

target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-06-22T11:38:24.910
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068684096565683968
 2Mass ID (if available) : 17502536-2304584

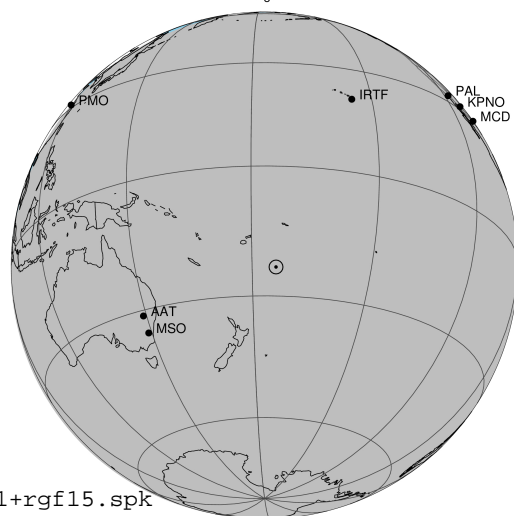
Jupiter 2043-06-22T11:38:24 K9.22 G13.36 Pgt

ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s

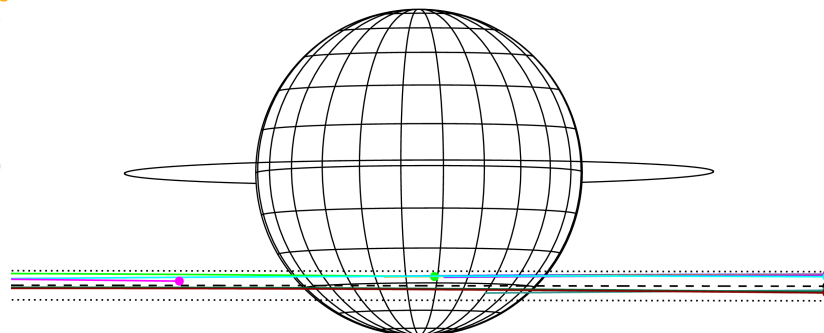
RUWE (>1.4 is poor) : 0.90
 K magnitude : 9.220
 G magnitude : 13.365
 RP magnitude : 12.256
 BP magnitude : 14.635
 DUPflag : 0
 Distance (au) : 4.250
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.39
 Sun-Target sep (deg) : 177.40
 Sun-Moon sep (deg) : 5.47
 B (ring opening deg) : -2.42
 PA of pole (deg) : 0.19
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 16.091
 C/A sky separation (km) : 49601.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2043-06-22T11:38:24 K9.22 G13.36

Pgt



Earth
 PAL
 PMO
 KPNO
 MCD
 IRTF
 KAV
 RIO
 ESO
 AAT
 MSO

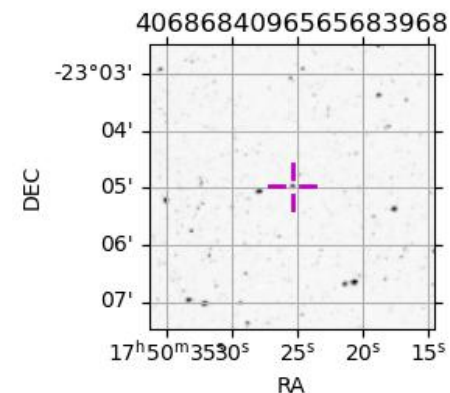


2043-06-22T11:38:24.9100 a: 17 50 25.35833 s: -23 04 58.582 C/A ***** PA 359.93 deg v_sky -16.39 km/s D 04.25 AU

