

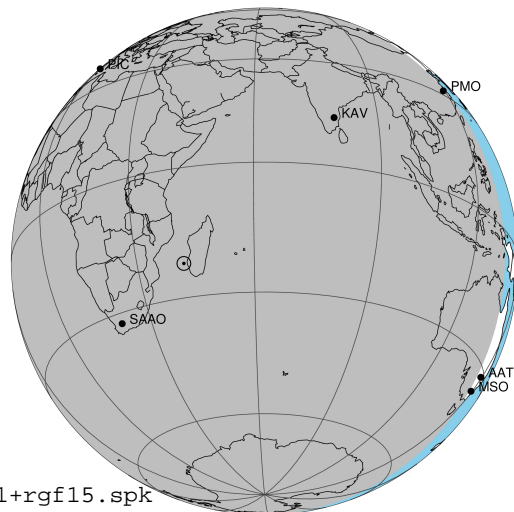
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-02T21:08:30.130
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4069435539632881408
 2Mass ID (if available) : 18005849-2303131

Jupiter 2043-06-02T21:08:30 K9.10 G13.31 Pgt

ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s

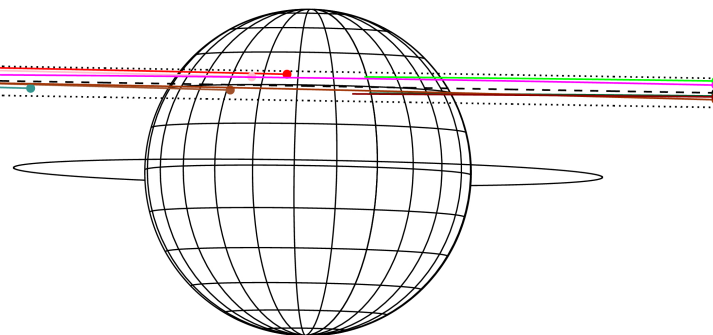
RUWE (>1.4 is poor) : 1.01
 K magnitude : 9.101
 G magnitude : 13.308
 RP magnitude : 12.208
 BP magnitude : 14.564
 DUPflag : 0
 Distance (au) : 4.301
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.87
 Sun-Target sep (deg) : 161.41
 Sun-Moon sep (deg) : 97.99
 B (ring opening deg) : -2.43
 PA of pole (deg) : -0.94
 Pole direction: RA (deg): 268.05668
 Dec (deg): 64.49732
 C/A sky separation (") : 12.139
 C/A sky separation (km) : 37870.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-02T21:08:30 K9.10 G13.31
 Pgt



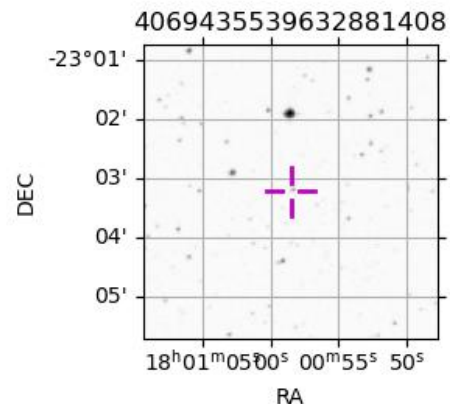
2043-06-02T21:08:30.1300 a: 18 00 58.4888 s: -23 03 13.237 C/A ***** PA 179.04 deg v_sky -14.87 km/s D 04.30 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



