

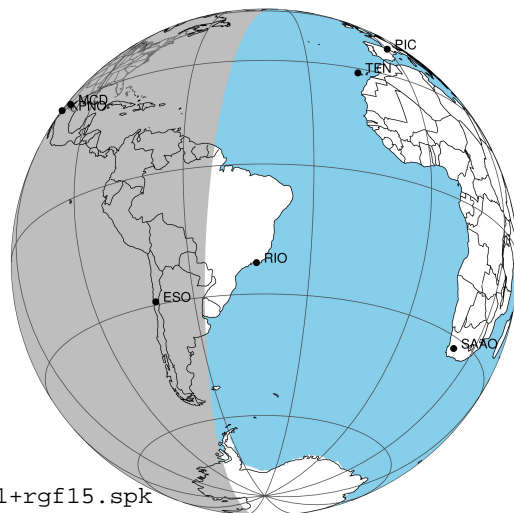
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-03T09:44:33.250
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116925547180785408
 2Mass ID (if available) : 17414271-2250094

Jupiter 2031-03-03T09:44:33 K9.39 G14.50 Pgt

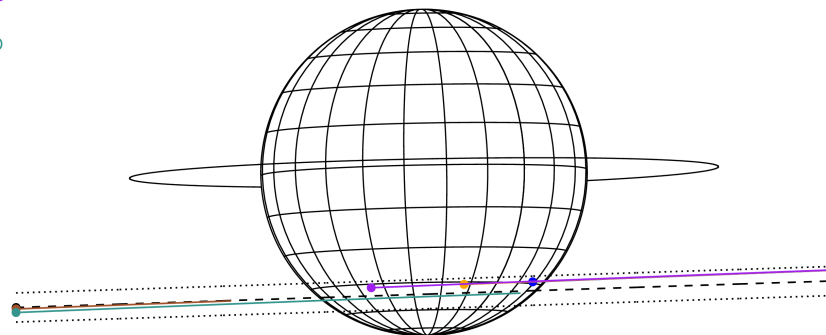
ICRS Star Coord at Epoch: 17h 41m 42.70259s -22:50:09.66489s

RUWE (>1.4 is poor) : 0.96
 K magnitude : 9.394
 G magnitude : 14.505
 RP magnitude : 13.228
 BP magnitude : 16.303
 DUPflag : 0
 Distance (au) : 5.460
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 20.13
 Sun-Target sep (deg) : 76.39
 Sun-Moon sep (deg) : 169.17
 B (ring opening deg) : -2.64
 PA of pole (deg) : 1.13
 Pole direction: RA (deg): 268.05701
 Dec (deg): 64.49651
 C/A sky separation (") : 13.460
 C/A sky separation (km) : 53301.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-03T09:44:33 K9.39 G14.50
 Pgt



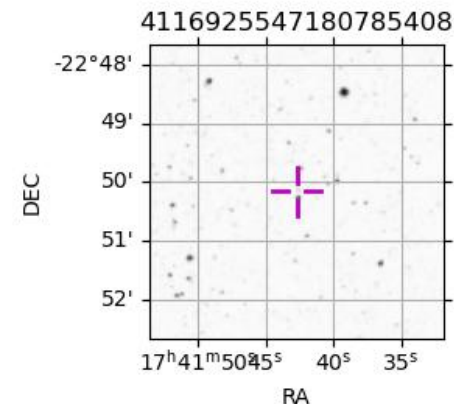
Earth
 PAL
 KPNO
 MCD
 RIO
 ESO



2031-03-03T09:44:33.2500 α: 17 41 42.7026 δ: -22 50 09.665 C/A ***** PA 1.86 deg v_sky +20.13 km/s D 05.46 AU
 Credit: Styled after SORA/Lucky Star

