

target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2030-04-23T06:50:04.010
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6255352105484666624
 2Mass ID (if available) : 15305647-1747472

Jupiter 2030-04-23T06:50:04 K6.80 G11.19 Pgt

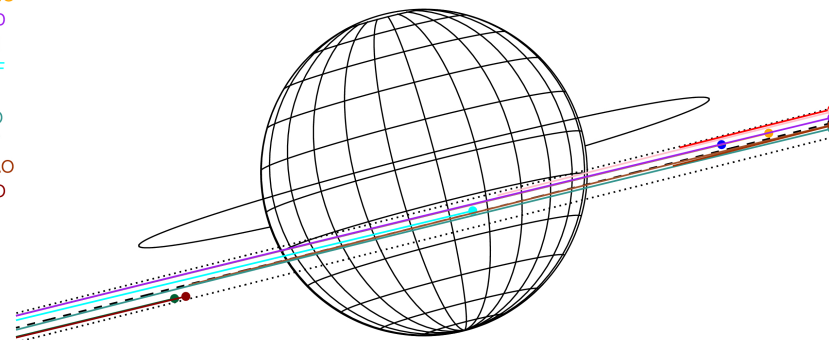
ICRS Star Coord at Epoch: 15h 30m 56.45603s -17:47:47.30379s

RUWE (>1.4 is poor) : 1.43
 K magnitude : 6.802
 G magnitude : 11.191
 RP magnitude : 9.927
 BP magnitude : 12.881
 DUPflag : 0
 Distance (au) : 4.455
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.71
 Sun-Target sep (deg) : 157.94
 Sun-Moon sep (deg) : 48.91
 B (ring opening deg) : -3.36
 PA of pole (deg) : 14.44
 Pole direction: RA (deg): 268.05727
 Dec (deg): 64.49652
 C/A sky separation (") : 6.942
 C/A sky separation (km) : 22429.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2030-04-23T06:50:04 K6.80 G11.19
 Pgt



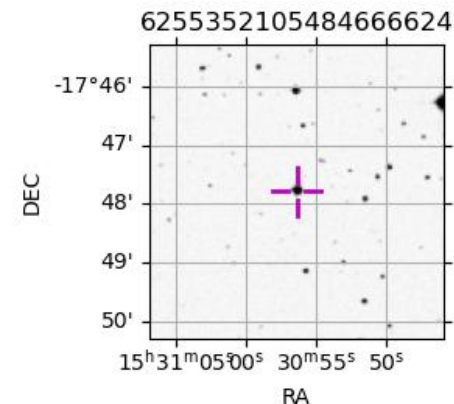
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



2030-04-23T06:50:04.0100 at: 15 30 56.45603 -17 47 47.304 C/A 6.955 PA 14.10 deg v_sky -14.71 km/s D 04.46 AU
 Credit: Styled after SORA/Lucky Star

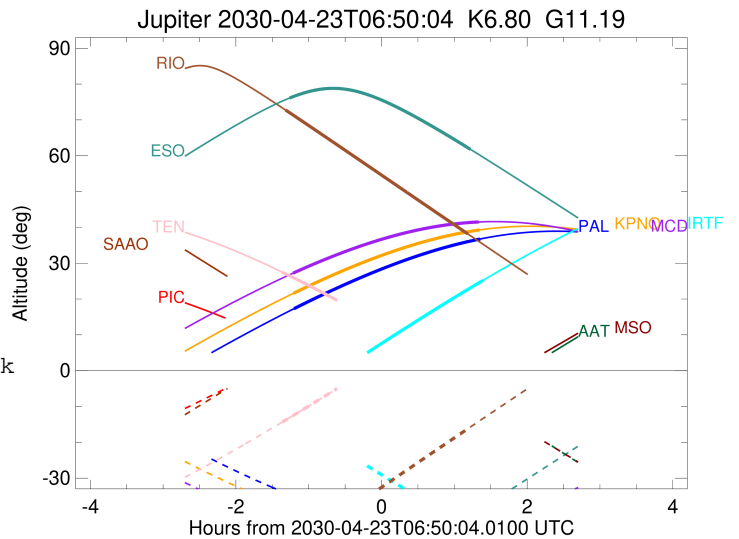
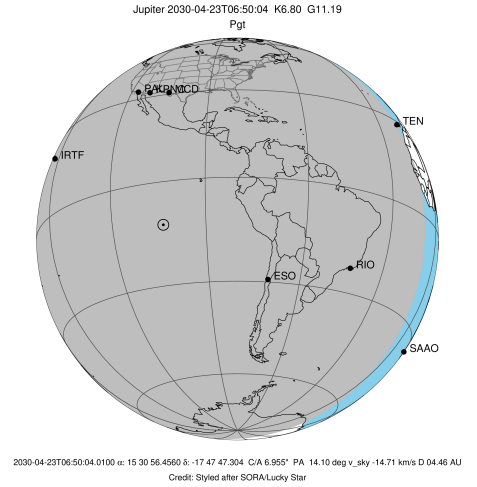
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	APR 23 05:37 - APR 23 08:11	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	APR 23 05:37 - APR 23 08:10	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	APR 23 05:37 - APR 23 08:10	Pie
TEN	Teide Obs./Tenerife	28.3	343.5	+	APR 23 05:28 - APR 23 05:28	Pin
IRTF	Mauna Kea/IRTF	19.8	204.5	+	APR 23 08:13 - APR 23 08:13	Pne
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	APR 23 05:31 - APR 23 08:01	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	APR 23 05:34 - APR 23 08:03	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



