

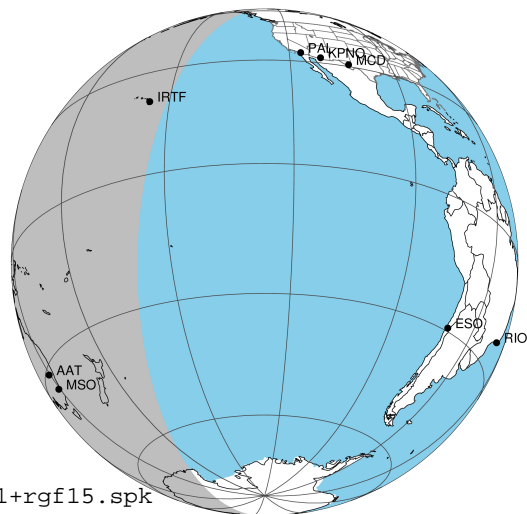
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-02-16T16:31:51.540  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4068888090276989568  
 2Mass ID (if available) : 17485467-2257156

Jupiter 2043-02-16T16:31:51 K9.57 G14.58 Pgt

ICRS Star Coord at Epoch: 17h 48m 54.67041s -22:57:15.55029s

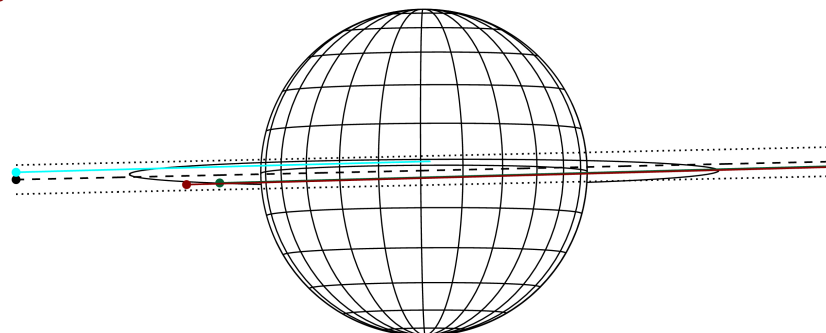
RUWE (>1.4 is poor) : 1.45  
 K magnitude : 9.572  
 G magnitude : 14.581  
 RP magnitude : 13.321  
 BP magnitude : 16.182  
 DUPflag : 0  
 Distance (au) : 5.735  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 28.15  
 Sun-Target sep (deg) : 59.85  
 Sun-Moon sep (deg) : 149.30  
 B (ring opening deg) : -2.55  
 PA of pole (deg) : 0.36  
 Pole direction: RA (deg): 268.05662  
 Dec (deg): 64.49732  
 C/A sky separation (") : 0.201  
 C/A sky separation (km) : 835.2  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-02-16T16:31:51 K9.57 G14.58  
 Pgt



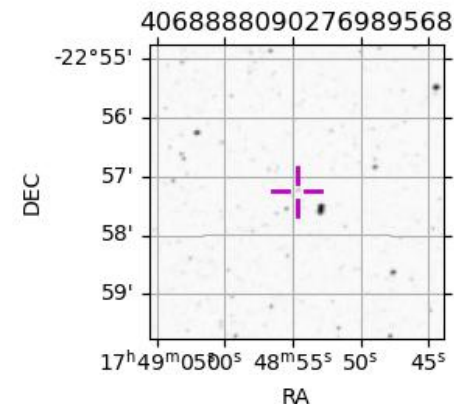
2043-02-16T16:31:51.5400 cr: 17 48 54.6704 s: -22 57 15.5500 C/A 0.191" PA 181.28 deg v\_sky +28.15 km/s D 05.73 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 IRTF  
 AAT  
 MSO



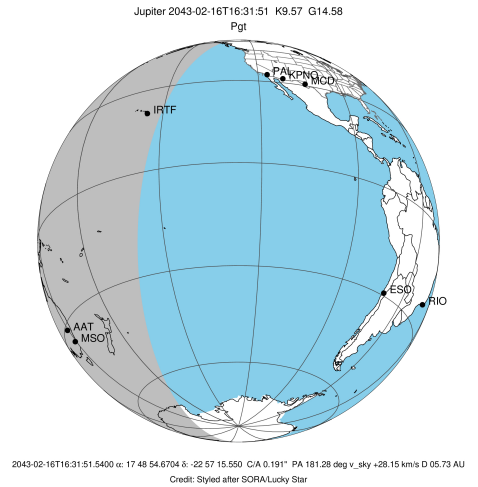
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			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	+	FEB 16 15:47 - FEB 16 15:47	Pin
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			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	FEB 16 15:46 - FEB 16 17:11	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	FEB 16 15:46 - FEB 16 17:11	Pie