Credit: Styled after SORA/Lucky Star

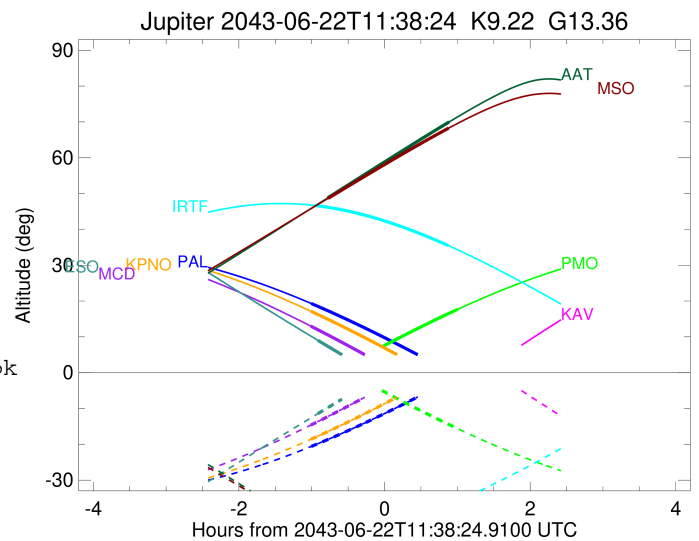
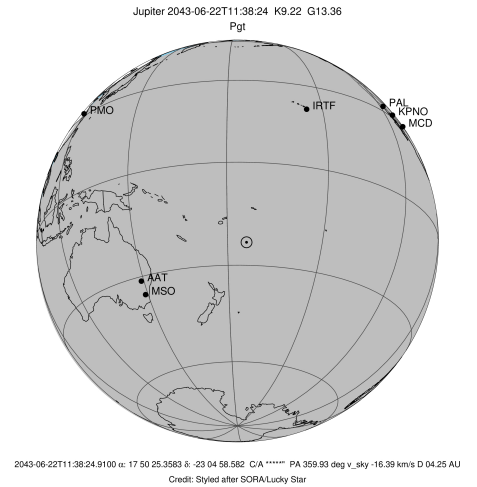
Observable events with sun below -5 deg and altitude above 5 deg

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	+	JUN 22 10:38 - JUN 22 10:38	Pin
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+	JUN 22 12:38 - JUN 22 12:38	Pne
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	JUN 22 10:37 - JUN 22 10:37	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	JUN 22 10:37 - JUN 22 10:37	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	JUN 22 10:41 - JUN 22 12:30	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	+	JUN 22 10:43 - JUN 22 10:43	Pin
AAT	Siding Spring (AAT)	-31.3	149.1	+	JUN 22 10:51 - JUN 22 12:31	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 22 10:51 - JUN 22 12:31	Pie



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-22T11:33:22.990
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       : 4068684096565683968
2Mass ID (if available) : 17502536-2304584
ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.220
G magnitude           : 13.365
RP magnitude          : 12.256
BP magnitude          : 14.635
DUPflag              : 0
Distance (au)         : 4.250
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.39
Sun-Target sep (deg) : 177.40
Sun-Moon sep (deg)   : 5.98
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.19
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 14.707
C/A sky separation (km): 45336.8
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
    
```

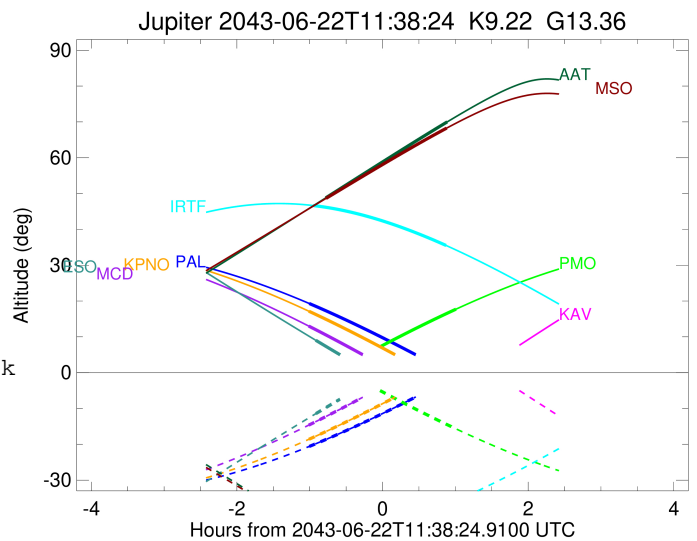
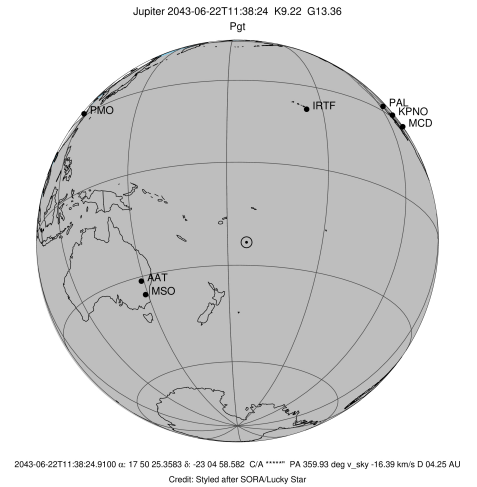


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-22T10:38:00.189	19.31	-20.60	71488.8	-39.17	-42.86
Jupiter	E	2043-06-22T12:29:02.547	0.78x	-2.66x	71488.7	-39.54	-43.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-22T11:43:40.460
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       : 4068684096565683968
2Mass ID (if available) : 17502536-2304584
ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.220
G magnitude           : 13.365
RP magnitude         : 12.256
BP magnitude         : 14.635
DUPflag              : 0
Distance (au)        : 4.250
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.39
Sun-Target sep (deg) : 177.40
Sun-Moon sep (deg)   : 6.22
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.19
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 14.764
C/A sky separation (km): 45512.7
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
    
```

