

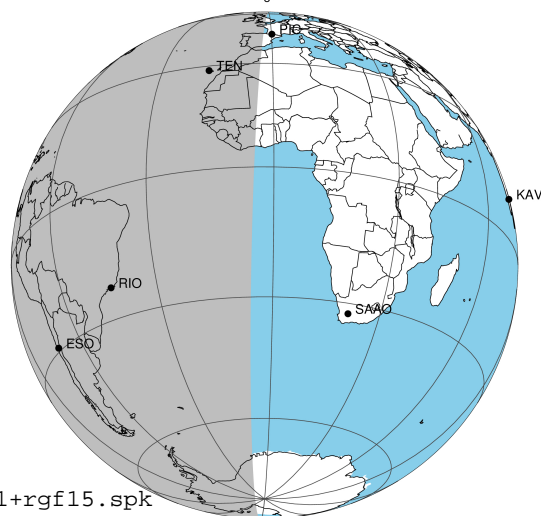
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-15T06:26:48.170
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068933891823210880
 2Mass ID (if available) : 17471482-2252186

Jupiter 2031-03-15T06:26:48 K7.70 G14.90 Pgt

ICRS Star Coord at Epoch: 17h 47m 14.81201s -22:52:18.64886s

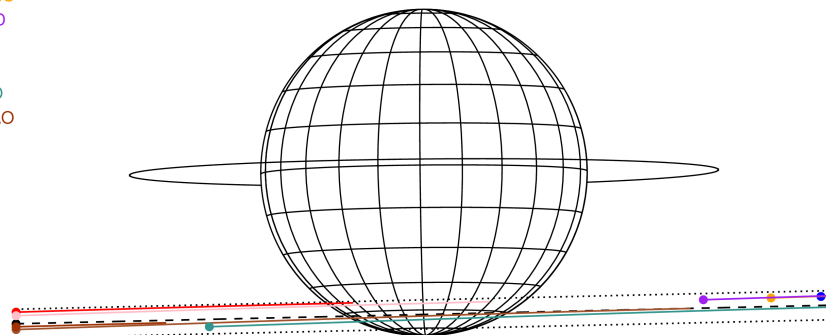
RUWE (>1.4 is poor) : 0.91
 K magnitude : 7.702
 G magnitude : 14.904
 RP magnitude : 13.282
 BP magnitude : 18.921
 DUPflag : 0
 Distance (au) : 5.270
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 14.72
 Sun-Target sep (deg) : 86.98
 Sun-Moon sep (deg) : 16.18
 B (ring opening deg) : -2.63
 PA of pole (deg) : 0.54
 Pole direction: RA (deg): 268.05700
 Dec (deg): 64.49651
 C/A sky separation (") : 16.267
 C/A sky separation (km) : 62171.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-15T06:26:48 K7.70 G14.90
 Pgt



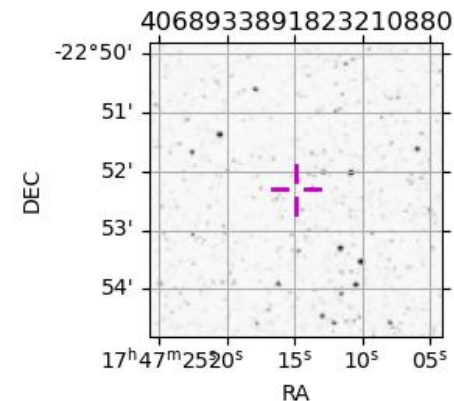
2031-03-15T06:26:48.1700 α: 17 47 14.8120 δ: -22 52 18.649 C/A ***** PA 1.30 deg v_sky +14.72 km/s D 05.27 AU
 Credit: Styled after SORA/Lucky Star

Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 RIO
 ESO
 SAAO



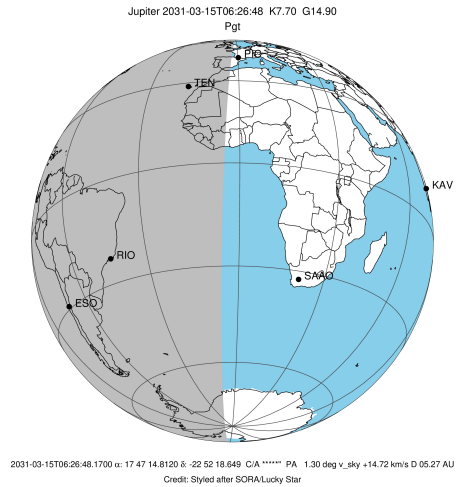
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	MAR 15 05:36 - MAR 15 05:36	Pin
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	+	MAR 15 05:35 - MAR 15 05:35	Pin
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	+ +	MAR 15 05:43 - MAR 15 07:02	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAR 15 05:46 - MAR 15 06:57	Pie
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

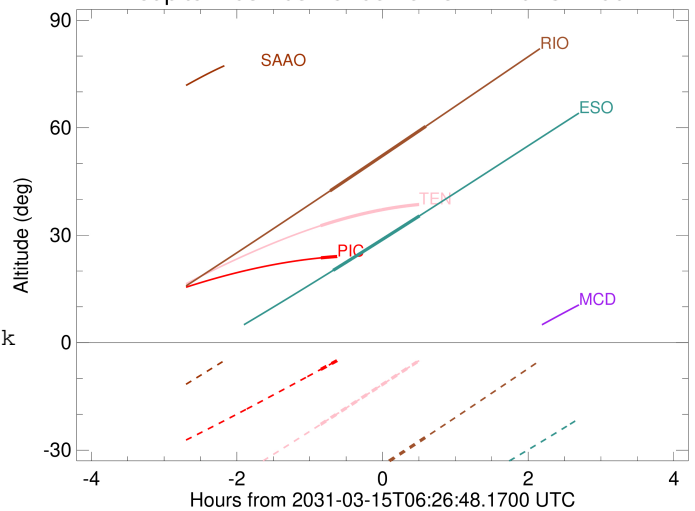


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target          : Jupiter
target radius (km) : 71492.00
C/A epoch       : 2031-03-15T06:26:53.380
Event type      : Pgt
                : Jupiter occs: geocentric, topocentric
                : Not a ringed target
Observer code   : PIC
Location        : Pic du Midi
Latitude (deg)  : 42.93656
E. Longitude (deg) : 0.14231
Altitude (km)   : 2.890
Gaia source ID  : 4068933891823210880
2Mass ID (if available) : 17471482-2252186
ICRS Star Coord at Epoch: 17h 47m 14.81201s -22:52:18.64886s
RUWE (>1.4 is poor) : 0.91
K magnitude     : 7.702
G magnitude     : 14.904
RP magnitude    : 13.282
BP magnitude    : 18.921
DUPflag        : 0
Distance (au)   : 5.270
f0 (km)        : 0.00
g0 (km)        : 0.00
skyplane vel. (km/s) : 14.72
Sun-Target sep (deg) : 86.98
Sun-Moon sep (deg) : 16.30
B (ring opening deg) : -2.63
PA of pole (deg) : 0.54
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 14.748
C/A sky separation (km) : 56366.8
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
    
```



Jupiter 2031-03-15T06:26:48 K7.70 G14.90

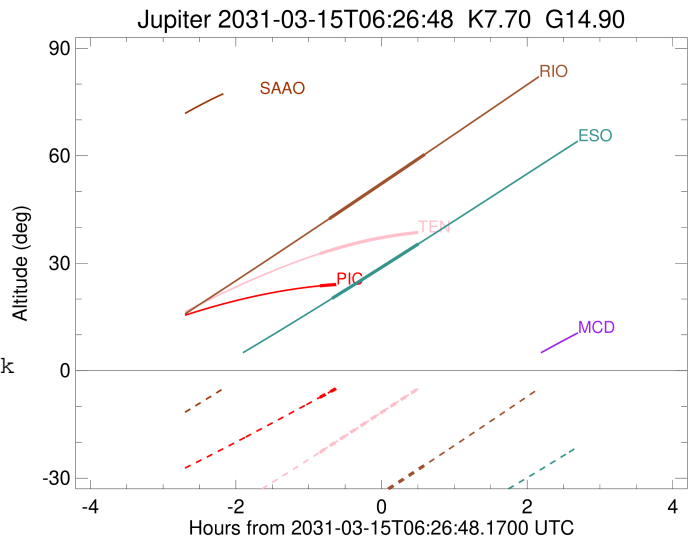
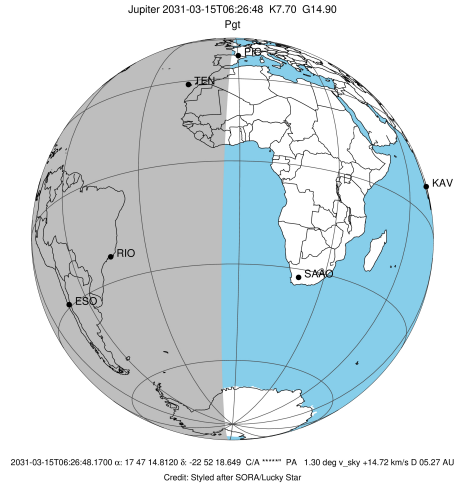


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-15T05:36:02.379	23.67	-7.45	71486.0	-52.80	-56.28
Jupiter	E	2031-03-15T07:17:47.755	22.93	11.12x	71486.2	-51.26	-54.80

