

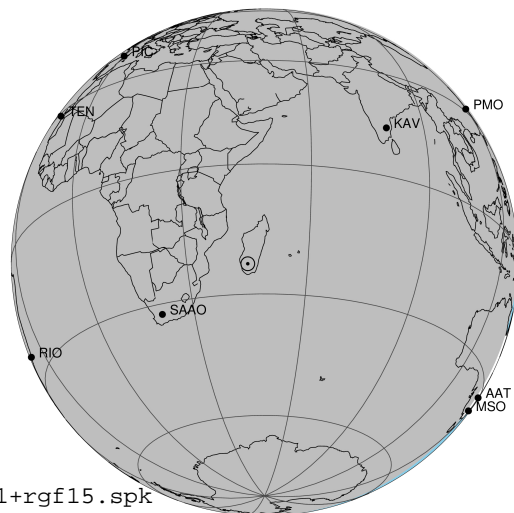
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-06-11T20:58:54.330
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116708801555748736
 2Mass ID (if available) : 17342619-2249403

Jupiter 2031-06-11T20:58:54 K9.34 G13.70 Pgt

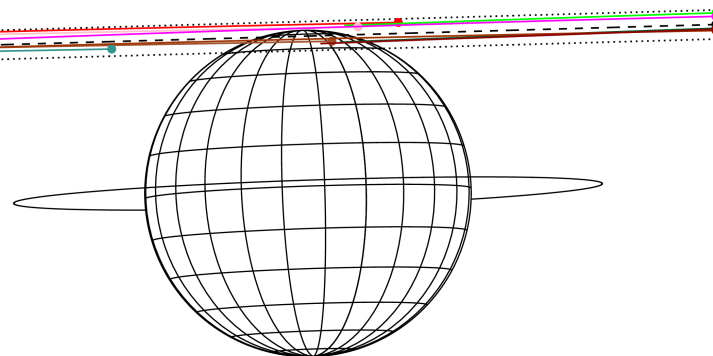
ICRS Star Coord at Epoch: 17h 34m 26.19033s -22:49:40.48428s

RUWE (>1.4 is poor) : 0.88
 K magnitude : 9.335
 G magnitude : 13.704
 RP magnitude : 12.560
 BP magnitude : 15.087
 DUPflag : 0
 Distance (au) : 4.268
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.40
 Sun-Target sep (deg) : 176.18
 Sun-Moon sep (deg) : 83.37
 B (ring opening deg) : -2.61
 PA of pole (deg) : 1.92
 Pole direction: RA (deg): 268.05692
 Dec (deg): 64.49651
 C/A sky separation (") : 22.274
 C/A sky separation (km) : 68949.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-06-11T20:58:54 K9.34 G13.70
 Pgt



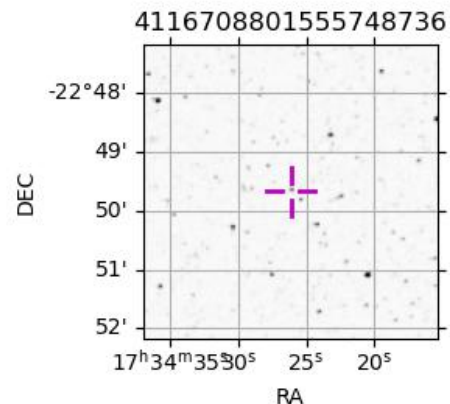
Earth
 PIC
 PMO
 TEN
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2031-06-11T20:58:54.3300 a: 17 34 26.1903 s: -22 49 40.484 C/A ***** PA 181.62 deg v_sky -16.40 km/s D 04.27 AU
 Credit: Styled after SORA/Lucky Star