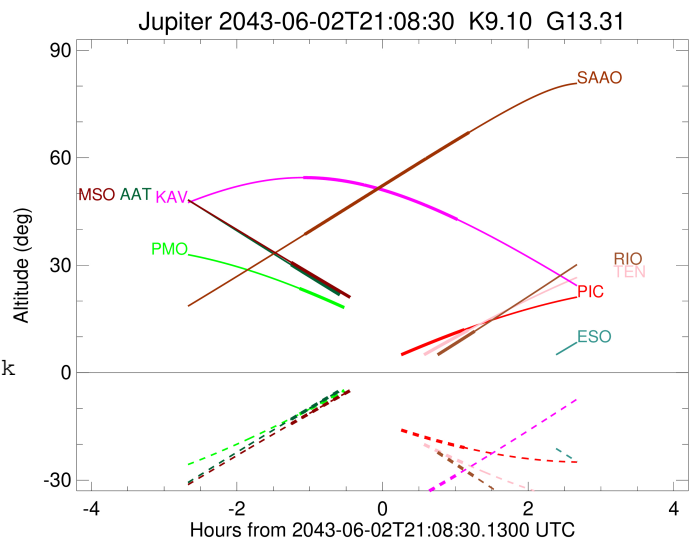
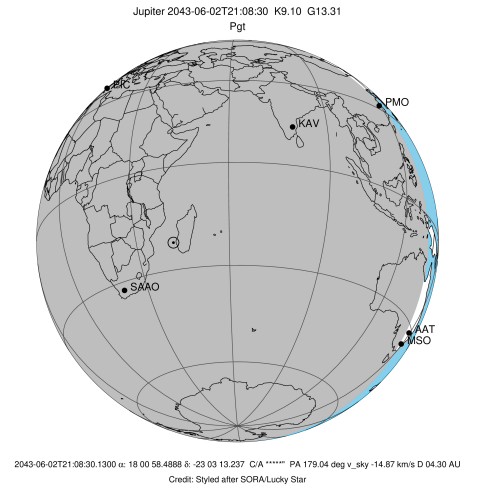
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	JUN 02 22:15 - JUN 02 22:15	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUN 02 20:00 - JUN 02 20:00	Pin
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+	JUN 02 22:18 - JUN 02 22:18	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+	JUN 02 20:03 - JUN 02 22:10	Pie
RIO	Rio de Janeiro	-22.9	316.8	+	JUN 02 22:24 - JUN 02 22:24	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+	JUN 02 19:53 - JUN 02 19:53	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUN 02 20:04 - JUN 02 22:19	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 02 19:53 - JUN 02 19:53	Pin



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-02T21:12:37.480
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : PIC
Location             : Pic du Midi
Latitude (deg)       : 42.93656
E. Longitude (deg)   : 0.14231
Altitude (km)        : 2.890
Gaia source ID       : 4069435539632881408
2Mass ID (if available) : 18005849-2303131
ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.101
G magnitude           : 13.308
RP magnitude          : 12.208
BP magnitude          : 14.564
DUPflag              : 0
Distance (au)        : 4.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.87
Sun-Target sep (deg) : 161.41
Sun-Moon sep (deg)   : 97.95
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.94
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 13.725
C/A sky separation (km) : 42815.5
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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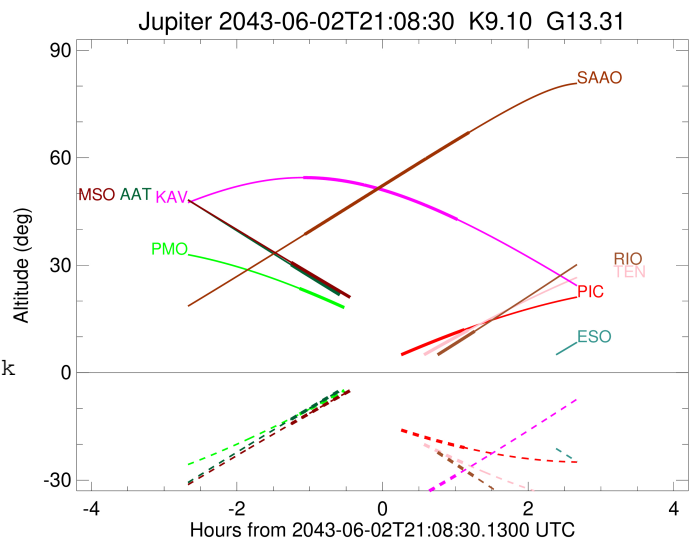
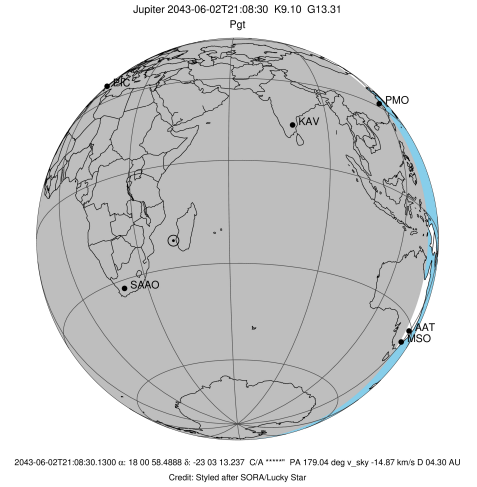


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T20:08:55.932	-6.75x	-6.43	71489.2	36.27	39.91
Jupiter	E	2043-06-02T22:15:56.955	12.01	-20.91	71489.1	37.16	40.82