```

target           : Jupiter
target radius (km) : 71492.00
C/A epoch       : 2031-03-15T06:25:17.410
Event type      : Pgt
                : Jupiter occs: geocentric, topocentric
                : Not a ringed target
Observer code   : TEN
Location        : Teide Obs./Tenerife
Latitude (deg)  : 28.30050
E. Longitude (deg) : 343.48909
Altitude (km)   : 2.395
Gaia source ID  : 4068933891823210880
2Mass ID (if available) : 17471482-2252186
ICRS Star Coord at Epoch: 17h 47m 14.81201s -22:52:18.64886s
RUWE (>1.4 is poor) : 0.91
K magnitude     : 7.702
G magnitude     : 14.904
RP magnitude    : 13.282
BP magnitude    : 18.921
DUPflag        : 0
Distance (au)   : 5.270
f0 (km)         : 0.00
g0 (km)         : 0.00
skyplane vel. (km/s) : 14.72
Sun-Target sep (deg) : 86.98
Sun-Moon sep (deg) : 16.12
B (ring opening deg) : -2.63
PA of pole (deg) : 0.54
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 14.996
C/A sky separation (km) : 57317.0
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
    
```

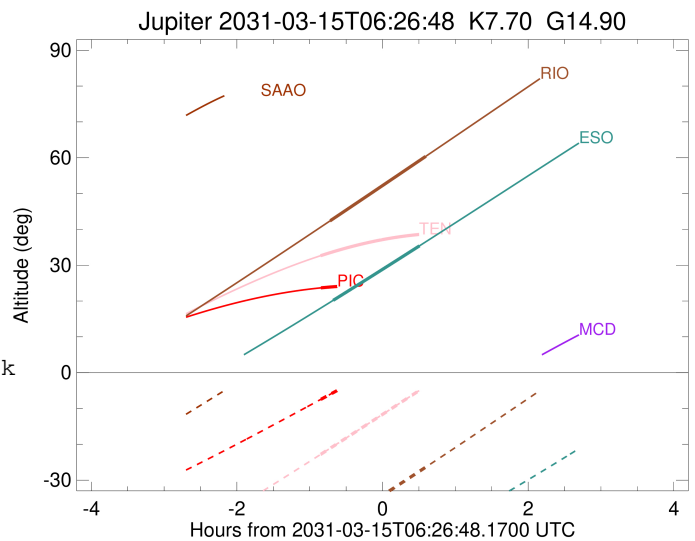
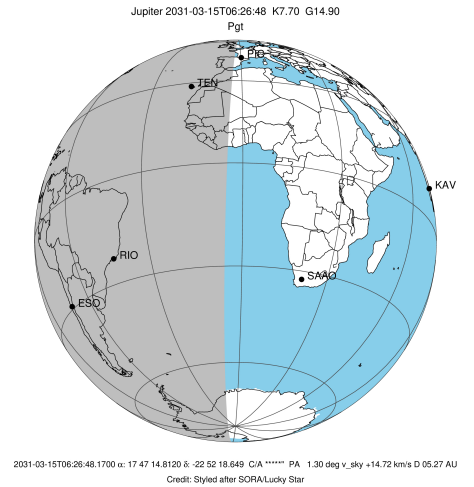


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-15T05:35:44.982	32.64	-22.83	71485.8	-54.24	-57.65
Jupiter	E	2031-03-15T07:14:58.188	38.94	-1.03x	71486.1	-52.33	-55.83

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-15T06:22:56.180
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : RIO
Location              : Rio de Janeiro
Latitude (deg)       : -22.89506
E. Longitude (deg)   : 316.77708
Altitude (km)        : 0.033
Gaia source ID       : 4068933891823210880
2Mass ID (if available) : 17471482-2252186
ICRS Star Coord at Epoch: 17h 47m 14.81201s -22:52:18.64886s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 7.702
G magnitude           : 14.904
RP magnitude         : 13.282
BP magnitude         : 18.921
DUPflag              : 0
Distance (au)        : 5.270
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 14.72
Sun-Target sep (deg) : 86.98
Sun-Moon sep (deg)  : 15.82
B (ring opening deg) : -2.63
PA of pole (deg)    : 0.54
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation ("): 16.438
C/A sky separation (km): 62826.0
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
    
```

