

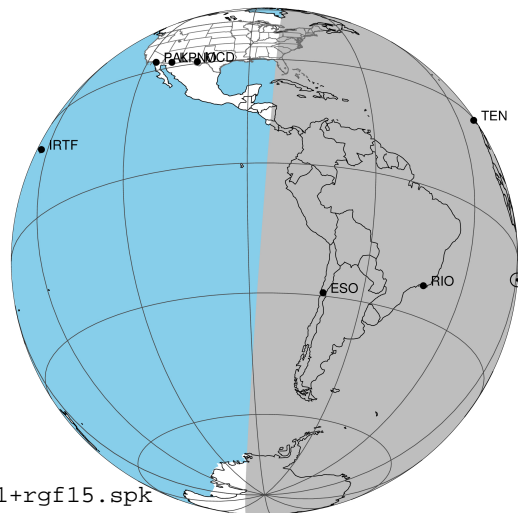
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-09-11T23:38:34.260
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4114513321683839360
 2Mass ID (if available) : 17153903-2249078

Jupiter 2031-09-11T23:38:34 K9.73 G14.16 Pgt

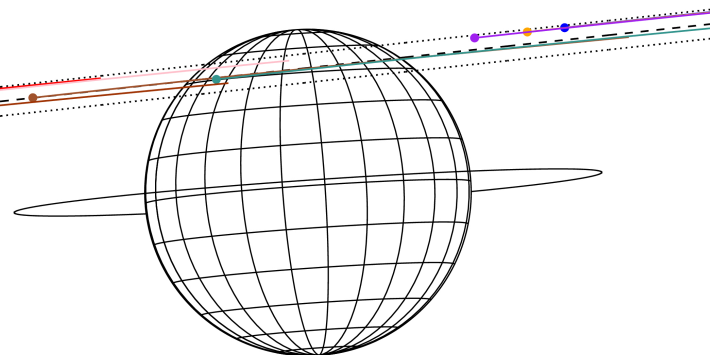
ICRS Star Coord at Epoch: 17h 15m 39.04330s -22:49:08.10942s

RUWE (>1.4 is poor) : 1.07
 K magnitude : 9.727
 G magnitude : 14.155
 RP magnitude : 12.999
 BP magnitude : 15.584
 DUPflag : 0
 Distance (au) : 5.131
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 12.41
 Sun-Target sep (deg) : 91.19
 Sun-Moon sep (deg) : 144.86
 B (ring opening deg) : -2.40
 PA of pole (deg) : 3.93
 Pole direction: RA (deg): 268.05685
 Dec (deg): 64.49652
 C/A sky separation (") : 14.584
 C/A sky separation (km) : 54275.3
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-09-11T23:38:34 K9.73 G14.16
 Pgt



Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 RIO
 ESO
 SAAO

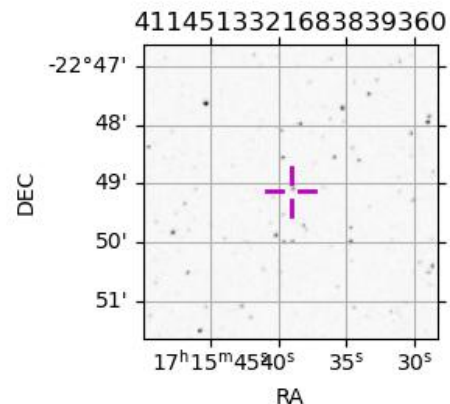


2031-09-11T23:38:34.2600 @: 17 15 39.0433 @: -22 49 08.109 C/A ***** PA 186.22 deg v_sky +12.41 km/s D 05.13 AU