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-02T21:03:50.120
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       : 4069435539632881408
2Mass ID (if available) : 18005849-2303131
ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.101
G magnitude           : 13.308
RP magnitude         : 12.208
BP magnitude         : 14.564
DUPflag              : 0
Distance (au)        : 4.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.87
Sun-Target sep (deg) : 161.41
Sun-Moon sep (deg)   : 98.31
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.94
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation ("): 13.491
C/A sky separation (km): 42085.5
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
    
```

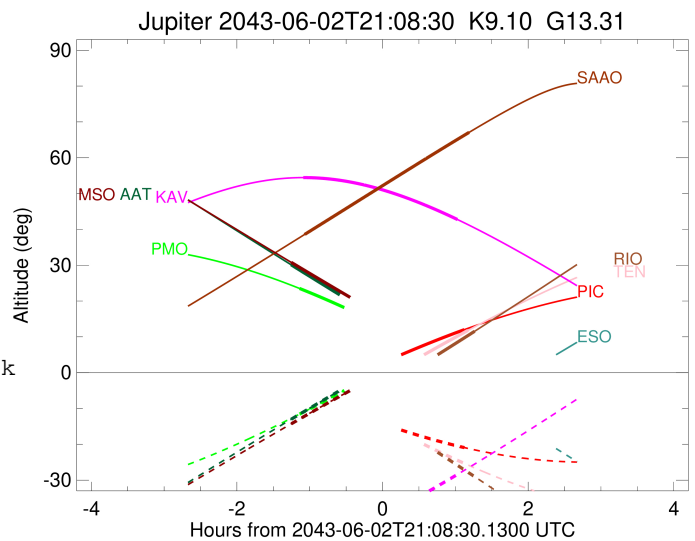
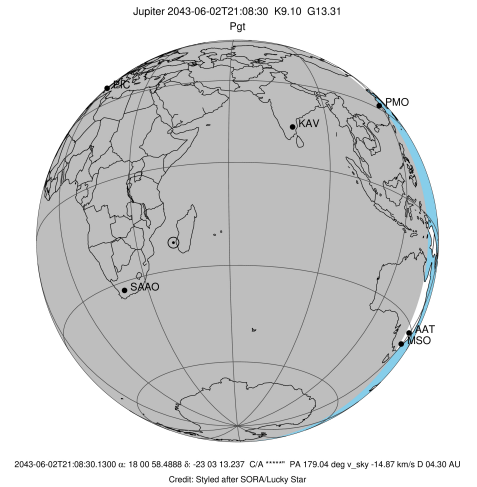


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T20:00:07.856	23.51	-11.57	71489.1	36.46	40.10
Jupiter	E	2043-06-02T22:07:52.936	2.58x	12.58x	71489.3	35.51	39.12

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-02T21:14:06.060
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : TEN
Location             : Teide Obs./Tenerife
Latitude (deg)       : 28.30050
E. Longitude (deg)   : 343.48909
Altitude (km)        : 2.395
Gaia source ID       : 4069435539632881408
2Mass ID (if available) : 18005849-2303131
ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.101
G magnitude           : 13.308
RP magnitude         : 12.208
BP magnitude         : 14.564
DUPflag              : 0
Distance (au)        : 4.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.87
Sun-Target sep (deg) : 161.41
Sun-Moon sep (deg)   : 97.84
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.94
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 13.216
C/A sky separation (km) : 41227.2
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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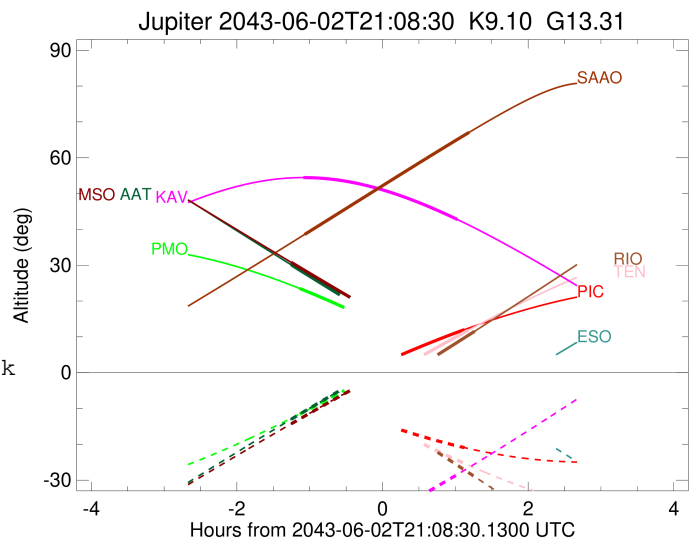
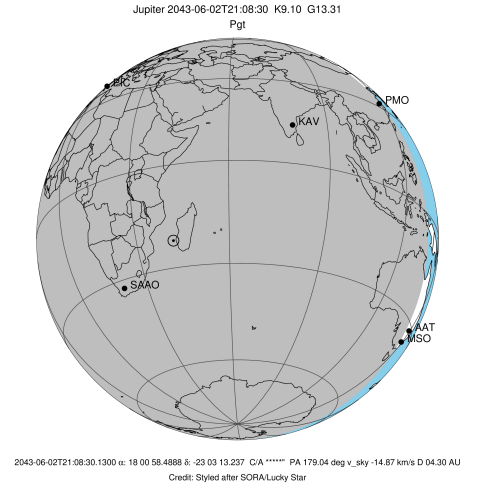


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T20:08:45.000	-13.96x	-2.81x	71489.4	34.55	38.14
Jupiter	E	2043-06-02T22:18:56.508	11.79	-25.77	71489.2	35.76	39.38

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-02T21:06:41.110
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       : 4069435539632881408
2Mass ID (if available) : 18005849-2303131
ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.101
G magnitude           : 13.308
RP magnitude          : 12.208
