

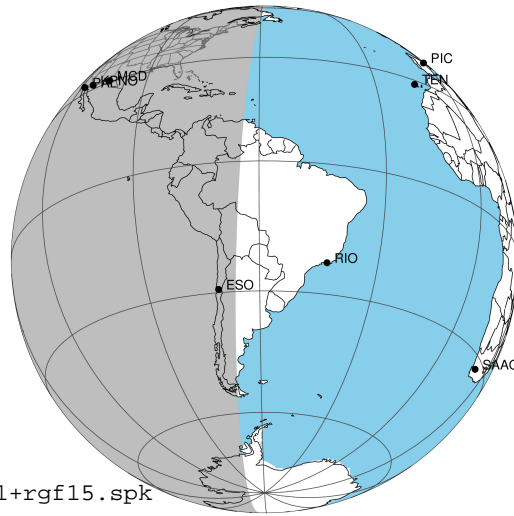
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-03-11T10:26:49.180
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068857578880224896
 2Mass ID (if available) : 17453756-2251305

Jupiter 2031-03-11T10:26:49 K9.45 G14.58 Pgt

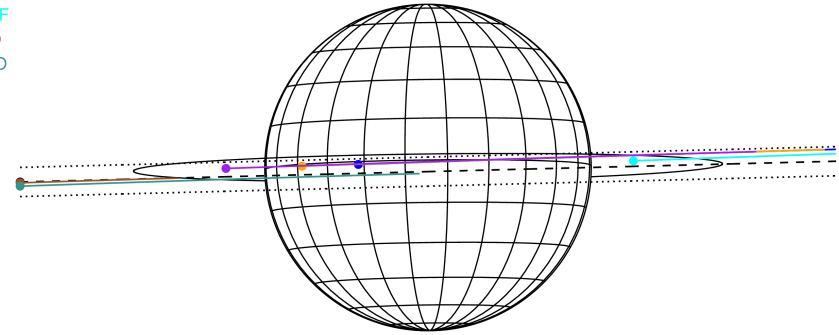
ICRS Star Coord at Epoch: 17h 45m 37.55961s -22°51'30.54262s

RUWE (>1.4 is poor) : 0.94
 K magnitude : 9.447
 G magnitude : 14.585
 RP magnitude : 13.283
 BP magnitude : 16.362
 DUPflag : 0
 Distance (au) : 5.332
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 16.50
 Sun-Target sep (deg) : 83.53
 Sun-Moon sep (deg) : 68.82
 B (ring opening deg) : -2.64
 PA of pole (deg) : 0.71
 Pole direction: RA (deg): 268.05700
 Dec (deg): 64.49651
 C/A sky separation (") : 0.465
 C/A sky separation (km) : 1796.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-03-11T10:26:49 K9.45 G14.58
 Pgt



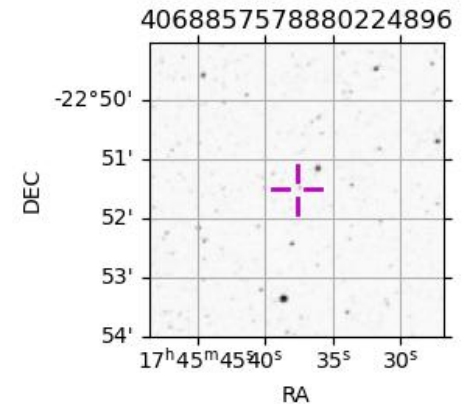
Earth
 PAL
 KPNO
 MCD
 IRTF
 RIO
 ESO



2031-03-11T10:26:49.1800 α: 17 45 37.5596 δ: -22 51 30.543 C/A 0.475° PA 1.47 deg v_sky +16.50 km/s D 05.33 AU
 Credit: Styled after SORA/Lucky Star

