

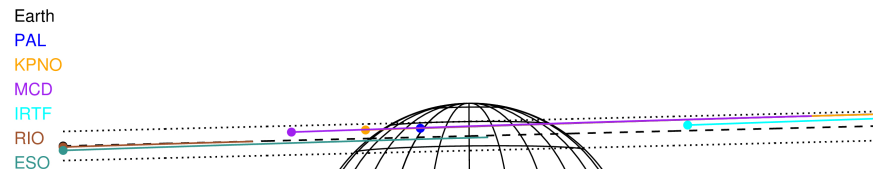
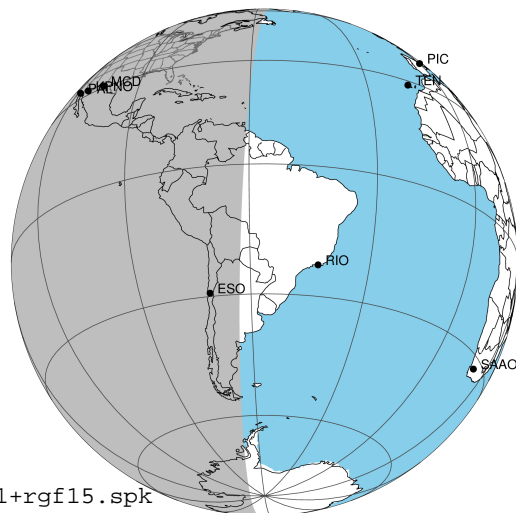
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-12T10:14:15.970
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068856097015055232
 2Mass ID (if available) : 17460368-2251243

Jupiter 2031-03-12T10:14:15 K9.11 G13.44 Pgt

ICRS Star Coord at Epoch: 17h 46m 03.68936s -22:51:24.29928s

RUWE (>1.4 is poor) : 7.40
 K magnitude : 9.110
 G magnitude : 13.442
 RP magnitude : 12.278
 BP magnitude : 14.753
 DUPflag : 0
 Distance (au) : 5.316
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 16.04
 Sun-Target sep (deg) : 84.42
 Sun-Moon sep (deg) : 55.40
 B (ring opening deg) : -2.64
 PA of pole (deg) : 0.66
 Pole direction: RA (deg): 268.05700
 Dec (deg): 64.49651
 C/A sky separation (") : 14.825
 C/A sky separation (km) : 57155.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

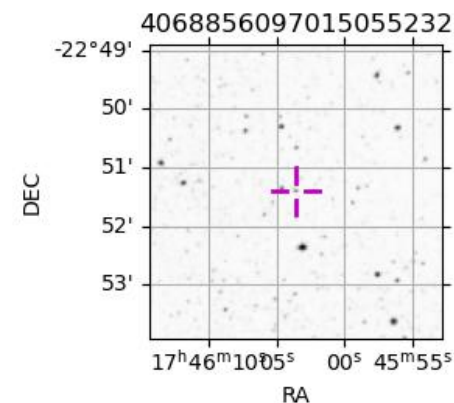
Jupiter 2031-03-12T10:14:15 K9.11 G13.44
 Pgt



2031-03-12T10:14:15.9700 a: 17 46 03.6894 b: -22 51 24.299 C/A ***** PA 181.41 deg v_sky +16.04 km/s D 05.32 AU
 Credit: Styled after SORA/Lucky Star

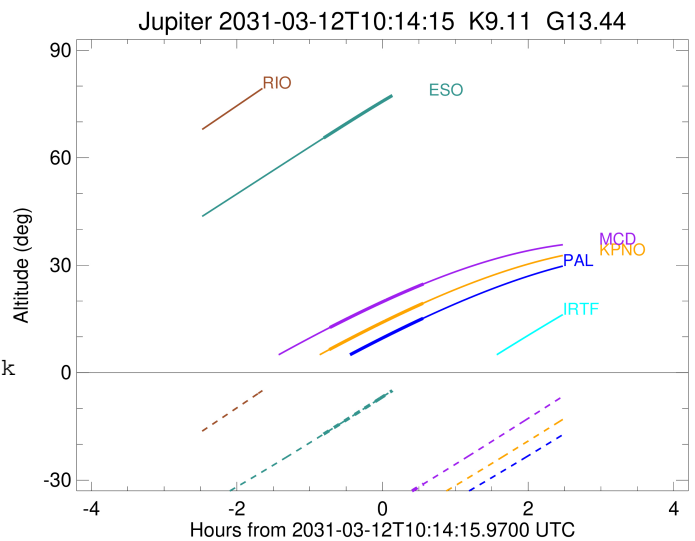
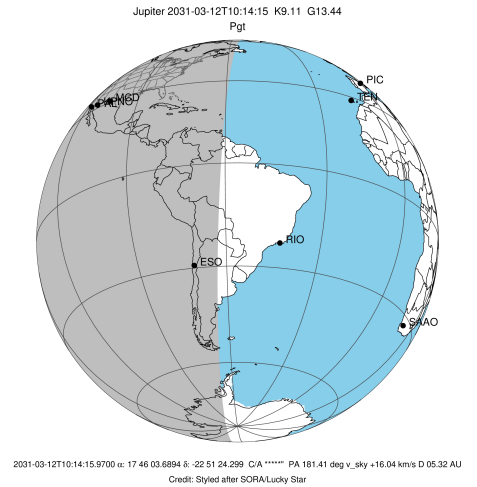
Observable events with sun below -5 deg and altitude above 5 deg