Credit: Styled after SORA/Lucky Star

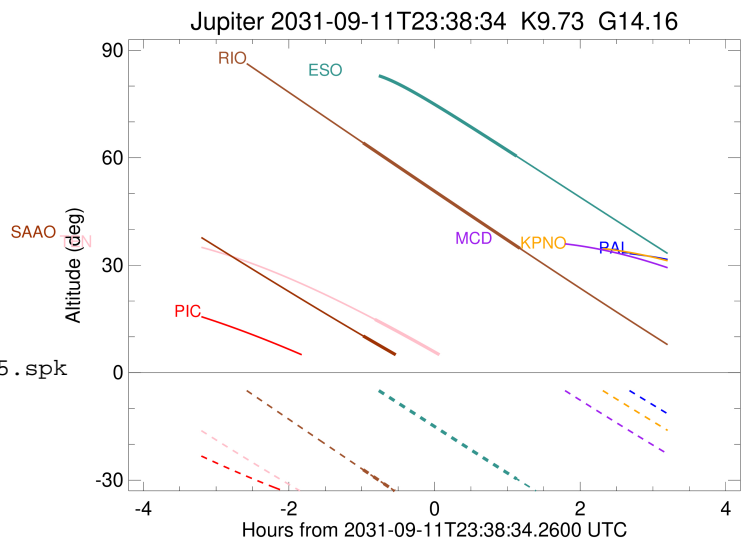
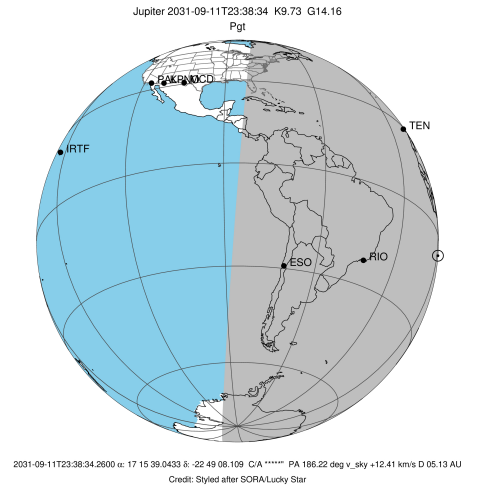
Observable events with sun below -5 deg and altitude above 5 deg

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	+	SEP 11 22:49 - SEP 11 22:49	Pin
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	+	SEP 11 22:39 - SEP 12 00:48	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	SEP 12 00:46 - SEP 12 00:46	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	SEP 11 22:39 - SEP 11 22:39	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-11T23:46:04.410
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        : 4114513321683839360
2Mass ID (if available) : 17153903-2249078
ICRS Star Coord at Epoch: 17h 15m 39.04330s -22:49:08.10942s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.727
G magnitude           : 14.155
RP magnitude          : 12.999
BP magnitude          : 15.584
DUPflag              : 0
Distance (au)         : 5.131
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.41
Sun-Target sep (deg)  : 91.19
Sun-Moon sep (deg)   : 144.28
B (ring opening deg) : -2.40
PA of pole (deg)     : 3.93
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 15.661
C/A sky separation (km) : 58284.9
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
    
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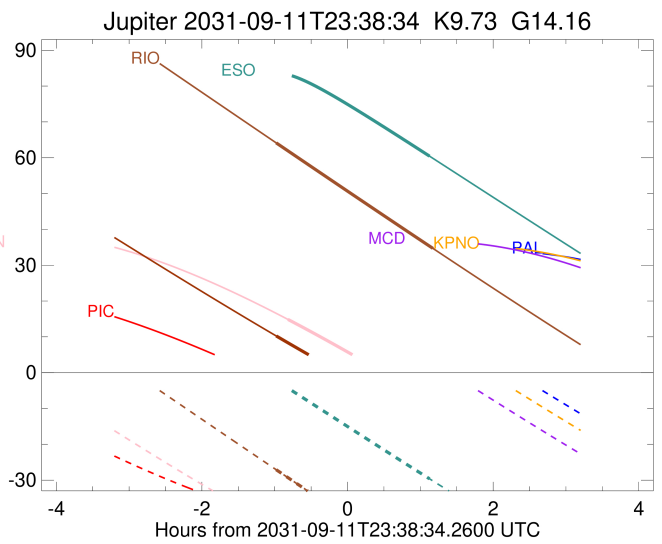
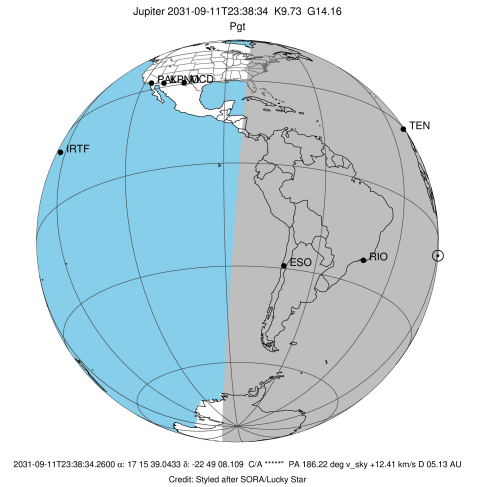