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-04-23T06:54:54.150
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      : 6255352105484666624
2Mass ID (if available) : 15305647-1747472
ICRS Star Coord at Epoch: 15h 30m 56.45603s -17:47:47.30379s
RUWE (>1.4 is poor) : 1.43
K magnitude          : 6.802
G magnitude          : 11.191
RP magnitude         : 9.927
BP magnitude         : 12.881
DUPflag             : 0
Distance (au)       : 4.455
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.71
Sun-Target sep (deg) : 157.94
Sun-Moon sep (deg)  : 49.67
B (ring opening deg) : -3.36
PA of pole (deg)    : 14.44
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation ("): 5.769
C/A sky separation (km): 18641.2
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
    
```

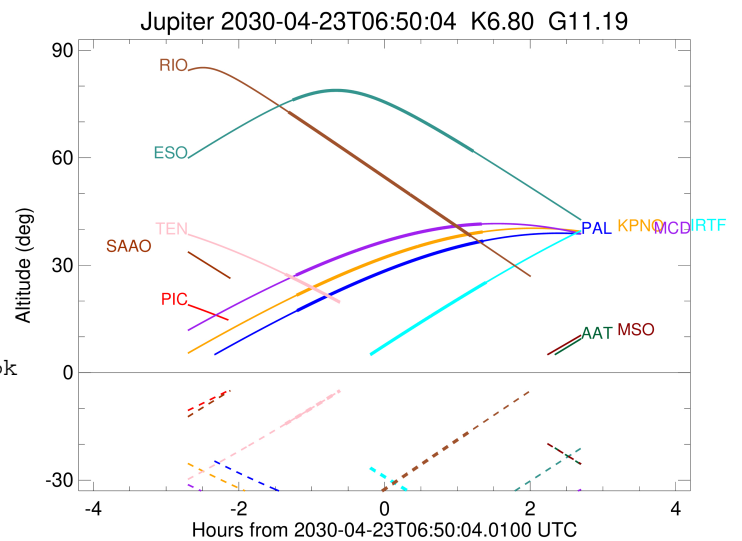
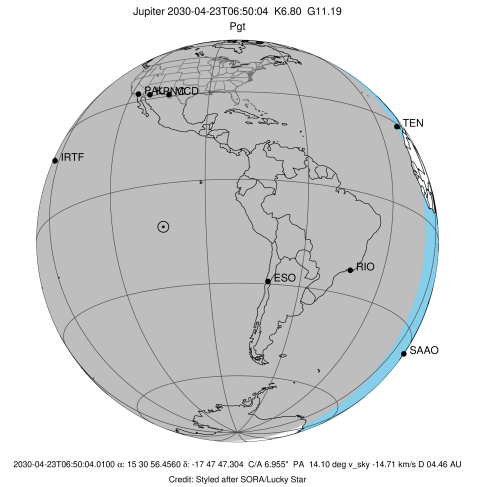


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-23T05:37:58.194	17.30	-35.04	71490.8	-16.00	-18.14
Jupiter	E	2030-04-23T08:11:22.085	36.75	-43.83	71491.1	-14.24	-16.17

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-04-23T06:54:29.510
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       : 6255352105484666624
2Mass ID (if available) : 15305647-1747472
ICRS Star Coord at Epoch: 15h 30m 56.45603s -17:47:47.30379s
RUWE (>1.4 is poor) : 1.43
K magnitude           : 6.802
G magnitude           : 11.191
RP magnitude          : 9.927
BP magnitude          : 12.881
DUPflag              : 0
Distance (au)         : 4.455
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.71
Sun-Target sep (deg) : 157.94
Sun-Moon sep (deg)   : 49.68
B (ring opening deg) : -3.36
PA of pole (deg)     : 14.44
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation (") : 5.749
C/A sky separation (km) : 18574.9
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
    
```

