

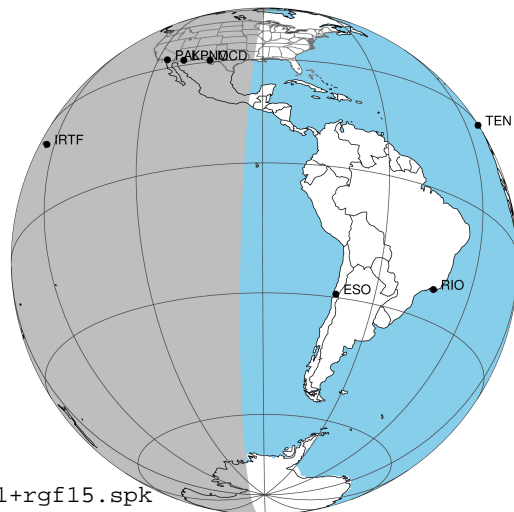
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-12T12:26:11.590
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068856032691547008
 2Mass ID (if available) : 17460602-2251489

Jupiter 2031-03-12T12:26:11 K8.58 G14.72 Pgt

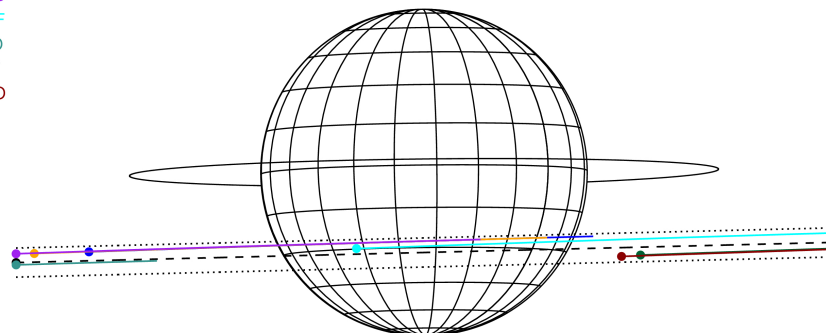
ICRS Star Coord at Epoch: 17h 46m 06.02617s -22:51:49.01756s

RUWE (>1.4 is poor) : 0.98
 K magnitude : 8.580
 G magnitude : 14.725
 RP magnitude : 13.651
 BP magnitude : 15.872
 DUPflag : 0
 Distance (au) : 5.314
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 16.00
 Sun-Target sep (deg) : 84.50
 Sun-Moon sep (deg) : 54.15
 B (ring opening deg) : -2.63
 PA of pole (deg) : 0.66
 Pole direction: RA (deg): 268.05700
 Dec (deg): 64.49651
 C/A sky separation (") : 9.090
 C/A sky separation (km) : 35035.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-12T12:26:11 K8.58 G14.72
 Pgt



Earth
 PAL
 KPNO
 MCD
 IRTF
 ESO
 AAT
 MSO

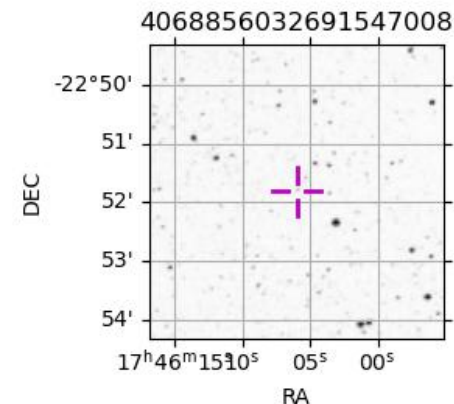


2031-03-12T12:26:11.5900 a: 17 46 06.0262 & -22 51 49.018 C/A 9.100" PA 1.41 deg v_sky +16.00 km/s D 05.31 AU