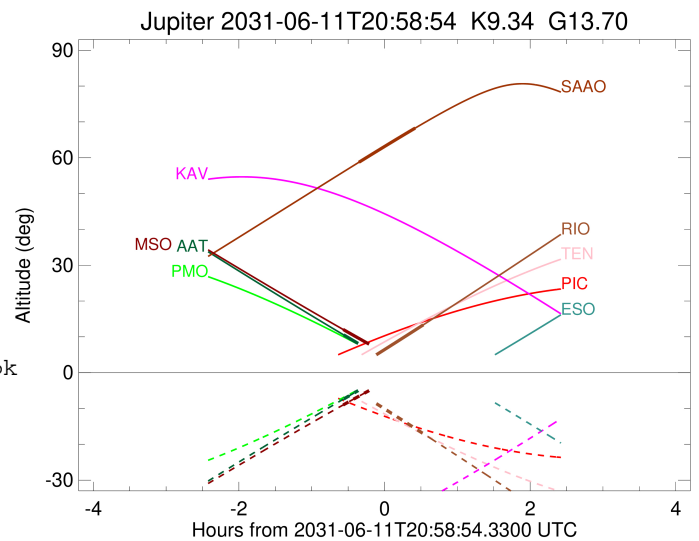
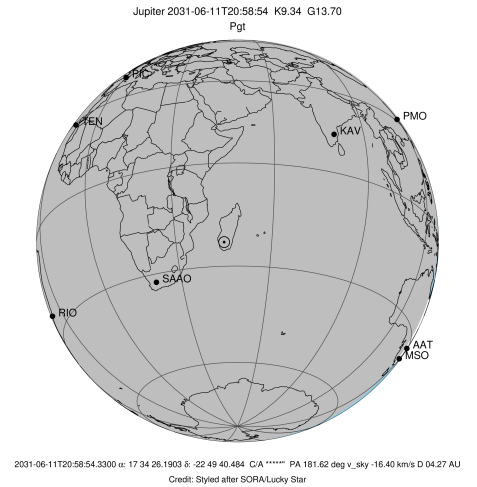
Observable events with sun below -5 deg and altitude above 5 deg

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			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
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			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	JUN 11 21:30 - JUN 11 21:30	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+	JUN 11 20:25 - JUN 11 20:25	Pin
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUN 11 20:37 - JUN 11 21:24	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+	JUN 11 20:24 - JUN 11 20:24	Pin



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-06-11T21:04:08.030
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       : 4116708801555748736
2Mass ID (if available) : 17342619-2249403
ICRS Star Coord at Epoch: 17h 34m 26.19033s -22:49:40.48428s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 9.335
G magnitude           : 13.704
RP magnitude          : 12.560
BP magnitude          : 15.087
DUPflag              : 0
Distance (au)         : 4.268
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg) : 176.18
Sun-Moon sep (deg)   : 83.58
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.92
Pole direction: RA (deg): 268.05692
Dec (deg): 64.49651
C/A sky separation ("): 21.477
C/A sky separation (km): 66483.7
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
    
