

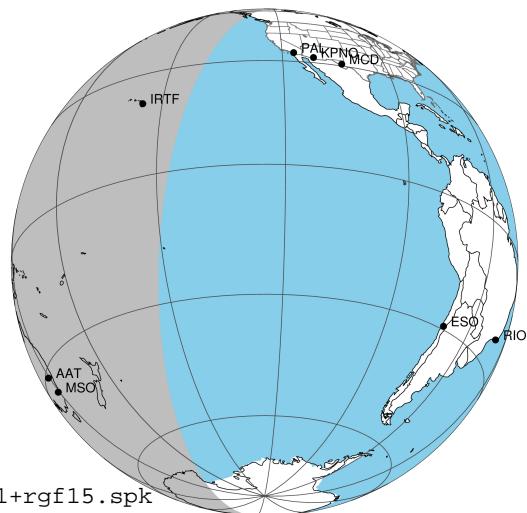
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-02-18T16:01:16.980  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4117460523904173824  
 2Mass ID (if available) : 17341114-2246069

Jupiter 2031-02-18T16:01:16 K9.99 G14.34 Pgt

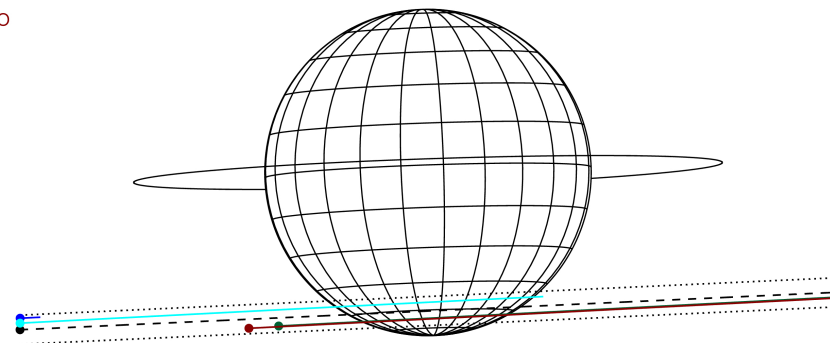
ICRS Star Coord at Epoch: 17h 34m 11.14150s -22:46:07.00091s

RUWE (>1.4 is poor) : 0.94  
 K magnitude : 9.995  
 G magnitude : 14.345  
 RP magnitude : 13.197  
 BP magnitude : 15.744  
 DUPflag : 0  
 Distance (au) : 5.655  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 25.59  
 Sun-Target sep (deg) : 65.31  
 Sun-Moon sep (deg) : 24.87  
 B (ring opening deg) : -2.66  
 PA of pole (deg) : 1.94  
 Pole direction: RA (deg): 268.05702  
 Dec (deg): 64.49651  
 C/A sky separation (") : 14.780  
 C/A sky separation (km) : 60621.7  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2031-02-18T16:01:16 K9.99 G14.34  
 Pgt



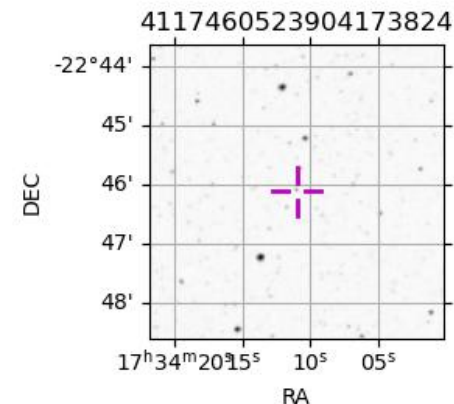
Earth  
 PAL  
 IRTF  
 AAT  
 MSO



2031-02-18T16:01:16.9800 α: 17 34 11.1415 δ: -22 46 07.001 C/A \*\*\*\*\* PA 2.62 deg v\_sky +25.59 km/s D 05.66 AU  
 Credit: Styled after SORA/Lucky Star