BP magnitude          : 14.564
DUPflag              : 0
Distance (au)         : 4.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.87
Sun-Target sep (deg) : 161.41
Sun-Moon sep (deg)   : 98.79
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.94
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 13.287
C/A sky separation (km) : 41448.6
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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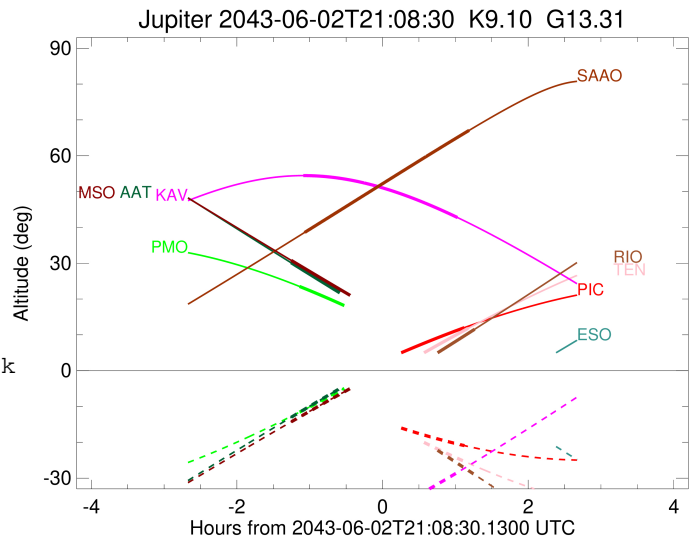
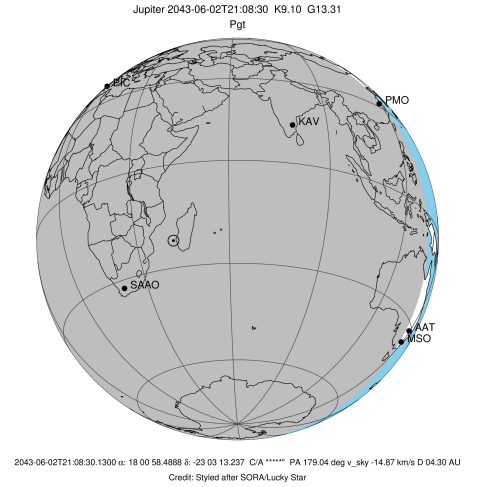


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T20:03:12.640	54.45	-50.04	71489.3	35.51	39.12
Jupiter	E	2043-06-02T22:10:16.354	42.75	-28.40	71489.3	35.11	38.72

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-02T21:14:30.960
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        : 4069435539632881408
2Mass ID (if available) : 18005849-2303131
ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.101
G magnitude           : 13.308
RP magnitude          : 12.208
BP magnitude          : 14.564
DUPflag              : 0
Distance (au)         : 4.301
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.87
Sun-Target sep (deg)  : 161.41
Sun-Moon sep (deg)    : 97.79
B (ring opening deg) : -2.43
PA of pole (deg)      : -0.94
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.271
C/A sky separation (km) : 35159.4
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
    
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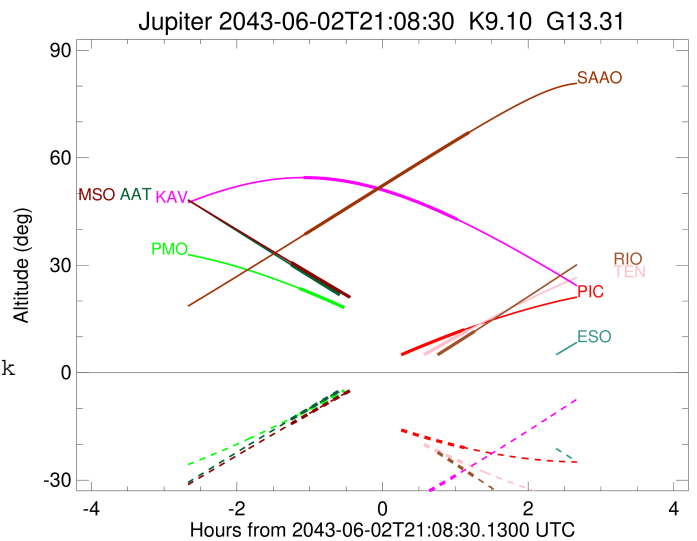
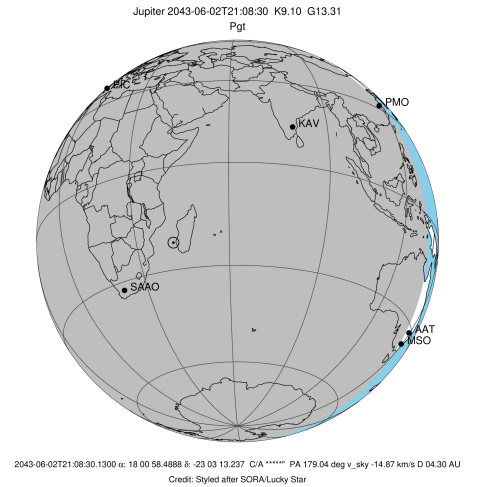


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T20:03:57.801	-17.29x	1.55x	71490.1	28.80	32.10
Jupiter	E	2043-06-02T22:24:26.514	11.56	-29.03	71490.0	30.09	33.47

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-02T21:02:53.150
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       : 4069435539632881408
2Mass ID (if available) : 18005849-2303131
ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.101
G magnitude           : 13.308
RP magnitude         : 12.208
BP magnitude         : 14.564
DUPflag              : 0
Distance (au)        : 4.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.87
Sun-Target sep (deg) : 161.41
Sun-Moon sep (deg)   : 98.36
B (ring opening deg) : -2.43
PA of pole (deg)     : -0.94
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.190
C/A sky separation (km) : 34908.2
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
    
```