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 10:47 - MAR 12 10:47	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAR 12 09:30 - MAR 12 10:47	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAR 12 09:30 - MAR 12 10:48	Pie
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			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAR 12 09:25 - MAR 12 09:25	Pin
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            : 2031-03-12T10:08:44.450
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      : 4068856097015055232
2Mass ID (if available) : 17460368-2251243
ICRS Star Coord at Epoch: 17h 46m 03.68936s -22:51:24.29928s
RUWE (>1.4 is poor) : 7.40
K magnitude          : 9.110
G magnitude          : 13.442
RP magnitude         : 12.278
BP magnitude         : 14.753
DUPflag             : 0
Distance (au)       : 5.316
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 16.04
Sun-Target sep (deg) : 84.42
Sun-Moon sep (deg)  : 55.14
B (ring opening deg) : -2.64
PA of pole (deg)    : 0.66
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation ("): 15.887
C/A sky separation (km): 61250.4
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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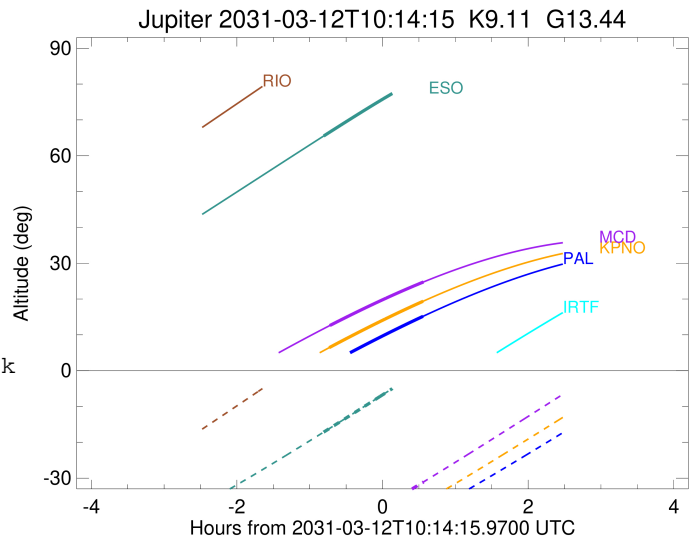
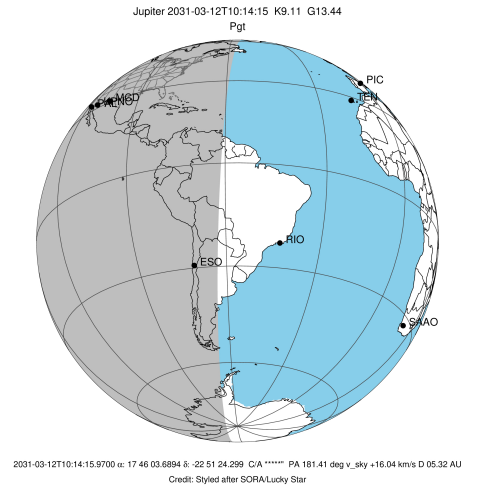


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-12T09:30:05.193	1.85x	-53.10	71485.2	57.61	60.83
Jupiter	E	2031-03-12T10:47:34.550	15.15	-40.30	71484.9	60.07	63.13

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-12T10:08:56.800
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       : 4068856097015055232
2Mass ID (if available) : 17460368-2251243
ICRS Star Coord at Epoch: 17h 46m 03.68936s -22:51:24.29928s
RUWE (>1.4 is poor) : 7.40
K magnitude           : 9.110
G magnitude           : 13.442
RP magnitude          : 12.278
BP magnitude          : 14.753
DUPflag              : 0
Distance (au)        : 5.316
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.04
Sun-Target sep (deg) : 84.42
Sun-Moon sep (deg)   : 55.22
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 15.904
C/A sky separation (km) : 61317.4
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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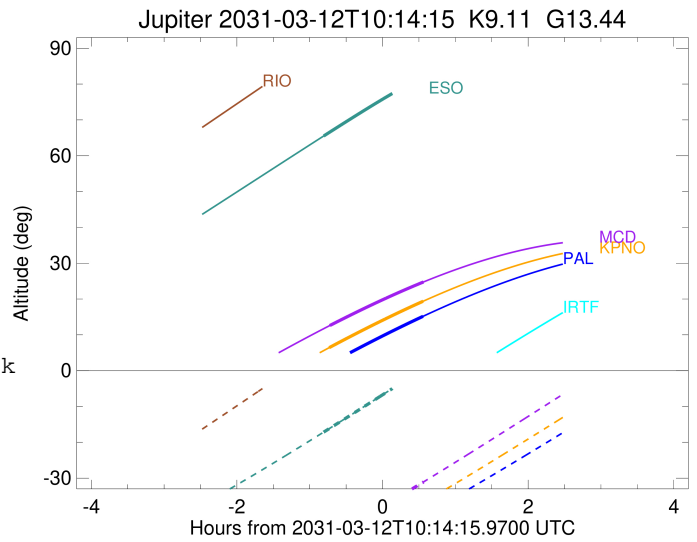
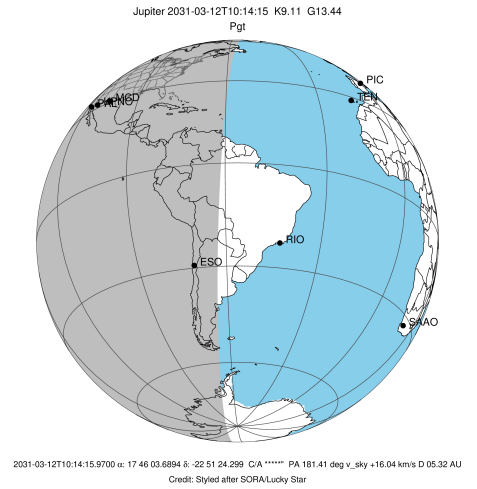