Credit: Styled after SORA/Lucky Star

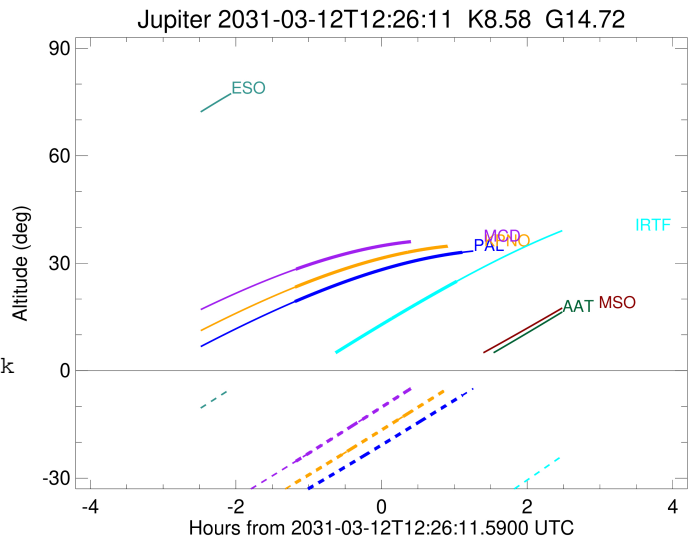
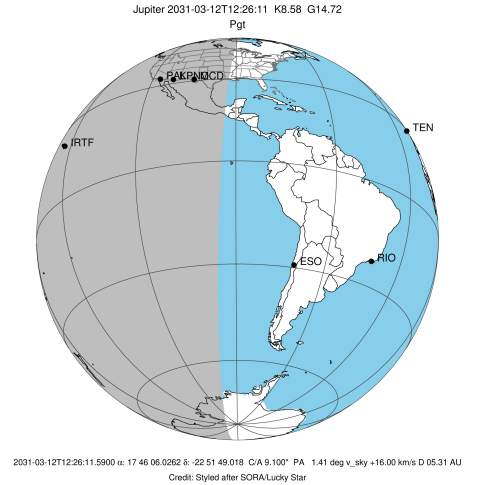
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	MAR 12 11:14 - MAR 12 13:32	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 12 11:15 - MAR 12 11:15	Pin
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 12 11:15 - MAR 12 11:15	Pin
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	MAR 12 13:28 - MAR 12 13:28	Pne
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			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8			Pnn
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-12T12:23:37.790
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        : 4068856032691547008
2Mass ID (if available) : 17460602-2251489
ICRS Star Coord at Epoch: 17h 46m 06.02617s -22:51:49.01756s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 8.580
G magnitude           : 14.725
RP magnitude          : 13.651
BP magnitude          : 15.872
DUPflag              : 0
Distance (au)         : 5.314
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.00
Sun-Target sep (deg)  : 84.50
Sun-Moon sep (deg)   : 54.32
B (ring opening deg) : -2.63
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 7.795
C/A sky separation (km) : 30045.6
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
    