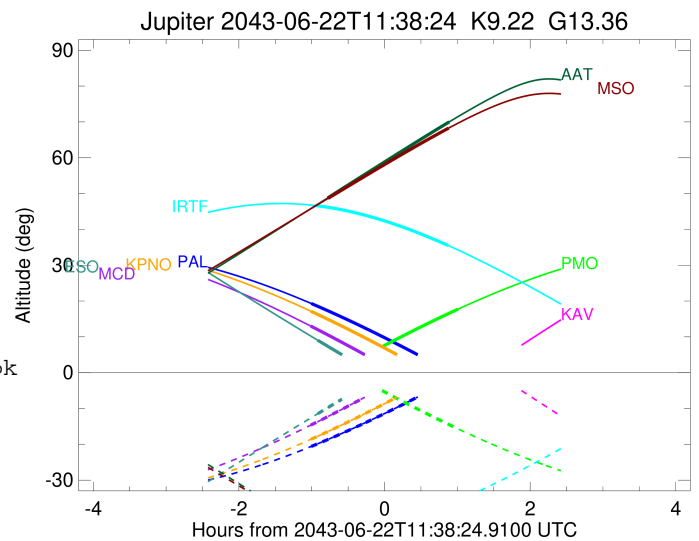
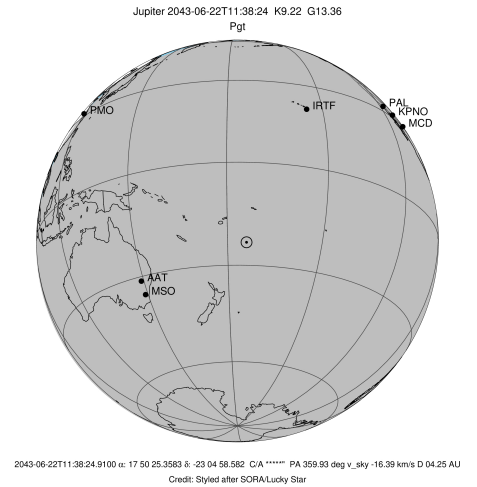


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-22T10:48:05.213	-1.72x	4.02x	71488.6	-40.26	-43.97
Jupiter	E	2043-06-22T12:38:58.507	17.72	-15.68	71488.8	-38.80	-42.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-22T11:33:02.790
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        : 4068684096565683968
2Mass ID (if available) : 17502536-2304584
ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.220
G magnitude           : 13.365
RP magnitude          : 12.256
BP magnitude          : 14.635
DUPflag              : 0
Distance (au)         : 4.250
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.39
Sun-Target sep (deg) : 177.40
Sun-Moon sep (deg)   : 5.93
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.19
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 14.796
C/A sky separation (km) : 45609.8
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
    