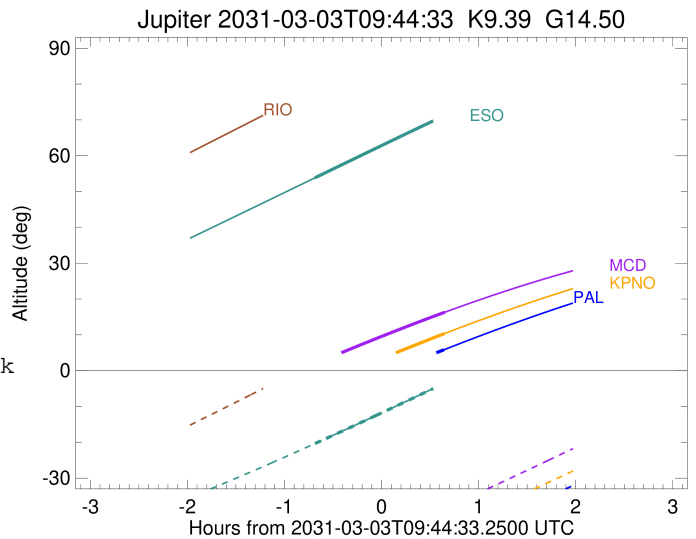
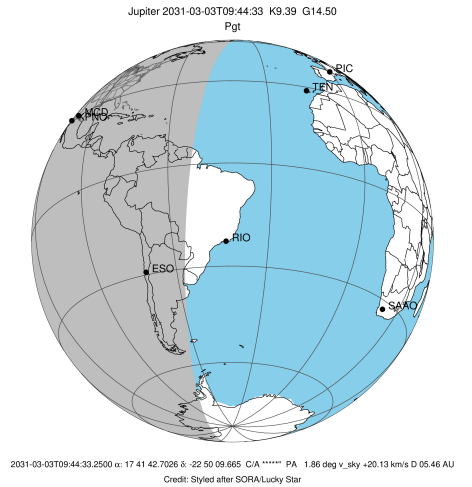
Observable events with sun below -5 deg and altitude above 5 deg

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 03 10:23 - MAR 03 10:23	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 03 10:23 - MAR 03 10:23	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 03 10:23 - MAR 03 10:23	Pne
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 03 09:03 - MAR 03 09:03	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            : 2031-03-03T09:40:28.630
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      : 4116925547180785408
2Mass ID (if available) : 17414271-2250094
ICRS Star Coord at Epoch: 17h 41m 42.70259s -22:50:09.66489s
RUWE (>1.4 is poor) : 0.96
K magnitude         : 9.394
G magnitude         : 14.505
RP magnitude        : 13.228
BP magnitude        : 16.303
DUPflag            : 0
Distance (au)       : 5.460
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 20.13
Sun-Target sep (deg) : 76.39
Sun-Moon sep (deg)  : 169.75
B (ring opening deg) : -2.64
PA of pole (deg)    : 1.13
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (" ) : 12.567
C/A sky separation (km) : 49763.7
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
    