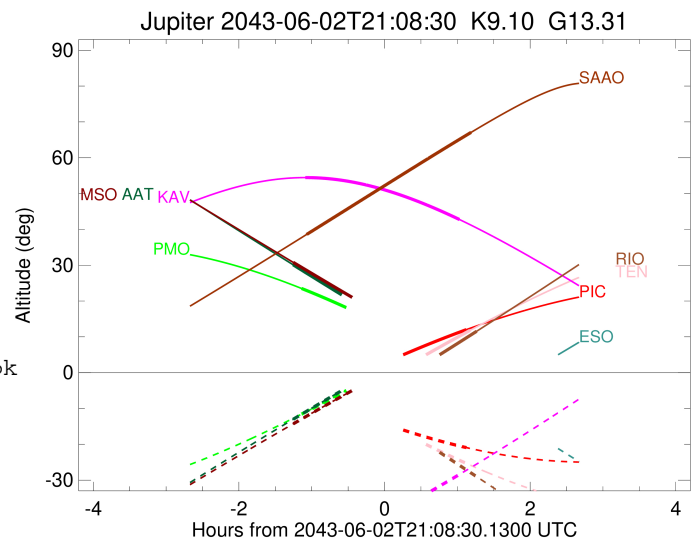
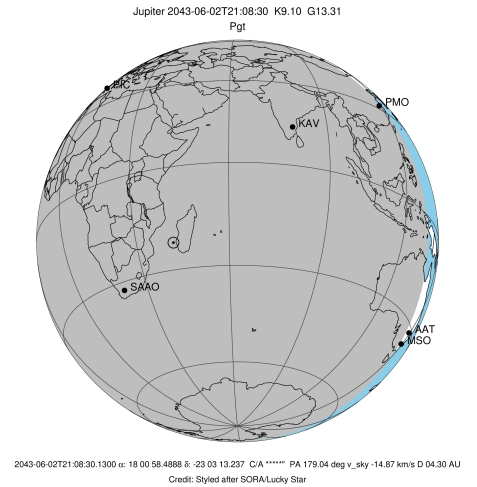