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-11T22:49:29.076	14.86	-44.40	71487.0	52.84	56.32
Jupiter	E	2031-09-12T00:42:07.322	-6.84x	-57.18	71486.6	56.15	59.46

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-11T23:44:39.180
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       : 4114513321683839360
2Mass ID (if available) : 17153903-2249078
ICRS Star Coord at Epoch: 17h 15m 39.04330s -22:49:08.10942s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.727
G magnitude           : 14.155
RP magnitude         : 12.999
BP magnitude         : 15.584
DUPflag              : 0
Distance (au)        : 5.131
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.41
Sun-Target sep (deg) : 91.19
Sun-Moon sep (deg)  : 144.81
B (ring opening deg) : -2.40
PA of pole (deg)    : 3.93
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 14.529
C/A sky separation (km) : 54071.6
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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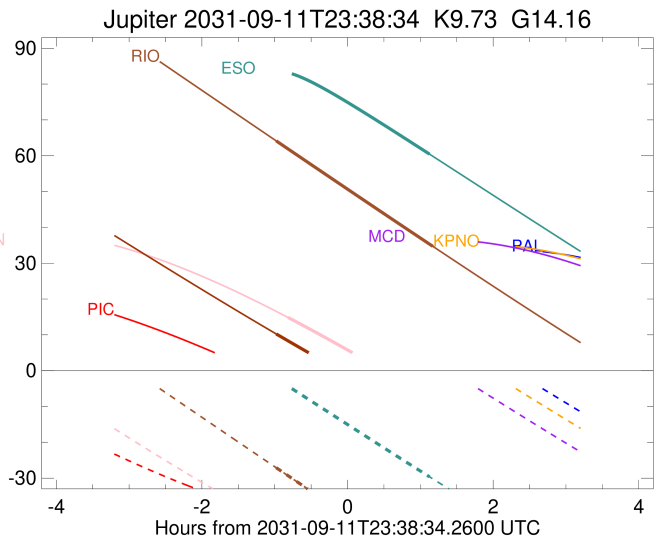
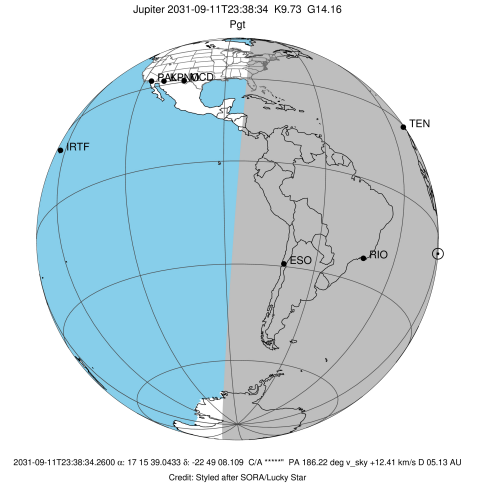


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-11T22:39:48.142	64.14	-27.09	71487.8	47.09	50.76
Jupiter	E	2031-09-12T00:48:56.274	34.69	-55.54	71487.3	50.88	54.44