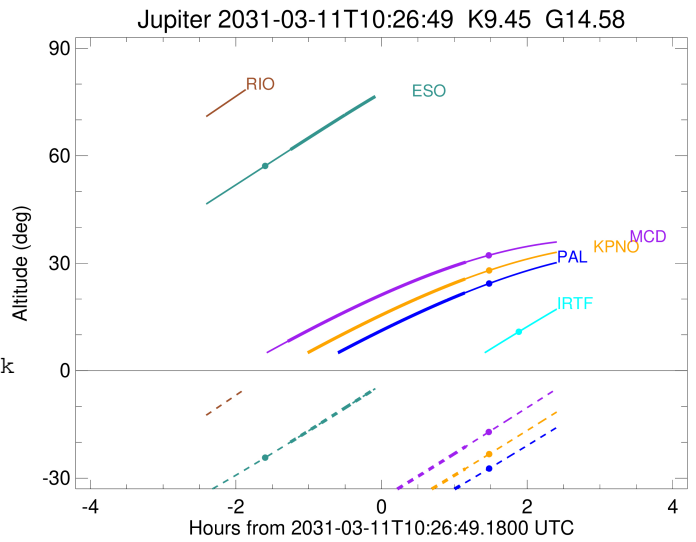
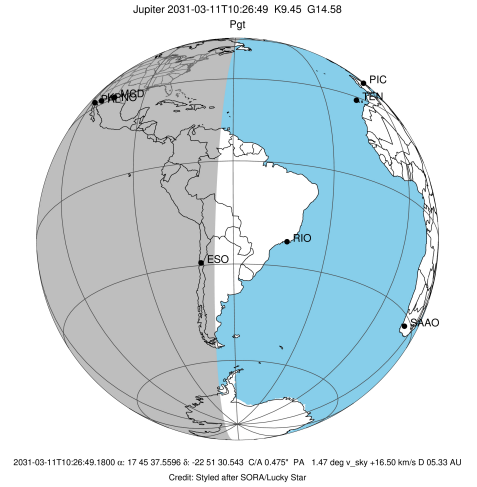
Observable events with sun below -5 deg and altitude above 5 deg

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 11 11:35 - MAR 11 11:35	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 11 11:35 - MAR 11 11:35	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAR 11 09:09 - MAR 11 11:36	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 11 09:11 - MAR 11 09:11	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            : 2031-03-11T10:22:04.270
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      : 4068857578880224896
2Mass ID (if available) : 17453756-2251305
ICRS Star Coord at Epoch: 17h 45m 37.55961s -22:51:30.54262s
RUWE (>1.4 is poor) : 0.94
K magnitude         : 9.447
G magnitude         : 14.585
RP magnitude        : 13.283
BP magnitude        : 16.362
DUPflag            : 0
Distance (au)       : 5.332
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 16.50
Sun-Target sep (deg) : 83.53
Sun-Moon sep (deg)  : 68.76
B (ring opening deg) : -2.64
PA of pole (deg)    : 0.71
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 0.613
C/A sky separation (km) : 2371.8
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
    
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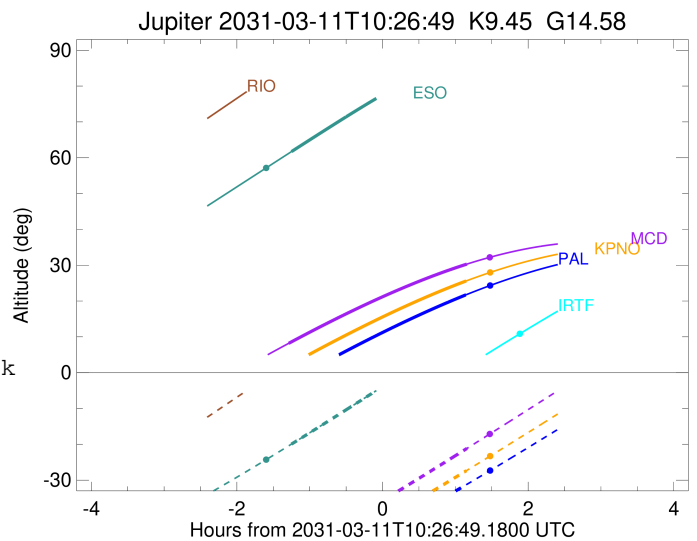
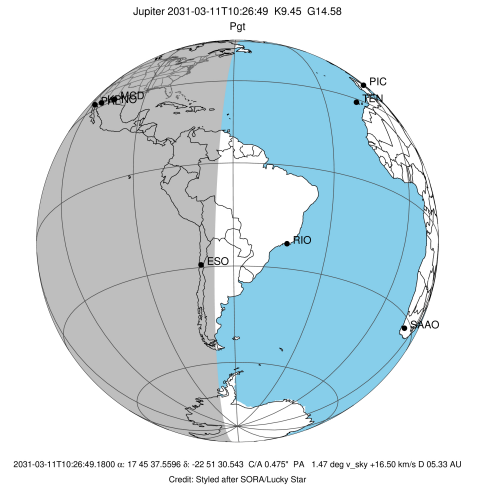