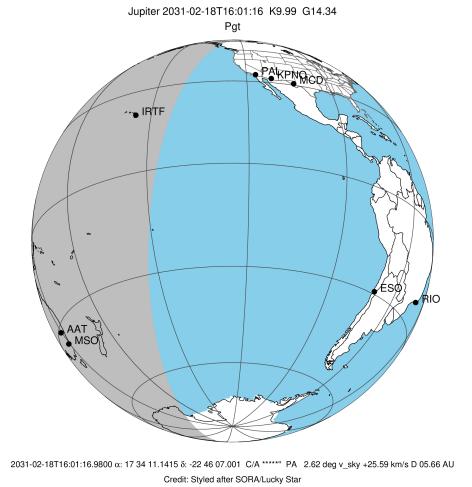
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	FEB 18 15:30 - FEB 18 16:28	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			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	FEB 18 15:37 - FEB 18 16:19	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	FEB 18 15:37 - FEB 18 16:18	Pie

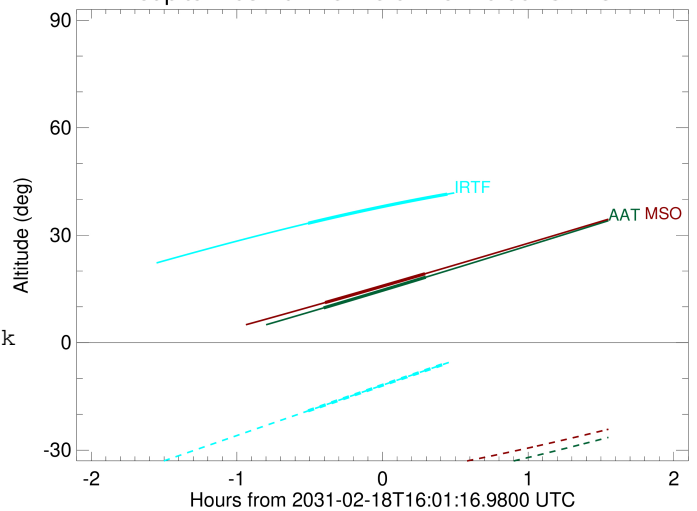


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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-18T15:59:17.920
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : IRTF
Location              : Mauna Kea/IRTF
Latitude (deg)        : 19.82622
E. Longitude (deg)    : 204.52800
Altitude (km)         : 4.168
Gaia source ID        : 4117460523904173824
2Mass ID (if available) : 17341114-2246069
ICRS Star Coord at Epoch: 17h 34m 11.14150s -22:46:07.00091s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.995
G magnitude           : 14.345
RP magnitude          : 13.197
BP magnitude          : 15.744
DUPflag              : 0
Distance (au)         : 5.655
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 25.59
Sun-Target sep (deg)  : 65.31
Sun-Moon sep (deg)    : 25.53
B (ring opening deg) : -2.66
PA of pole (deg)      : 1.94
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 13.845
C/A sky separation (km) : 56786.0
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
    
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Jupiter 2031-02-18T16:01:16 K9.99 G14.34

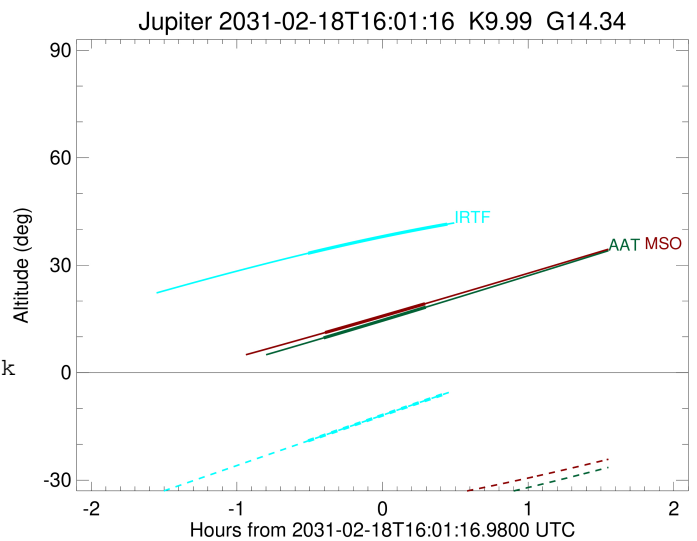
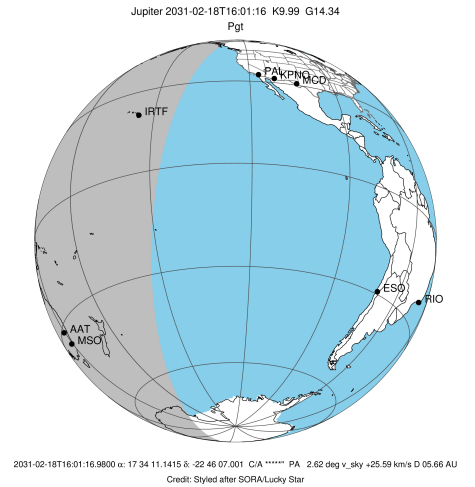