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-12T09:30:19.105	6.42	-50.90	71485.2	57.73	60.94
Jupiter	E	2031-03-12T10:47:45.020	19.38	-36.83	71484.9	60.16	63.21

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-12T10:09:22.850
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       : 4068856097015055232
2Mass ID (if available) : 17460368-2251243
ICRS Star Coord at Epoch: 17h 46m 03.68936s -22:51:24.29928s
RUWE (>1.4 is poor) : 7.40
K magnitude           : 9.110
G magnitude           : 13.442
RP magnitude          : 12.278
BP magnitude          : 14.753
DUPflag              : 0
Distance (au)        : 5.316
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 16.04
Sun-Target sep (deg) : 84.42
Sun-Moon sep (deg)   : 55.33
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 15.940
C/A sky separation (km) : 61455.9
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
    
```

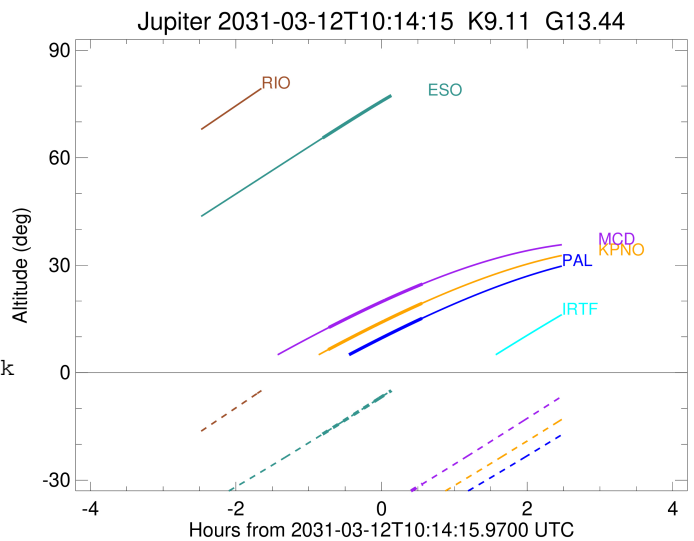
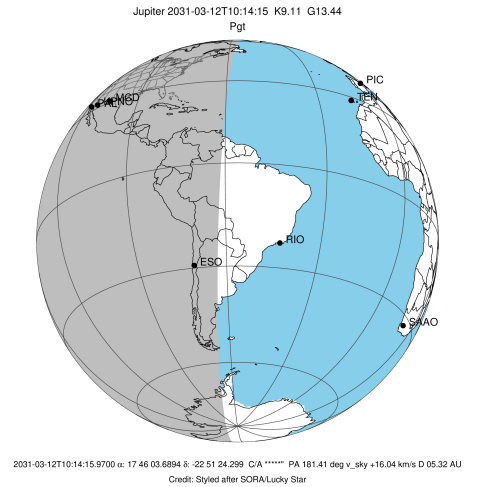


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-12T09:30:52.340	12.60	-46.31	71485.2	57.97	61.17
Jupiter	E	2031-03-12T10:48:03.148	24.76	-31.06	71484.8	60.33	63.37

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-12T10:12:38.070
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       : 4068856097015055232
2Mass ID (if available) : 17460368-2251243
ICRS Star Coord at Epoch: 17h 46m 03.68936s -22:51:24.29928s
RUWE (>1.4 is poor) : 7.40
K magnitude           : 9.110
G magnitude           : 13.442
RP magnitude          : 12.278
BP magnitude          : 14.753
DUPflag              : 0
Distance (au)        : 5.316
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.04
Sun-Target sep (deg) : 84.42
Sun-Moon sep (deg)   : 56.06
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.66
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 14.619
C/A sky separation (km) : 56363.1
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
    
```



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	2031-03-12T09:25:48.865	65.50	-17.14	71486.3	50.99	54.54
Jupiter	E	2031-03-12T10:59:34.302	83.24	3.10x	71486.0	52.82	56.30