```

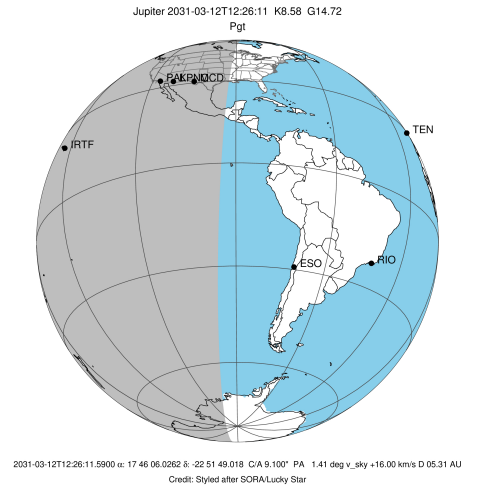


x: target alt < 5.0 deg or sun > -5.0 deg

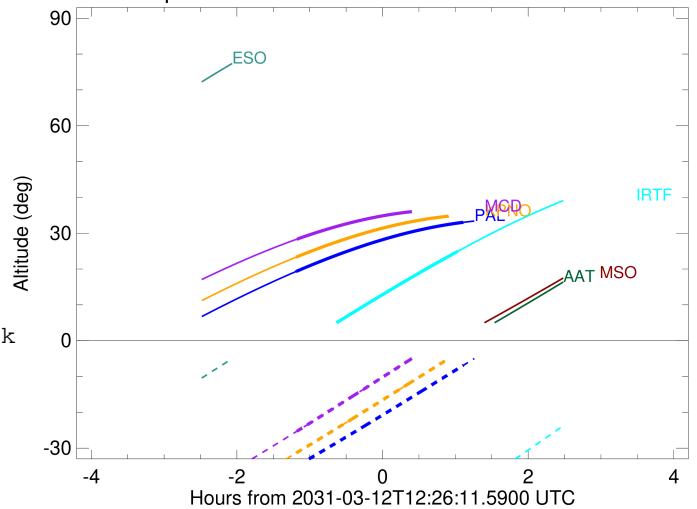
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-12T11:14:49.165	19.29	-35.12	71490.2	-25.93	-29.03
Jupiter	E	2031-03-12T13:32:47.253	33.04	-6.89	71490.4	-23.86	-26.79

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-12T12:24:02.650
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       : 4068856032691547008
2Mass ID (if available) : 17460602-2251489
ICRS Star Coord at Epoch: 17h 46m 06.02617s -22:51:49.01756s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 8.580
G magnitude           : 14.725
RP magnitude          : 13.651
BP magnitude          : 15.872
DUPflag              : 0
Distance (au)         : 5.314
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.00
Sun-Target sep (deg) : 84.50
Sun-Moon sep (deg)   : 54.40
B (ring opening deg) : -2.63
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 7.795
C/A sky separation (km) : 30043.1
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 2031-03-12T12:26:11 K8.58 G14.72

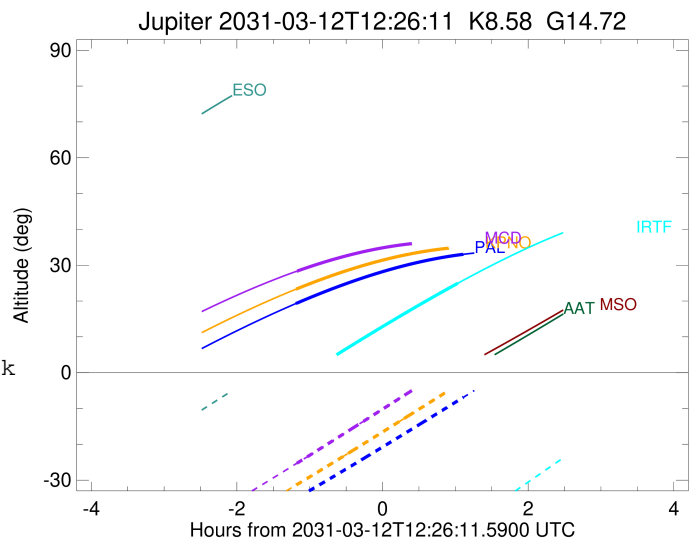
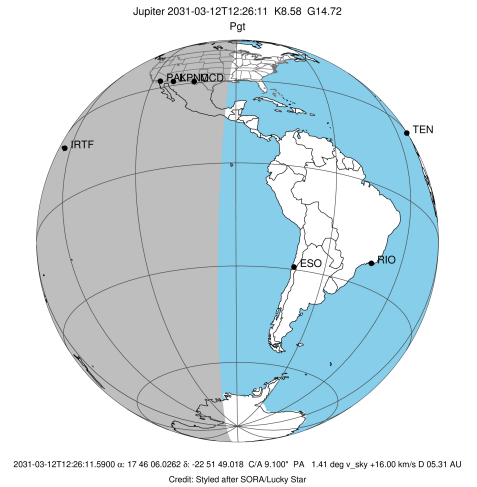


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-12T11:15:07.346	23.33	-31.35	71490.2	-25.89	-28.99
Jupiter	E	2031-03-12T13:33:16.488	35.11	-2.33x	71490.4	-23.90	-26.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-12T12:24:42.510
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        : 4068856032691547008
2Mass ID (if available) : 17460602-2251489
ICRS Star Coord at Epoch: 17h 46m 06.02617s -22:51:49.01756s
RUWE (>1.4 is poor) : 0.98
K magnitude           : 8.580
G magnitude           : 14.725
RP magnitude          : 13.651
BP magnitude          : 15.872
DUPflag              : 0
Distance (au)         : 5.314
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.00
Sun-Target sep (deg)  : 84.50
Sun-Moon sep (deg)   : 54.50
B (ring opening deg) : -2.63
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 7.789
C/A sky separation (km) : 30022.0
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
    
```