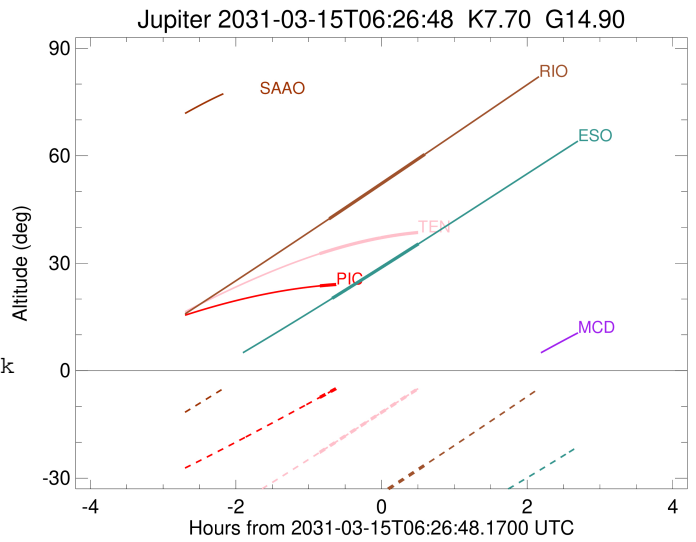
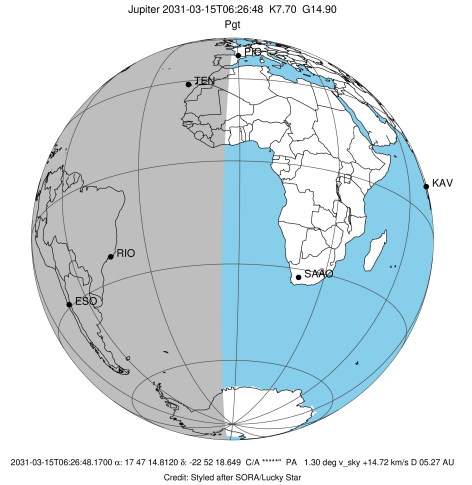


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-15T05:43:37.587	42.38	-43.36	71484.5	-62.66	-65.53
Jupiter	E	2031-03-15T07:02:24.956	60.37	-26.37	71484.9	-60.21	-63.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-15T06:21:40.900
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        : 4068933891823210880
2Mass ID (if available) : 17471482-2252186
ICRS Star Coord at Epoch: 17h 47m 14.81201s -22:52:18.64886s
RUWE (>1.4 is poor) : 0.91
K magnitude           : 7.702
G magnitude           : 14.904
RP magnitude          : 13.282
BP magnitude          : 18.921
DUPflag              : 0
Distance (au)         : 5.270
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 14.72
Sun-Target sep (deg) : 86.98
Sun-Moon sep (deg)   : 15.56
B (ring opening deg) : -2.63
PA of pole (deg)     : 0.54
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 16.847
C/A sky separation (km) : 64388.9
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	2031-03-15T05:46:18.591	20.22	-56.10	71484.2	-65.50	-68.13
Jupiter	E	2031-03-15T06:57:13.393	35.39	-46.67	71484.5	-62.79	-65.65