```

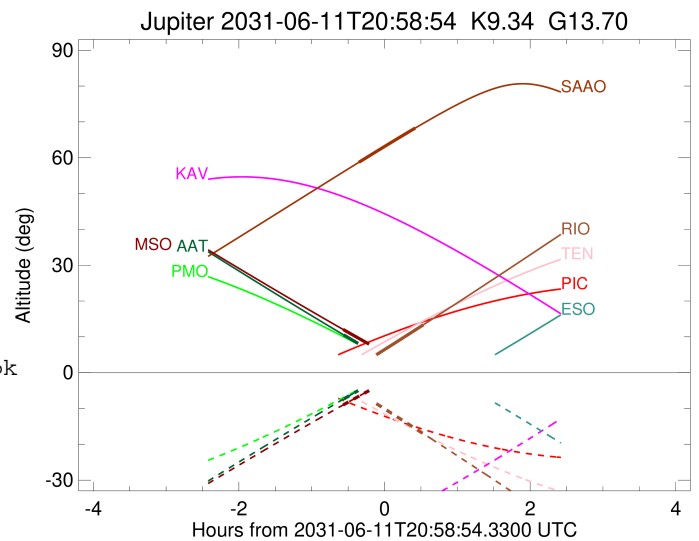
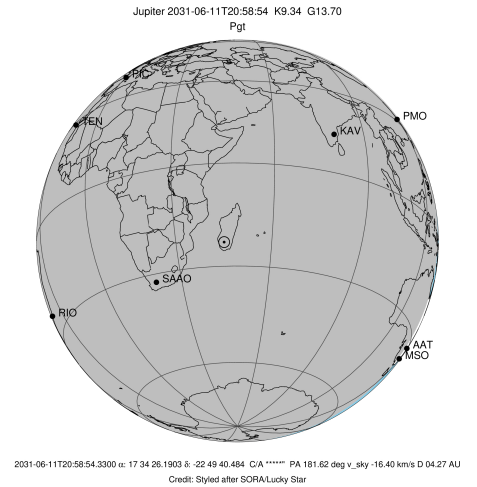


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-11T20:37:22.517	1.85x	-5.48	71484.1	67.43	69.89
Jupiter	E	2031-06-11T21:30:48.737	13.33	-17.01	71483.9	69.16	71.46

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-06-11T20:53:57.980
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        : 4116708801555748736
2Mass ID (if available) : 17342619-2249403
ICRS Star Coord at Epoch: 17h 34m 26.19033s -22:49:40.48428s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 9.335
G magnitude           : 13.704
RP magnitude          : 12.560
BP magnitude          : 15.087
DUPflag              : 0
Distance (au)         : 4.268
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg)  : 176.18
Sun-Moon sep (deg)   : 83.34
B (ring opening deg) : -2.61
PA of pole (deg)     : 1.92
Pole direction: RA (deg): 268.05692
Dec (deg): 64.49651
C/A sky separation (") : 21.237
C/A sky separation (km) : 65740.9
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
    
```

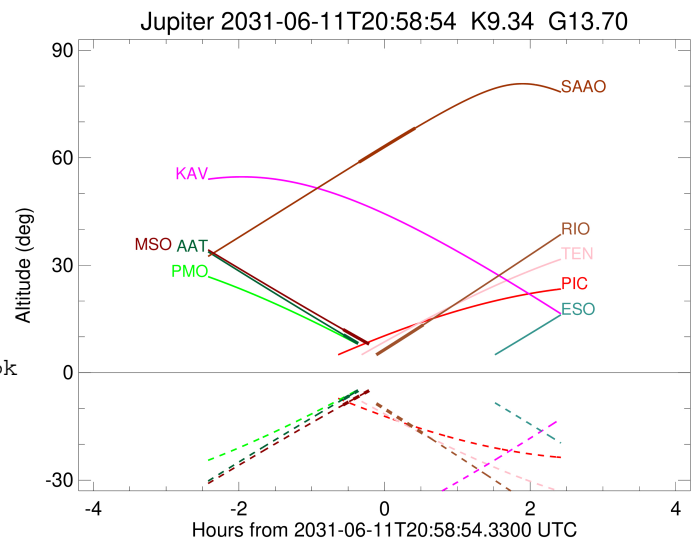
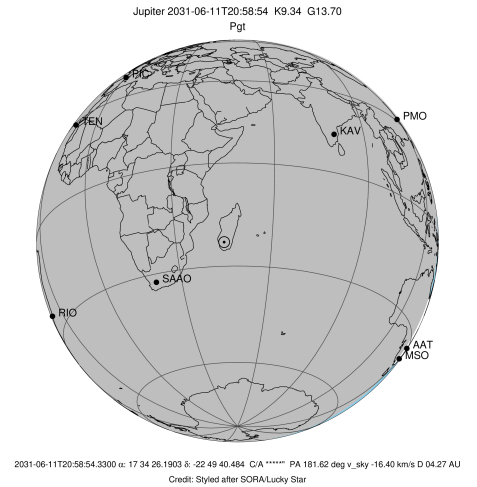


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-11T20:25:22.634	10.52	-7.33	71484.2	66.98	69.49
Jupiter	E	2031-06-11T21:22:38.248	-0.71x	3.66x	71484.2	66.50	69.04