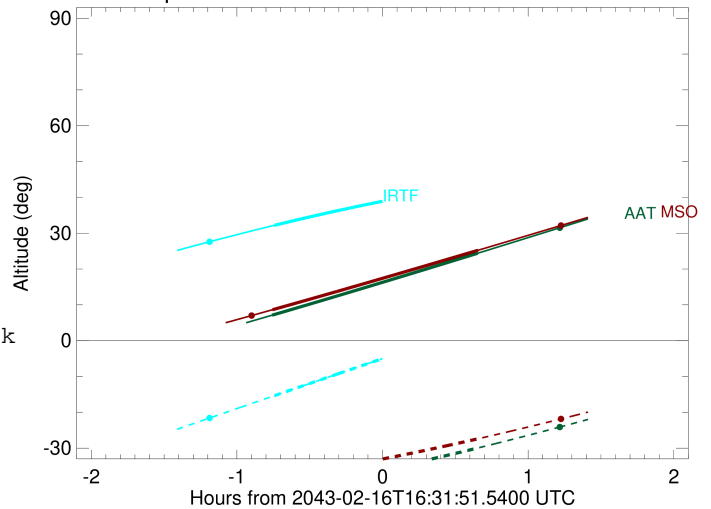


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-02-16T16:30:04.220
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : IRTF
Location              : Mauna Kea/IRTF
Latitude (deg)        : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 4068888090276989568
2Mass ID (if available) : 17485467-2257156
ICRS Star Coord at Epoch: 17h 48m 54.67041s -22:57:15.55029s
RUWE (>1.4 is poor) : 1.45
K magnitude           : 9.572
G magnitude           : 14.581
RP magnitude          : 13.321
BP magnitude          : 16.182
DUPflag              : 0
Distance (au)         : 5.735
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 28.15
Sun-Target sep (deg)  : 59.85
Sun-Moon sep (deg)    : 149.30
B (ring opening deg) : -2.55
PA of pole (deg)      : 0.36
Pole direction: RA (deg): 268.05662
Dec (deg): 64.49732
C/A sky separation (") : 1.156
C/A sky separation (km) : 4808.5
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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Jupiter 2043-02-16T16:31:51 K9.57 G14.58

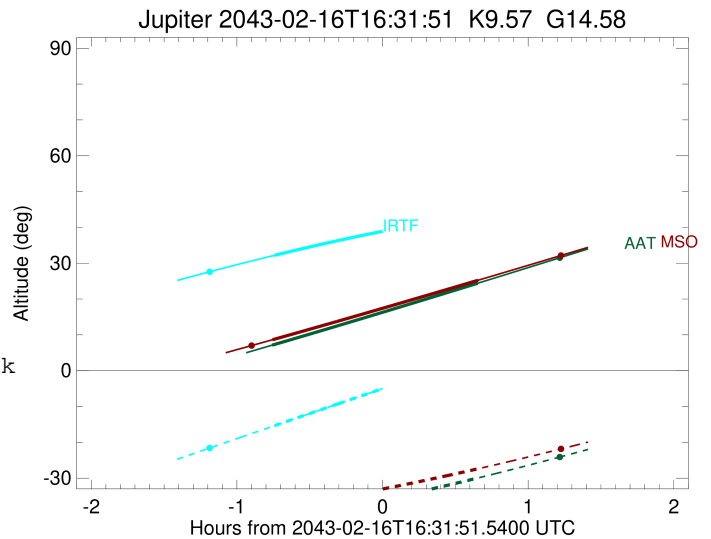
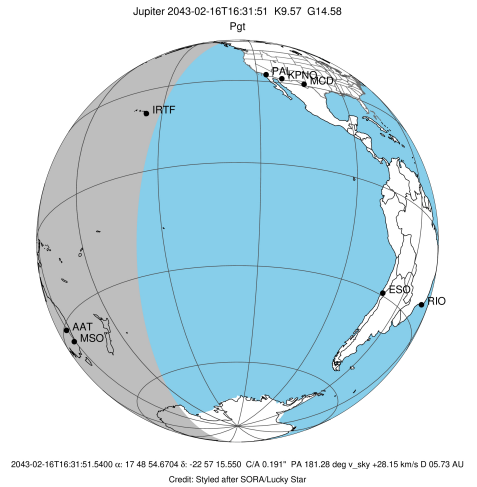