```

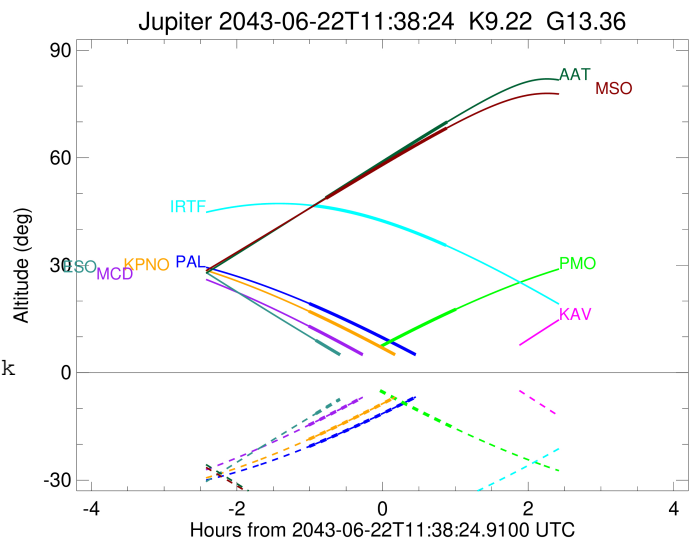
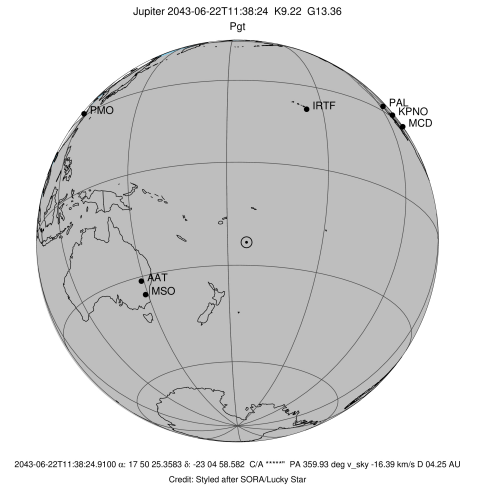


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-22T10:37:48.293	17.14	-18.59	71488.8	-39.41	-43.11
Jupiter	E	2043-06-22T12:28:35.101	-2.45x	0.47x	71488.7	-39.85	-43.55

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-06-22T11:32:40.390
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       : 4068684096565683968
2Mass ID (if available) : 17502536-2304584
ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.220
G magnitude           : 13.365
RP magnitude         : 12.256
BP magnitude         : 14.635
DUPflag              : 0
Distance (au)        : 4.250
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.39
Sun-Target sep (deg) : 177.40
Sun-Moon sep (deg)   : 5.87
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.19
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 14.913
C/A sky separation (km) : 45972.0
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
    
```

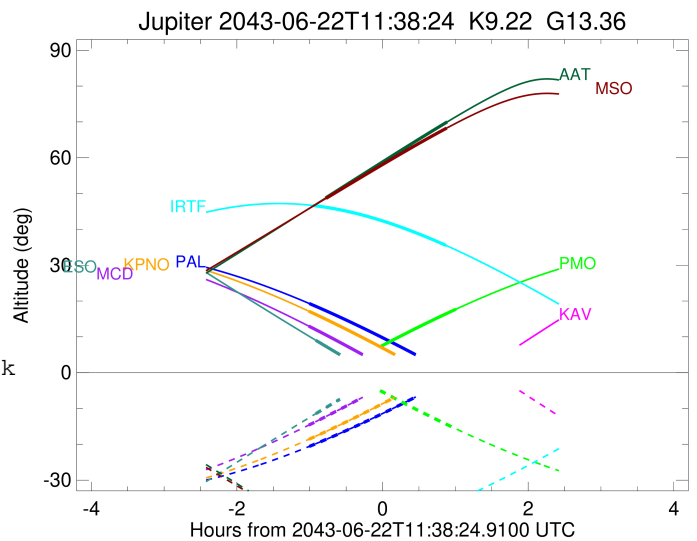
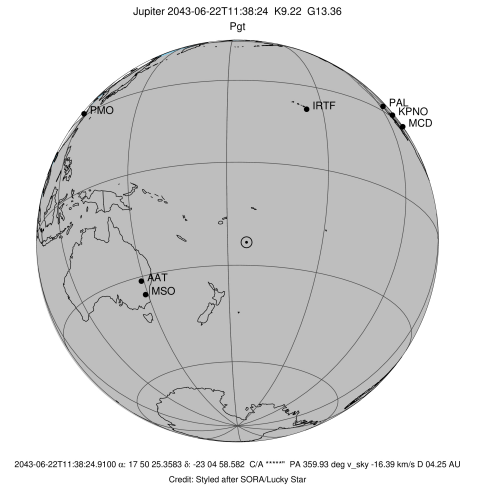


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-22T10:37:35.270	13.01	-14.65	71488.7	-39.75	-43.46
Jupiter	E	2043-06-22T12:28:04.502	-7.75x	5.66x	71488.6	-40.25	-43.96

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-22T11:36:02.490
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       : 4068684096565683968
2Mass ID (if available) : 17502536-2304584
ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.220
G magnitude           : 13.365
RP magnitude          : 12.256
BP magnitude          : 14.635
DUPflag              : 0
Distance (au)         : 4.250
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.39
Sun-Target sep (deg) : 177.40
Sun-Moon sep (deg)   : 6.06
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.19
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 14.739
C/A sky separation (km): 45433.9
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
    