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-11T09:09:20.810	-2.67x	-56.11	71492.0	0.65	0.75
Jupiter	E	2031-03-11T11:35:23.373	21.70	-31.37	71492.0	3.07	3.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-11T10:22:16.560
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        : 4068857578880224896
2Mass ID (if available) : 17453756-2251305
ICRS Star Coord at Epoch: 17h 45m 37.55961s -22:51:30.54262s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.447
G magnitude           : 14.585
RP magnitude          : 13.283
BP magnitude          : 16.362
DUPflag              : 0
Distance (au)         : 5.332
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.50
Sun-Target sep (deg)  : 83.53
Sun-Moon sep (deg)    : 68.84
B (ring opening deg) : -2.64
PA of pole (deg)      : 0.71
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 0.630
C/A sky separation (km) : 2436.4
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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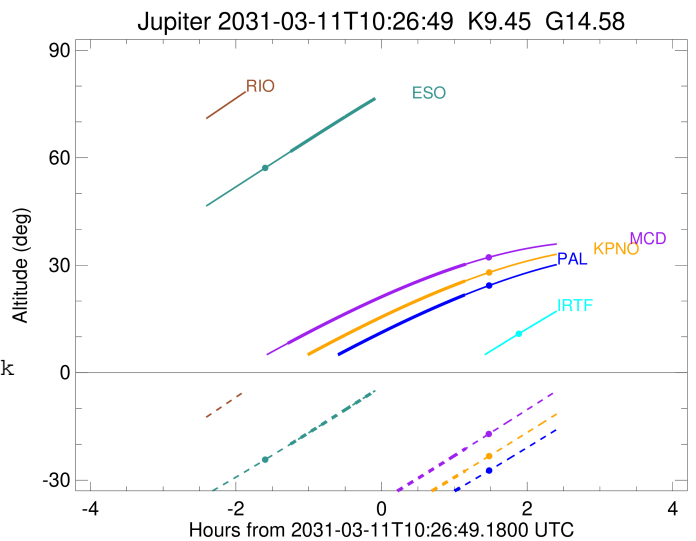
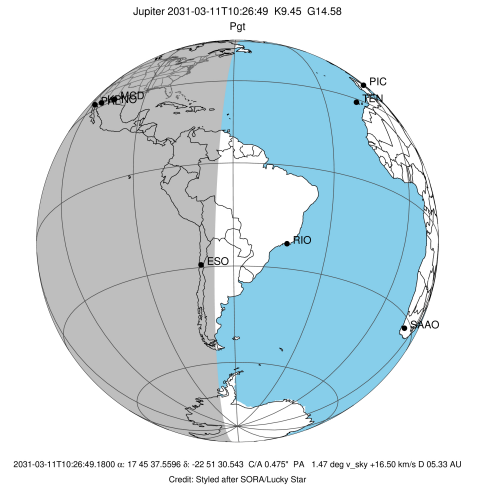