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T19:53:20.411	30.09	-12.99	71490.0	29.77	33.12
Jupiter	E	2043-06-02T22:12:56.784	1.67x	13.50x	71490.1	28.62	31.91

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-02T21:12:13.980
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      : 4069435539632881408
2Mass ID (if available) : 18005849-2303131
ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 9.101
G magnitude          : 13.308
RP magnitude         : 12.208
BP magnitude         : 14.564
DUPflag             : 0
Distance (au)       : 4.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.87
Sun-Target sep (deg) : 161.41
Sun-Moon sep (deg)  : 98.68
B (ring opening deg) : -2.43
PA of pole (deg)    : -0.94
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.675
C/A sky separation (km) : 36420.0
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
    
```

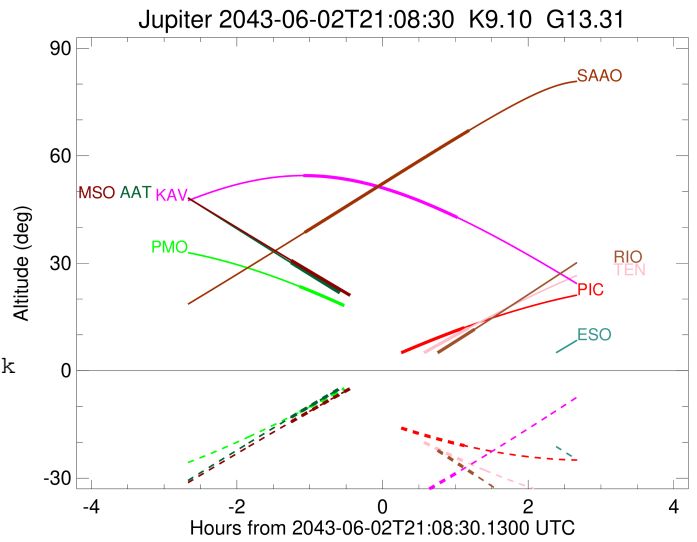
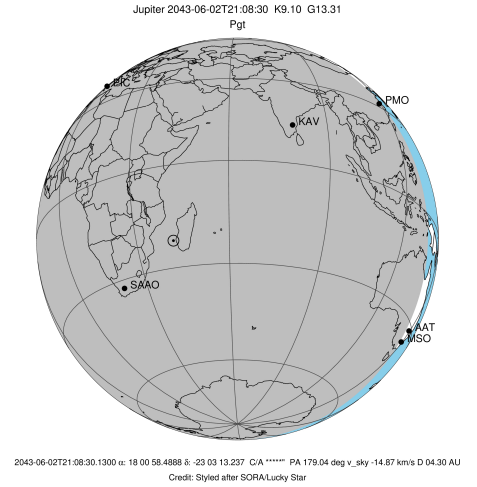


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-02T20:04:23.283	38.59	-55.32	71490.0	30.16	33.54
Jupiter	E	2043-06-02T22:19:43.112	67.04	-79.51	71489.9	30.89	34.31


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-02T21:03:08.830
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      : 4069435539632881408
2Mass ID (if available) : 18005849-2303131
ICRS Star Coord at Epoch: 18h 00m 58.48877s -23:03:13.23743s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 9.101
G magnitude          : 13.308
RP magnitude         : 12.208
BP magnitude         : 14.564
DUPflag             : 0
Distance (au)       : 4.301
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.87
Sun-Target sep (deg) : 161.41
Sun-Moon sep (deg)  : 98.37
B (ring opening deg) : -2.43
PA of pole (deg)    : -0.94
Pole direction: RA (deg): 268.05668
Dec (deg): 64.49732
C/A sky separation (") : 11.078
C/A sky separation (km) : 34560.2
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	2043-06-02T19:53:22.070	30.77	-14.27	71490.0	29.42	32.76
Jupiter	E	2043-06-02T22:13:25.184	3.39x	11.10x	71490.2	28.33	31.60