```

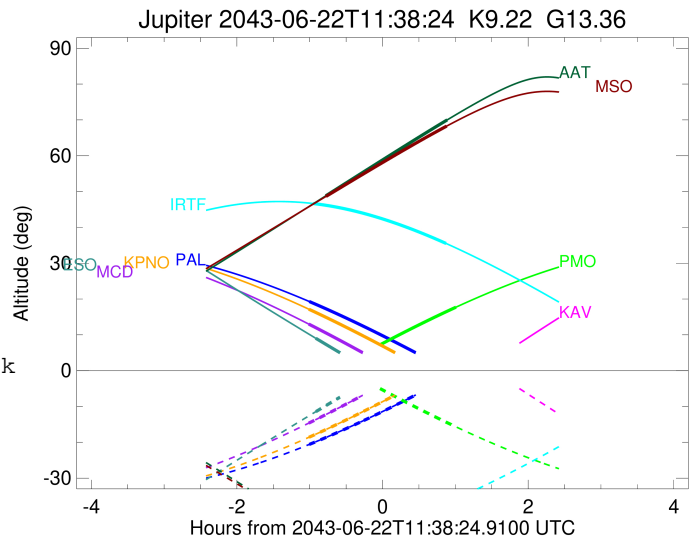
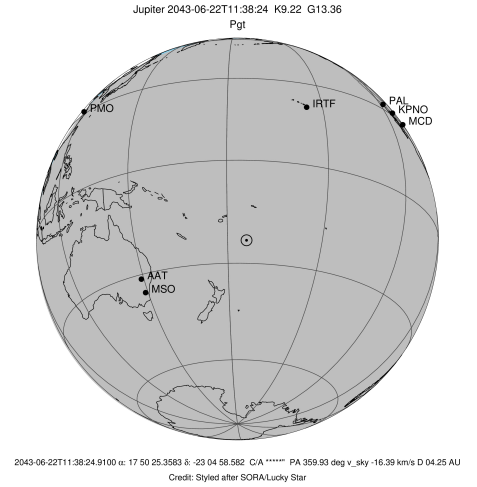


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-22T10:41:22.253	46.64	-46.65	71488.7	-39.53	-43.24
Jupiter	E	2043-06-22T12:30:50.371	35.50	-36.91	71488.8	-39.43	-43.14

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-22T11:32:26.720
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       : 4068684096565683968
2Mass ID (if available) : 17502536-2304584
ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.220
G magnitude           : 13.365
RP magnitude          : 12.256
BP magnitude          : 14.635
DUPflag              : 0
Distance (au)        : 4.250
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.39
Sun-Target sep (deg) : 177.40
Sun-Moon sep (deg)   : 4.86
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.19
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 17.206
C/A sky separation (km): 53040.9
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
    
```

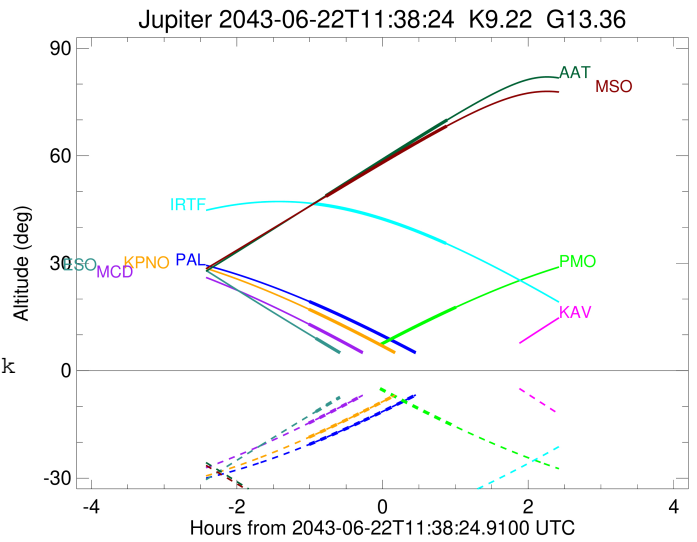
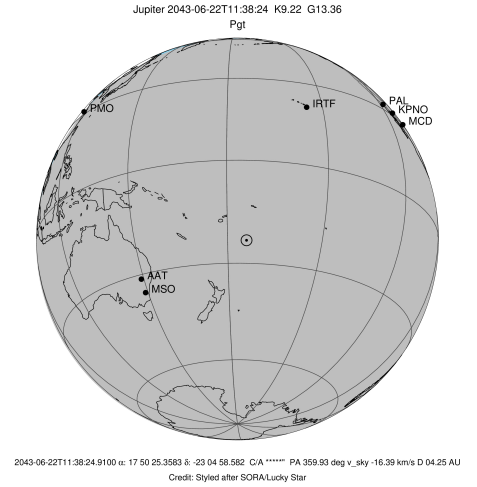