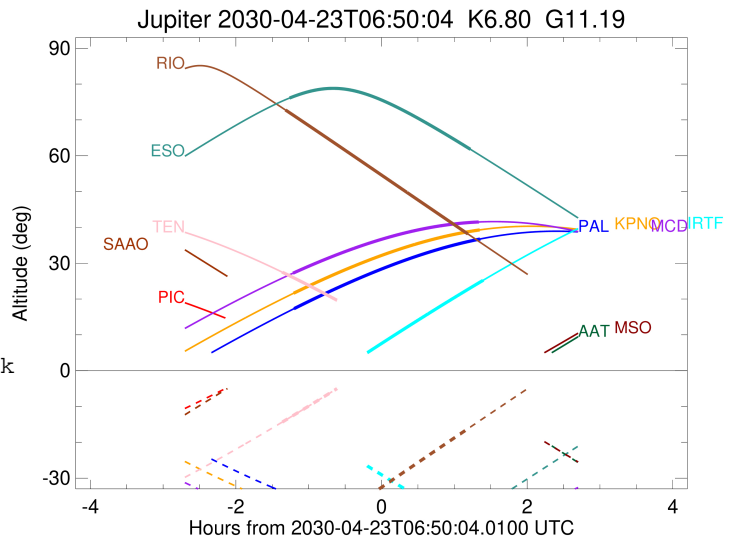
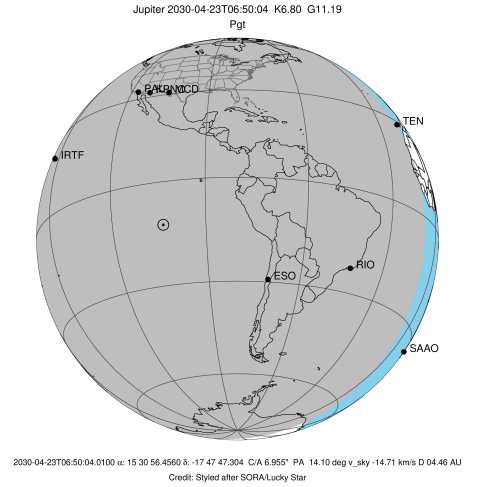


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-23T05:37:41.442	21.62	-38.77	71490.8	-15.94	-18.07
Jupiter	E	2030-04-23T08:10:52.147	39.28	-44.27	71491.1	-14.20	-16.13

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2030-04-23T06:53:49.210
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        : 6255352105484666624
2Mass ID (if available) : 15305647-1747472
ICRS Star Coord at Epoch: 15h 30m 56.45603s -17:47:47.30379s
RUWE (>1.4 is poor) : 1.43
K magnitude           : 6.802
G magnitude           : 11.191
RP magnitude          : 9.927
BP magnitude          : 12.881
DUPflag              : 0
Distance (au)         : 4.455
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.71
Sun-Target sep (deg)  : 157.94
Sun-Moon sep (deg)   : 49.67
B (ring opening deg) : -3.36
PA of pole (deg)     : 14.44
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation (") : 5.704
C/A sky separation (km) : 18430.7
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
    