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-02-16T15:47:17.881	32.19	-15.35	71492.0	2.73	3.12
Jupiter	E	2043-02-16T17:12:55.548	43.66	4.42x	71491.9	4.92	5.62

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-02-16T16:28:40.590
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       : 4068888090276989568
2Mass ID (if available) : 17485467-2257156
ICRS Star Coord at Epoch: 17h 48m 54.67041s -22:57:15.55029s
RUWE (>1.4 is poor) : 1.45
K magnitude          : 9.572
G magnitude           : 14.581
RP magnitude         : 13.321
BP magnitude         : 16.182
DUPflag             : 0
Distance (au)        : 5.735
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 28.15
Sun-Target sep (deg) : 59.85
Sun-Moon sep (deg)   : 148.68
B (ring opening deg) : -2.55
PA of pole (deg)     : 0.36
Pole direction: RA (deg): 268.05662
Dec (deg): 64.49732
C/A sky separation (") : 0.507
C/A sky separation (km) : 2108.2
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
    
```

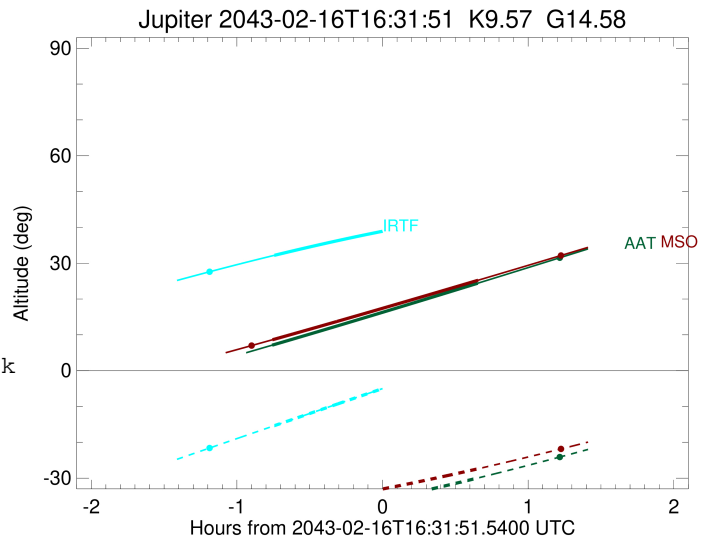
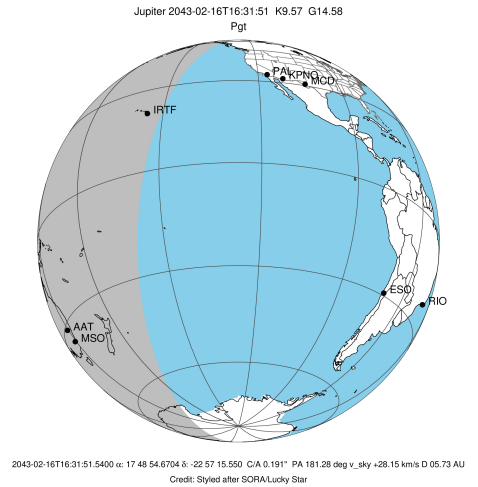


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-02-16T15:46:22.871	7.11	-41.73	71492.0	-2.91	-3.33
Jupiter	E	2043-02-16T17:11:06.138	24.40	-29.96	71492.0	-0.47	-0.54

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-02-16T16:28:49.580
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      : 4068888090276989568
2Mass ID (if available) : 17485467-2257156
ICRS Star Coord at Epoch: 17h 48m 54.67041s -22:57:15.55029s
RUWE (>1.4 is poor) : 1.45
K magnitude          : 9.572
G magnitude          : 14.581
RP magnitude         : 13.321
BP magnitude         : 16.182
DUPflag             : 0
Distance (au)       : 5.735
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 28.15
Sun-Target sep (deg) : 59.85
Sun-Moon sep (deg)  : 148.72
B (ring opening deg) : -2.55
PA of pole (deg)    : 0.36
Pole direction: RA (deg): 268.05662
Dec (deg): 64.49732
C/A sky separation (") : 0.591
C/A sky separation (km) : 2457.8
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	2043-02-16T15:46:32.235	8.63	-38.21	71492.0	-3.18	-3.63
Jupiter	E	2043-02-16T17:11:14.440	25.24	-27.38	71492.0	-0.76	-0.87