
BP magnitude          : 18.713
DUPflag              : 0
Distance (au)         : 4.513
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -6.93
Sun-Target sep (deg)  : 132.40
Sun-Moon sep (deg)    : 142.95
B (ring opening deg) : -2.37
PA of pole (deg)      : 2.18
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation (") : 12.436
C/A sky separation (km) : 40703.9
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
    
```

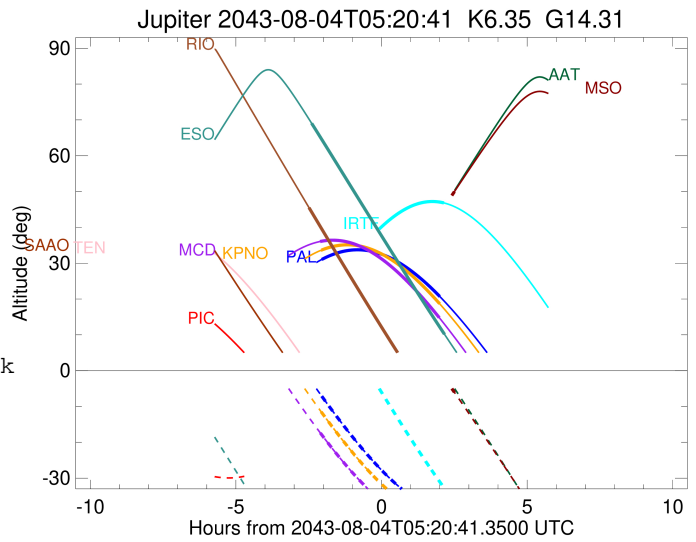
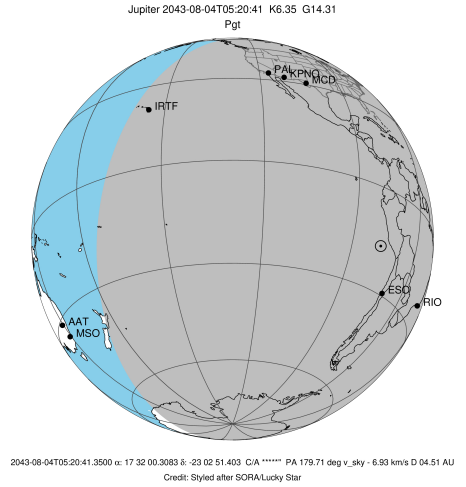


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-04T02:51:19.981	45.50	-84.24	71489.7	33.44	36.98
Jupiter	E	2043-08-04T07:32:19.002	-15.04x	-26.09	71489.4	35.79	39.41

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-04T05:11:27.460
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       : 4117423587186373248
2Mass ID (if available) : 17320030-2302511
ICRS Star Coord at Epoch: 17h 32m 00.30826s -23:02:51.40325s
RUWE (>1.4 is poor) : 1.12
K magnitude          : 6.348
G magnitude          : 14.311
RP magnitude         : 12.655
BP magnitude         : 18.713
DUPflag             : 0
Distance (au)        : 4.513
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -6.93
Sun-Target sep (deg) : 132.40
Sun-Moon sep (deg)   : 143.32
B (ring opening deg) : -2.37
PA of pole (deg)     : 2.18
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 12.547
C/A sky separation (km): 41065.4
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
    
```

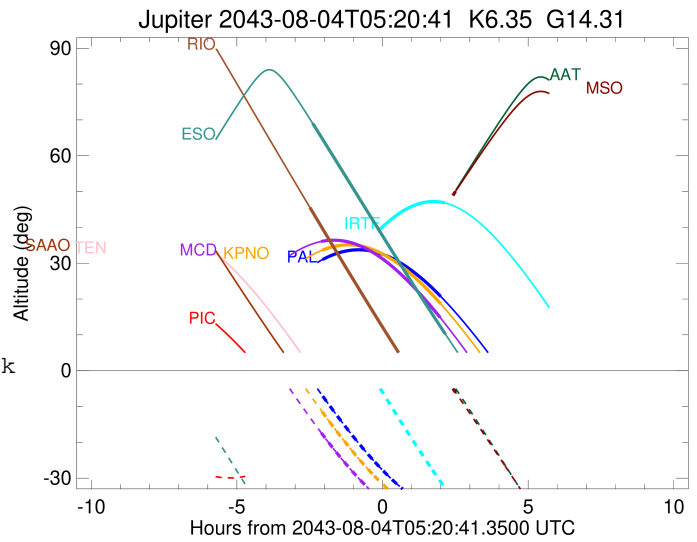
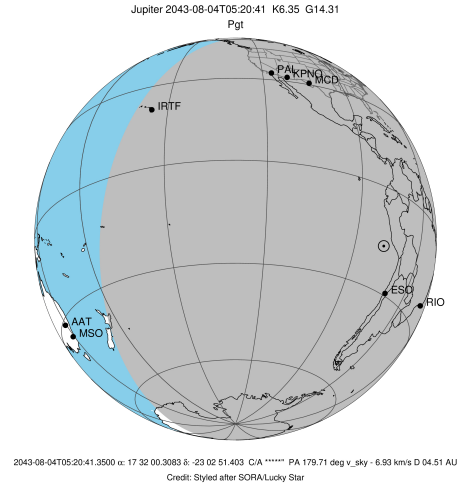


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-08-04T02:56:40.911	69.06	-61.71	71489.7	33.38	36.91
Jupiter	E	2043-08-04T07:30:29.113	10.15	-51.26	71489.3	36.26	39.90

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-08-04T05:31:04.510
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       : 4117423587186373248
2Mass ID (if available) : 17320030-2302511
ICRS Star Coord at Epoch: 17h 32m 00.30826s -23:02:51.40325s
RUWE (>1.4 is poor) : 1.12
K magnitude          : 6.348
G magnitude          : 14.311
RP magnitude         : 12.655
BP magnitude         : 18.713
DUPflag             : 0
Distance (au)        : 4.513
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -6.93
Sun-Target sep (deg) : 132.40
Sun-Moon sep (deg)  : 144.33
B (ring opening deg) : -2.37
PA of pole (deg)    : 2.18
Pole direction: RA (deg): 268.05671
Dec (deg): 64.49731
C/A sky separation ("): 12.162
C/A sky separation (km): 39806.7
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	2043-08-04T03:07:40.378	-5.38x	35.83x	71490.1	30.14	33.52
Jupiter	E	2043-08-04T07:50:55.130	49.98	-6.04	71489.2	37.30	40.96