```

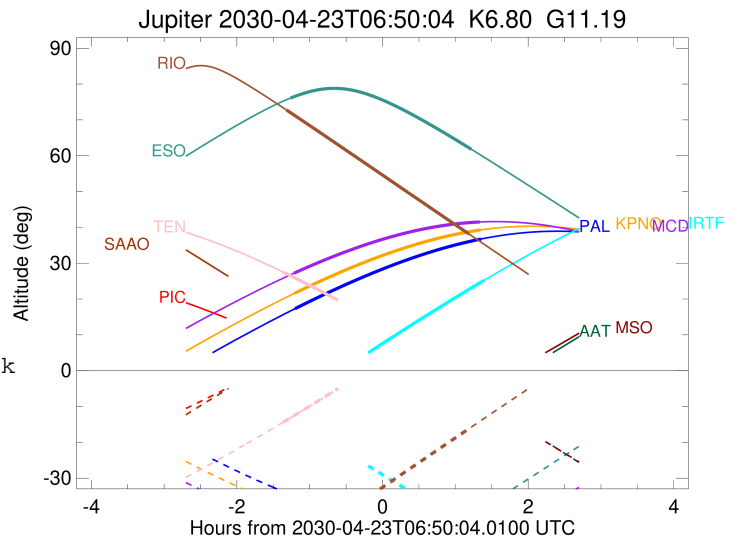
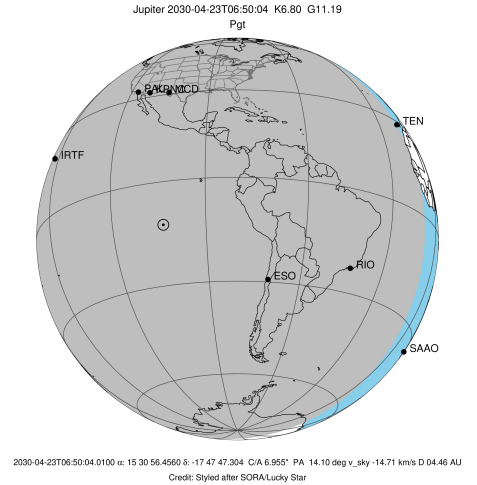


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-23T05:37:09.879	27.21	-43.10	71490.8	-15.81	-17.93
Jupiter	E	2030-04-23T08:10:07.362	41.50	-43.22	71491.1	-14.11	-16.03

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-04-23T06:45:27.780
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       : 6255352105484666624
2Mass ID (if available) : 15305647-1747472
ICRS Star Coord at Epoch: 15h 30m 56.45603s -17:47:47.30379s
RUWE (>1.4 is poor) : 1.43
K magnitude           : 6.802
G magnitude           : 11.191
RP magnitude          : 9.927
BP magnitude          : 12.881
DUPflag              : 0
Distance (au)         : 4.455
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.71
Sun-Target sep (deg) : 157.94
Sun-Moon sep (deg)   : 48.65
B (ring opening deg) : -3.36
PA of pole (deg)     : 14.44
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation ("): 5.473
C/A sky separation (km): 17685.0
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
    
```

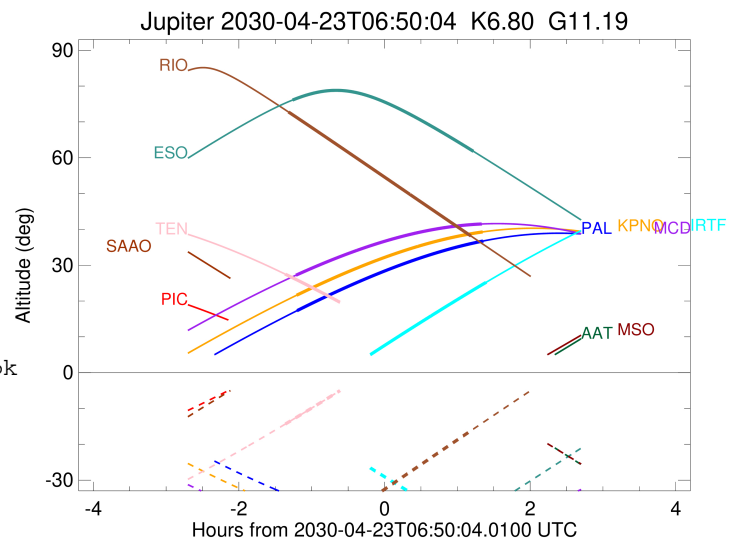
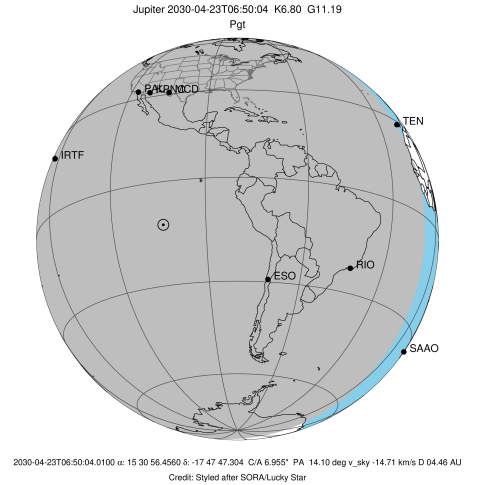