```

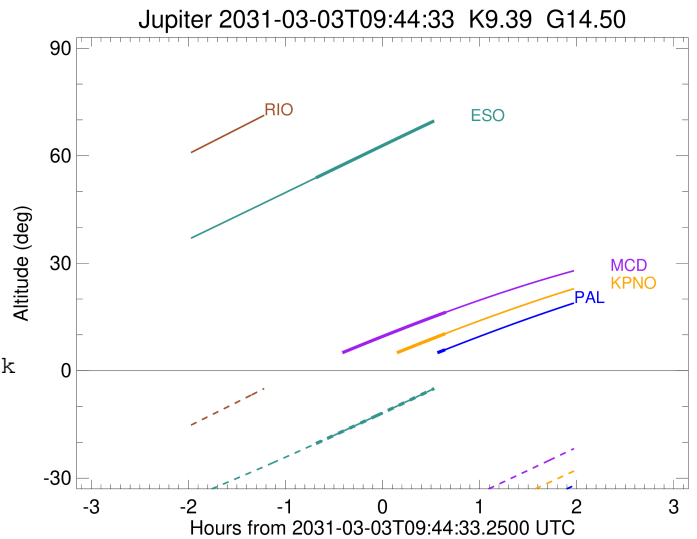
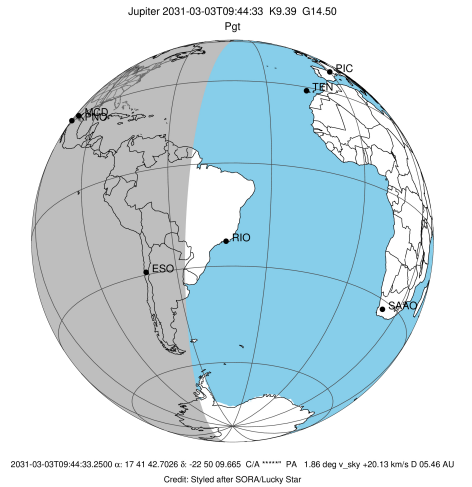


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-03T08:57:54.398	-10.17x	-60.37	71487.2	-45.21	-48.91
Jupiter	E	2031-03-03T10:23:13.597	5.84	-47.53	71487.6	-42.91	-46.63

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-03-03T09:40:31.230
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       : 4116925547180785408
2Mass ID (if available) : 17414271-2250094
ICRS Star Coord at Epoch: 17h 41m 42.70259s -22:50:09.66489s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 9.394
G magnitude           : 14.505
RP magnitude          : 13.228
BP magnitude          : 16.303
DUPflag              : 0
Distance (au)         : 5.460
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 20.13
Sun-Target sep (deg)  : 76.39
Sun-Moon sep (deg)   : 169.75
B (ring opening deg) : -2.64
PA of pole (deg)     : 1.13
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 12.548
C/A sky separation (km) : 49688.1
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
    
```

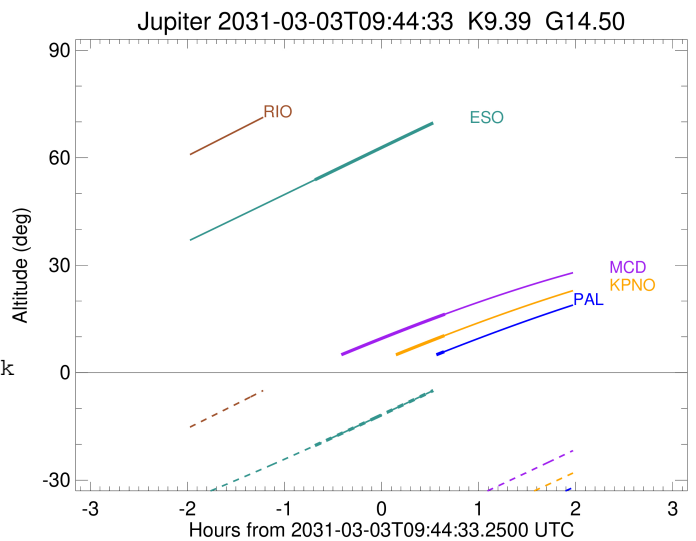
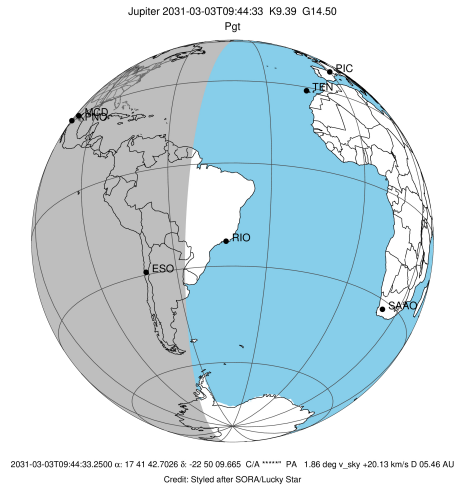


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-03T08:57:48.878	-5.55x	-58.92	71487.2	-45.13	-48.83
Jupiter	E	2031-03-03T10:23:24.319	10.34	-44.18	71487.6	-42.83	-46.55