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-18T15:30:38.643	33.33	-19.03	71485.7	-53.45	-56.89
Jupiter	E	2031-02-18T16:27:59.814	41.46	-5.66	71486.0	-51.62	-55.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-18T15:58:04.170
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       : 4117460523904173824
2Mass ID (if available) : 17341114-2246069
ICRS Star Coord at Epoch: 17h 34m 11.14150s -22:46:07.00091s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.995
G magnitude           : 14.345
RP magnitude         : 13.197
BP magnitude         : 15.744
DUPflag              : 0
Distance (au)        : 5.655
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 25.59
Sun-Target sep (deg) : 65.31
Sun-Moon sep (deg)   : 25.79
B (ring opening deg) : -2.66
PA of pole (deg)     : 1.94
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 15.549
C/A sky separation (km) : 63777.2
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
    
```

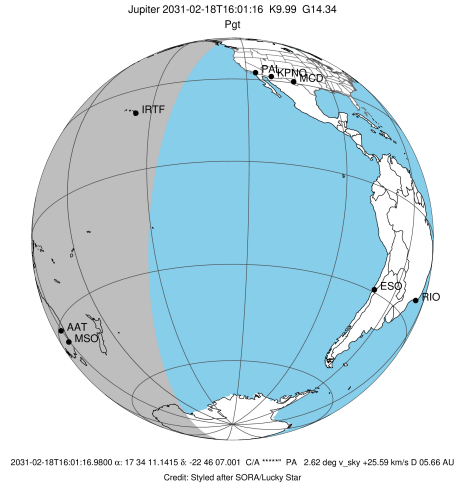


x: target alt < 5.0 deg or sun > -5.0 deg

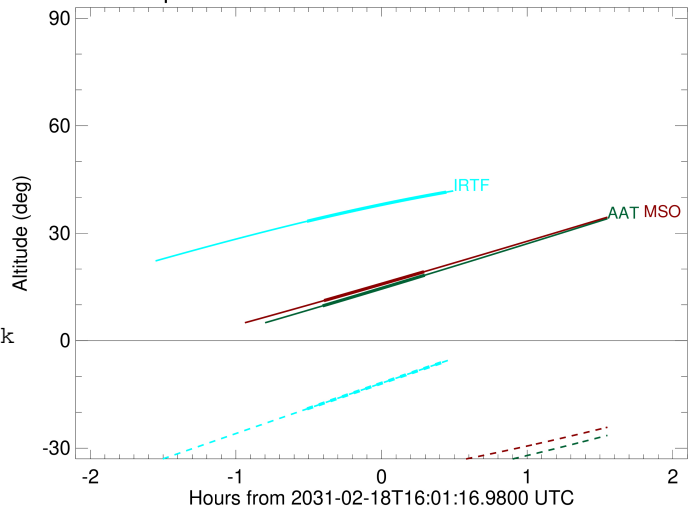
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-18T15:37:03.100	9.71	-43.28	71484.1	-64.05	-66.80
Jupiter	E	2031-02-18T16:19:07.371	18.27	-38.35	71484.4	-62.00	-64.92

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-18T15:58:13.750
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        : 4117460523904173824
2Mass ID (if available) : 17341114-2246069
ICRS Star Coord at Epoch: 17h 34m 11.14150s -22:46:07.00091s
RUWE (>1.4 is poor)  : 0.94
K magnitude           : 9.995
G magnitude           : 14.345
RP magnitude          : 13.197
BP magnitude          : 15.744
DUPflag              : 0
Distance (au)         : 5.655
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 25.59
Sun-Target sep (deg)  : 65.31
Sun-Moon sep (deg)    : 25.77
B (ring opening deg)  : -2.66
PA of pole (deg)      : 1.94
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 15.632
C/A sky separation (km) : 64117.3
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
    
```



Jupiter 2031-02-18T16:01:16 K9.99 G14.34



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	2031-02-18T15:37:39.250	11.20	-39.64	71484.0	-64.64	-67.34
Jupiter	E	2031-02-18T16:18:50.221	19.24	-35.25	71484.3	-62.63	-65.50