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-23T05:28:20.025	27.49	-14.34	71491.0	-14.49	-16.46
Jupiter	E	2030-04-23T08:03:08.042	-2.06x	18.73x	71491.1	-14.29	-16.23

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-04-23T06:57:20.590
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       : 6255352105484666624
2Mass ID (if available) : 15305647-1747472
ICRS Star Coord at Epoch: 15h 30m 56.45603s -17:47:47.30379s
RUWE (>1.4 is poor) : 1.43
K magnitude           : 6.802
G magnitude           : 11.191
RP magnitude          : 9.927
BP magnitude          : 12.881
DUPflag              : 0
Distance (au)        : 4.455
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.71
Sun-Target sep (deg) : 157.94
Sun-Moon sep (deg)  : 49.63
B (ring opening deg) : -3.36
PA of pole (deg)    : 14.44
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation ("): 6.593
C/A sky separation (km): 21302.6
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
    
```

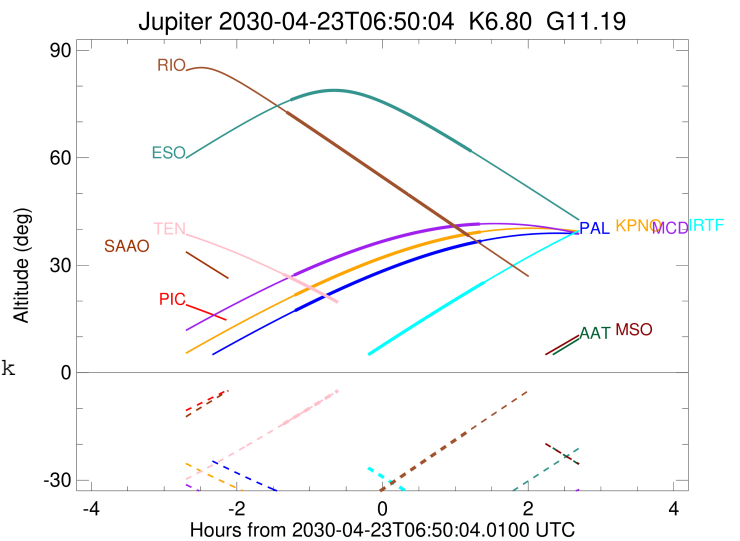
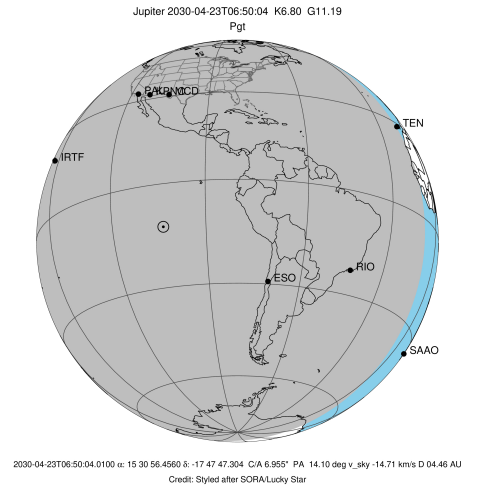


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-23T05:40:05.124	-8.03x	-13.91	71490.5	-18.20	-20.59
Jupiter	E	2030-04-23T08:13:49.032	25.22	-45.16	71490.8	-16.33	-18.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-04-23T06:45:59.480
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      : 6255352105484666624
2Mass ID (if available) : 15305647-1747472
ICRS Star Coord at Epoch: 15h 30m 56.45603s -17:47:47.30379s
RUWE (>1.4 is poor) : 1.43
K magnitude          : 6.802
G magnitude          : 11.191
RP magnitude         : 9.927
BP magnitude         : 12.881
DUPflag             : 0
Distance (au)       : 4.455
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.71
Sun-Target sep (deg) : 157.94
Sun-Moon sep (deg)  : 49.14
B (ring opening deg) : -3.36
PA of pole (deg)    : 14.44
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation ("): 6.949
C/A sky separation (km): 22454.2
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
    
```