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-11T23:40:43.490
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        : 4114513321683839360
2Mass ID (if available) : 17153903-2249078
ICRS Star Coord at Epoch: 17h 15m 39.04330s -22:49:08.10942s
RUWE (>1.4 is poor) : 1.07
K magnitude           : 9.727
G magnitude           : 14.155
RP magnitude          : 12.999
BP magnitude          : 15.584
DUPflag              : 0
Distance (au)         : 5.131
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 12.41
Sun-Target sep (deg) : 91.19
Sun-Moon sep (deg)   : 145.19
B (ring opening deg) : -2.40
PA of pole (deg)     : 3.93
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 14.419
C/A sky separation (km) : 53663.5
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
    
```

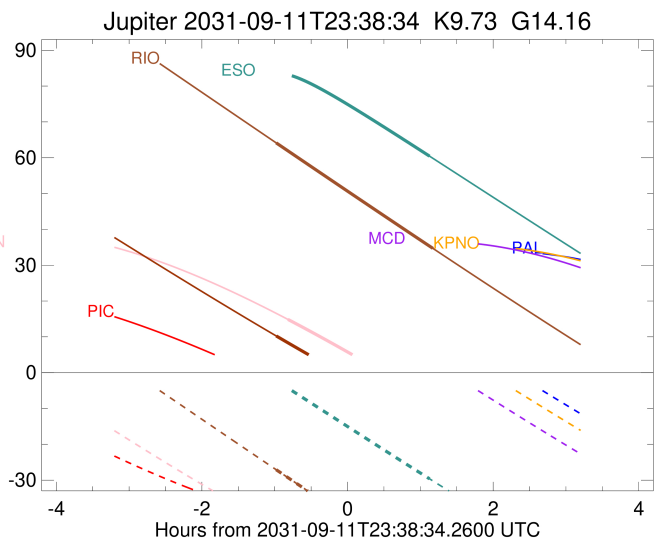
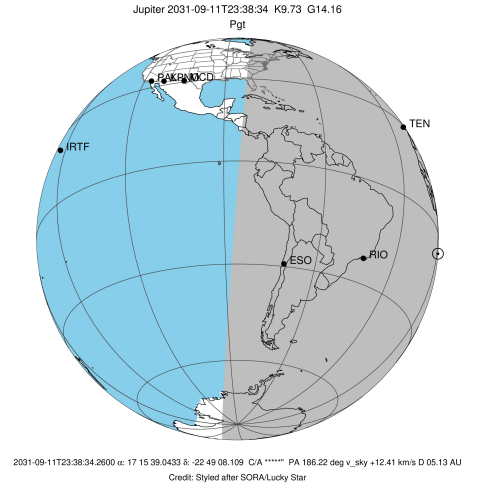


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-11T22:34:56.787	83.73	-1.13x	71487.9	46.20	49.88
Jupiter	E	2031-09-12T00:46:13.739	60.42	-29.64	71487.3	50.76	54.32

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-11T23:46:47.030
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       : 4114513321683839360
2Mass ID (if available) : 17153903-2249078
ICRS Star Coord at Epoch: 17h 15m 39.04330s -22:49:08.10942s
RUWE (>1.4 is poor) : 1.07
K magnitude          : 9.727
G magnitude           : 14.155
RP magnitude         : 12.999
BP magnitude         : 15.584
DUPflag             : 0
Distance (au)        : 5.131
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 12.41
Sun-Target sep (deg) : 91.19
Sun-Moon sep (deg)   : 144.28
B (ring opening deg) : -2.40
PA of pole (deg)     : 3.93
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49652
C/A sky separation (") : 13.711
C/A sky separation (km) : 51026.7
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	2031-09-11T22:39:46.507	10.26	-62.10	71488.2	43.92	47.63
Jupiter	E	2031-09-12T00:53:04.006	-14.25x	-47.02	71487.8	47.08	50.75