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-22T10:43:30.397	9.02	-11.44	71487.6	-47.56	-51.21
Jupiter	E	2043-06-22T12:21:38.876	-10.05x	7.76x	71487.6	-48.10	-51.74


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-22T11:41:43.160
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        : 4068684096565683968
2Mass ID (if available) : 17502536-2304584
ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.220
G magnitude           : 13.365
RP magnitude          : 12.256
BP magnitude          : 14.635
DUPflag              : 0
Distance (au)         : 4.250
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.39
Sun-Target sep (deg)  : 177.40
Sun-Moon sep (deg)    : 5.49
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.19
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 16.487
C/A sky separation (km) : 50822.3
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
    
```

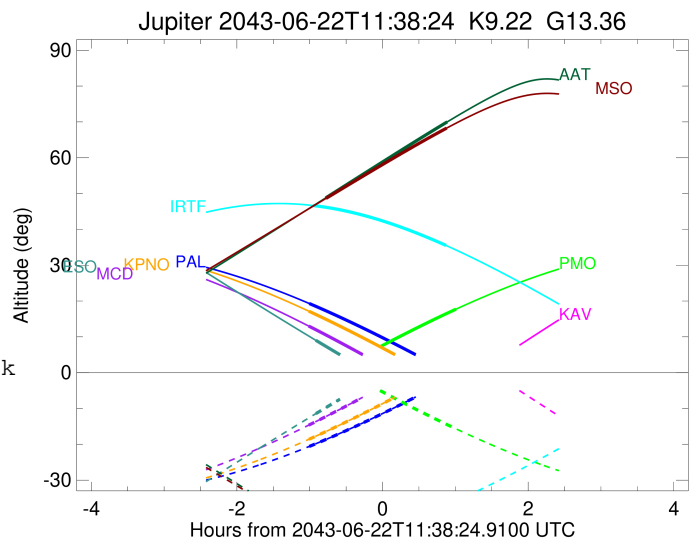
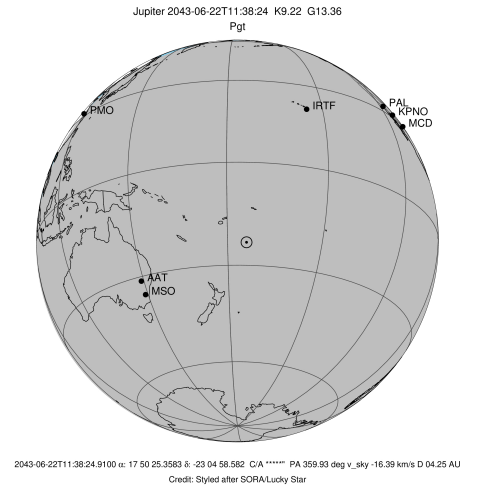


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-06-22T10:51:34.033	48.77	-46.52	71487.9	-45.86	-49.55
Jupiter	E	2043-06-22T12:31:43.738	69.99	-67.80	71488.0	-44.76	-48.47


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-06-22T11:41:34.970
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        : 4068684096565683968
2Mass ID (if available) : 17502536-2304584
ICRS Star Coord at Epoch: 17h 50m 25.35833s -23:04:58.58224s
RUWE (>1.4 is poor) : 0.90
K magnitude           : 9.220
G magnitude           : 13.365
RP magnitude          : 12.256
BP magnitude          : 14.635
DUPflag              : 0
Distance (au)         : 4.250
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.39
Sun-Target sep (deg) : 177.40
Sun-Moon sep (deg)   : 5.43
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.19
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 16.625
C/A sky separation (km): 51250.2
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	2043-06-22T10:51:49.365	48.64	-46.53	71487.8	-46.33	-50.01
Jupiter	E	2043-06-22T12:31:12.533	68.24	-66.35	71487.9	-45.26	-48.96