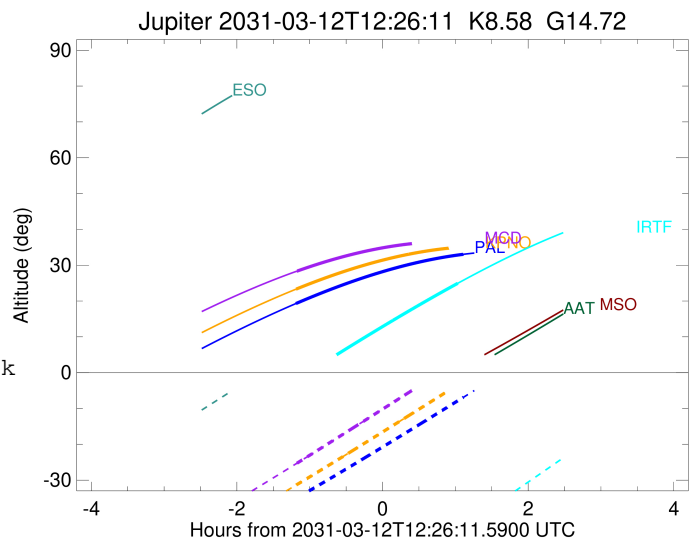
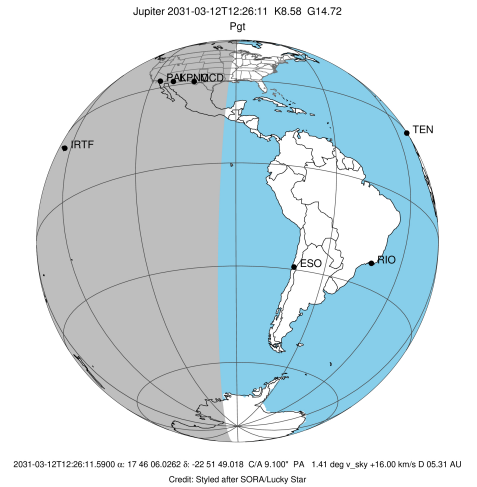


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-12T11:15:38.881	28.33	-25.29	71490.2	-25.81	-28.90
Jupiter	E	2031-03-12T13:34:00.926	36.57	4.39x	71490.4	-23.96	-26.90

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-12T12:20:41.890
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        : 4068856032691547008
2Mass ID (if available) : 17460602-2251489
ICRS Star Coord at Epoch: 17h 46m 06.02617s -22:51:49.01756s
RUWE (>1.4 is poor)  : 0.98
K magnitude           : 8.580
G magnitude           : 14.725
RP magnitude          : 13.651
BP magnitude          : 15.872
DUPflag              : 0
Distance (au)         : 5.314
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s)  : 16.00
Sun-Target sep (deg)  : 84.50
Sun-Moon sep (deg)    : 53.84
B (ring opening deg)  : -2.63
PA of pole (deg)      : 0.66
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 8.374
C/A sky separation (km) : 32274.3
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	2031-03-12T11:13:53.136	-2.38x	-70.63	71489.9	-28.16	-31.42
Jupiter	E	2031-03-12T13:28:06.143	24.92	-43.95	71490.2	-25.51	-28.58