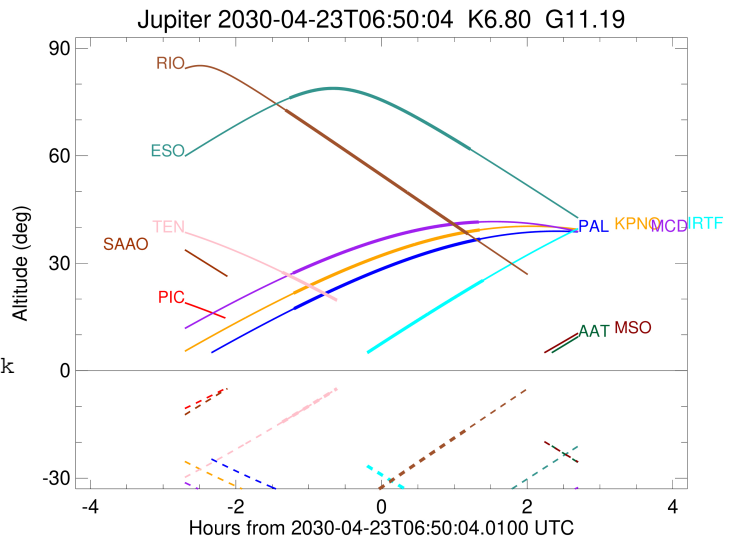
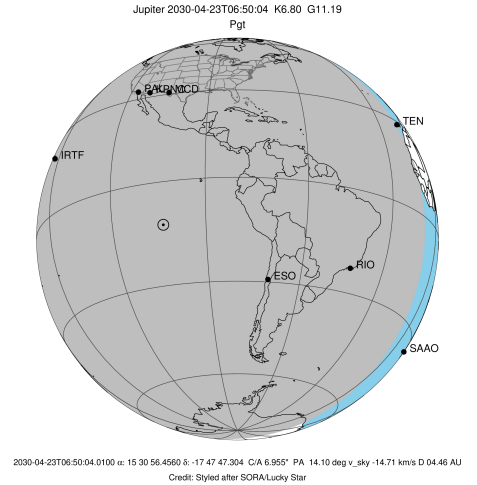


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2030-04-23T05:31:02.662	72.74	-50.73	71490.4	-18.74	-21.19
Jupiter	E	2030-04-23T08:01:14.891	38.16	-16.21	71490.5	-18.01	-20.37

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2030-04-23T06:48:49.580
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       : 6255352105484666624
2Mass ID (if available) : 15305647-1747472
ICRS Star Coord at Epoch: 15h 30m 56.45603s -17:47:47.30379s
RUWE (>1.4 is poor) : 1.43
K magnitude           : 6.802
G magnitude           : 11.191
RP magnitude          : 9.927
BP magnitude          : 12.881
DUPflag              : 0
Distance (au)         : 4.455
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.71
Sun-Target sep (deg) : 157.94
Sun-Moon sep (deg)   : 49.51
B (ring opening deg) : -3.36
PA of pole (deg)     : 14.44
Pole direction: RA (deg): 268.05727
Dec (deg): 64.49652
C/A sky separation (") : 7.251
C/A sky separation (km) : 23429.2
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	2030-04-23T05:34:17.196	76.09	-69.38	71490.2	-19.81	-22.36
Jupiter	E	2030-04-23T08:03:22.321	61.77	-40.40	71490.4	-18.55	-20.98