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-06-11T21:01:06.920
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        : 4116708801555748736
2Mass ID (if available) : 17342619-2249403
ICRS Star Coord at Epoch: 17h 34m 26.19033s -22:49:40.48428s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 9.335
G magnitude           : 13.704
RP magnitude          : 12.560
BP magnitude          : 15.087
DUPflag              : 0
Distance (au)         : 4.268
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg)  : 176.18
Sun-Moon sep (deg)    : 84.26
B (ring opening deg) : -2.61
PA of pole (deg)      : 1.92
Pole direction: RA (deg): 268.05692
Dec (deg): 64.49651
C/A sky separation (" ) : 21.840
C/A sky separation (km) : 67605.6
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
    
```

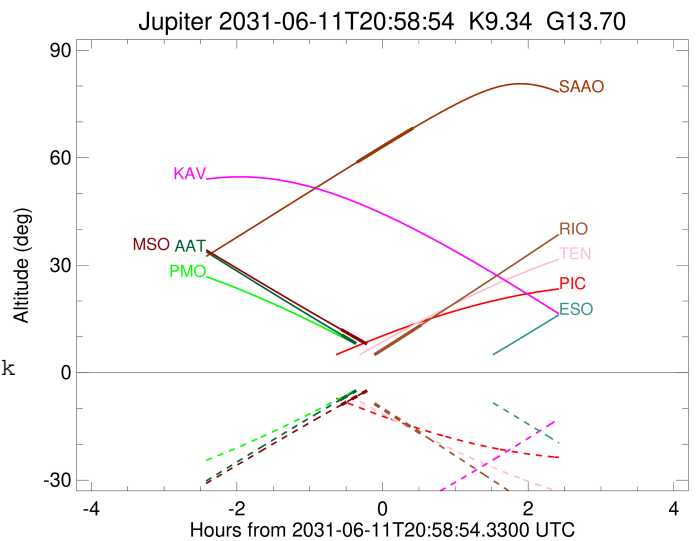
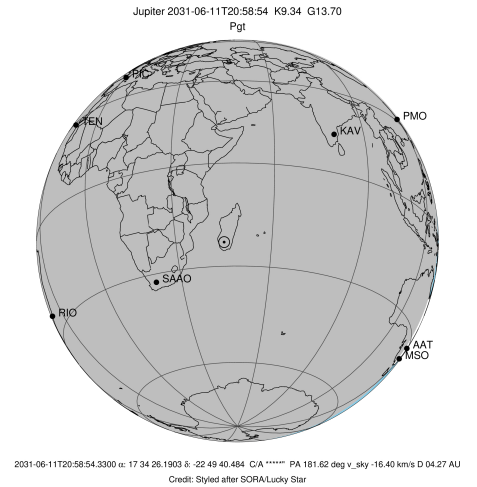


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-11T20:37:57.158	58.76	-62.33	71483.8	70.28	72.48
Jupiter	E	2031-06-11T21:24:15.103	68.28	-71.64	71483.7	71.41	73.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-06-11T20:54:10.440
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      : 4116708801555748736
2Mass ID (if available) : 17342619-2249403
ICRS Star Coord at Epoch: 17h 34m 26.19033s -22:49:40.48428s
RUWE (>1.4 is poor) : 0.88
K magnitude          : 9.335
G magnitude          : 13.704
RP magnitude         : 12.560
BP magnitude         : 15.087
DUPflag             : 0
Distance (au)       : 4.268
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.40
Sun-Target sep (deg) : 176.18
Sun-Moon sep (deg)  : 83.37
B (ring opening deg) : -2.61
PA of pole (deg)    : 1.92
Pole direction: RA (deg): 268.05692
Dec (deg): 64.49651
C/A sky separation (") : 21.128
C/A sky separation (km) : 65403.8
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	2031-06-11T20:24:47.833	12.06	-9.02	71484.2	66.28	68.85
Jupiter	E	2031-06-11T21:23:37.999	1.01x	1.78x	71484.3	65.85	68.45