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-03T09:40:40.760
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        : 4116925547180785408
2Mass ID (if available) : 17414271-2250094
ICRS Star Coord at Epoch: 17h 41m 42.70259s -22:50:09.66489s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 9.394
G magnitude           : 14.505
RP magnitude          : 13.228
BP magnitude          : 16.303
DUPflag              : 0
Distance (au)         : 5.460
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 20.13
Sun-Target sep (deg) : 76.39
Sun-Moon sep (deg)   : 169.73
B (ring opening deg) : -2.64
PA of pole (deg)     : 1.13
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 12.506
C/A sky separation (km) : 49523.7
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
    
```

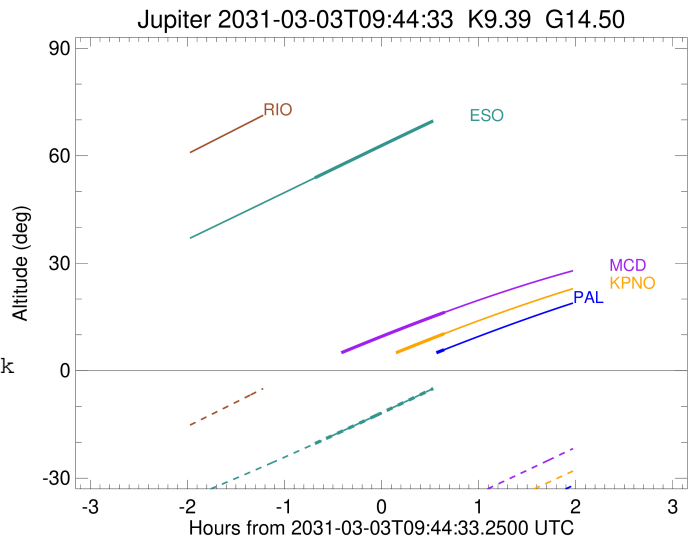
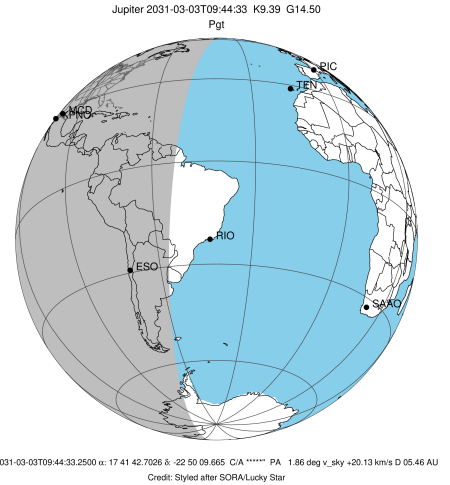


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-03T08:57:44.067	0.84x	-55.06	71487.2	-44.94	-48.65
Jupiter	E	2031-03-03T10:23:47.987	16.33	-38.48	71487.6	-42.67	-46.39

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-03T09:42:28.400
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       : 4116925547180785408
2Mass ID (if available) : 17414271-2250094
ICRS Star Coord at Epoch: 17h 41m 42.70259s -22:50:09.66489s
RUWE (>1.4 is poor) : 0.96
K magnitude           : 9.394
G magnitude           : 14.505
RP magnitude          : 13.228
BP magnitude          : 16.303
DUPflag              : 0
Distance (au)        : 5.460
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 20.13
Sun-Target sep (deg) : 76.39
Sun-Moon sep (deg)   : 169.71
B (ring opening deg) : -2.64
PA of pole (deg)     : 1.13
Pole direction: RA (deg): 268.05701
Dec (deg): 64.49651
C/A sky separation (") : 13.729
C/A sky separation (km) : 54367.2
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	2031-03-03T09:03:26.802	53.84	-20.34	71486.3	-50.45	-54.02
Jupiter	E	2031-03-03T10:21:35.710	70.80	-3.90x	71486.6	-48.49	-52.12