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-11T09:09:23.724	1.93x	-54.45	71492.0	0.71	0.81
Jupiter	E	2031-03-11T11:35:44.014	25.59	-27.40	71492.0	3.10	3.54

```

target                : Jupiter
target radius (km)    : 71492.00
C/A epoch              : 2031-03-11T10:22:41.330
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        : 4068857578880224896
2Mass ID (if available) : 17453756-2251305
ICRS Star Coord at Epoch: 17h 45m 37.55961s -22:51:30.54262s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.447
G magnitude           : 14.585
RP magnitude          : 13.283
BP magnitude          : 16.362
DUPflag              : 0
Distance (au)         : 5.332
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.50
Sun-Target sep (deg) : 83.53
Sun-Moon sep (deg)   : 68.95
B (ring opening deg) : -2.64
PA of pole (deg)     : 0.71
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 0.664
C/A sky separation (km) : 2569.3
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
    
```

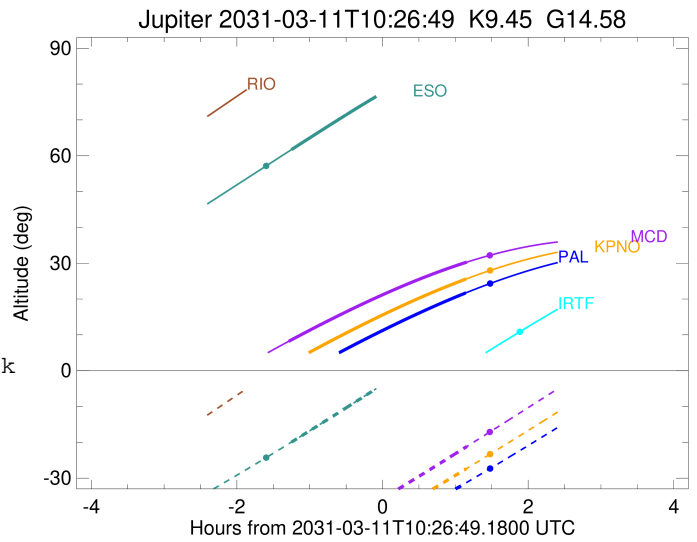
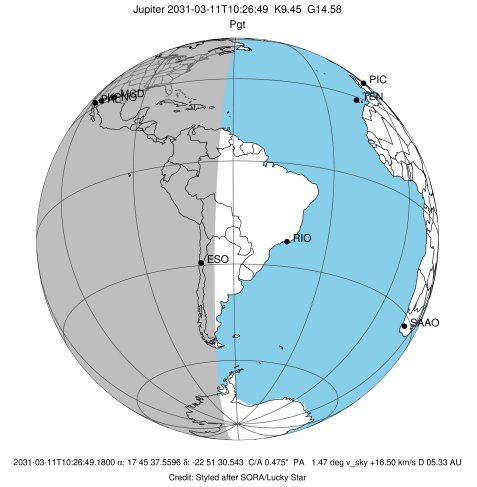


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-03-11T09:09:35.705	8.20	-50.45	71492.0	0.84	0.97
Jupiter	E	2031-03-11T11:36:19.303	30.30	-21.16	71492.0	3.16	3.61

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-03-11T10:25:38.640
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        : 4068857578880224896
2Mass ID (if available) : 17453756-2251305
ICRS Star Coord at Epoch: 17h 45m 37.55961s -22:51:30.54262s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 9.447
G magnitude           : 14.585
RP magnitude          : 13.283
BP magnitude          : 16.362
DUPflag              : 0
Distance (au)         : 5.332
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 16.50
Sun-Target sep (deg)  : 83.53
Sun-Moon sep (deg)    : 69.64
B (ring opening deg) : -2.64
PA of pole (deg)      : 0.71
Pole direction: RA (deg): 268.05700
Dec (deg): 64.49651
C/A sky separation (") : 0.663
C/A sky separation (km) : 2564.6
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	2031-03-11T09:11:51.758	61.71	-19.93	71492.0	-3.03	-3.47
Jupiter	E	2031-03-11T11:39:40.681	81.62	11.99x	71492.0	-1.25	-1.43