

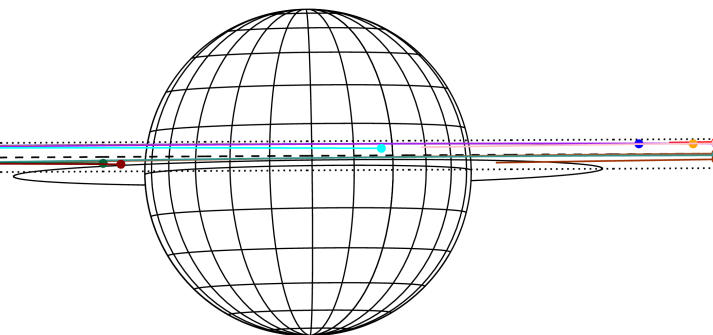
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-07-02T05:53:06.470
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068845239329259264
 2Mass ID (if available) : 17450634-2304297

Jupiter 2043-07-02T05:53:06 K8.05 G14.50 Pgt

ICRS Star Coord at Epoch: 17h 45m 06.35241s -23:04:30.18883s
 RUWE (>1.4 is poor) : 0.94
 K magnitude : 8.050
 G magnitude : 14.500
 RP magnitude : 12.957
 BP magnitude : 17.837
 DUPflag : 0
 Distance (au) : 4.267
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.69
 Sun-Target sep (deg) : 166.89
 Sun-Moon sep (deg) : 131.00
 B (ring opening deg) : -2.42
 PA of pole (deg) : 0.77
 Pole direction: RA (deg): 268.05669
 Dec (deg): 64.49732
 C/A sky separation (") : 2.361
 C/A sky separation (km) : 7307.7
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



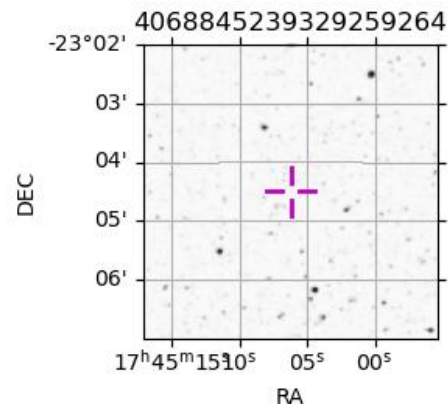
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



2043-07-02T05:53:06.4700 at: 17 45 06.3524 s: -23 04 30.1889 C/A 2.350" PA 180.32 deg v_sky -15.69 km/s D 04.27 AU
 Credit: Styled after SORA/Lucky Star

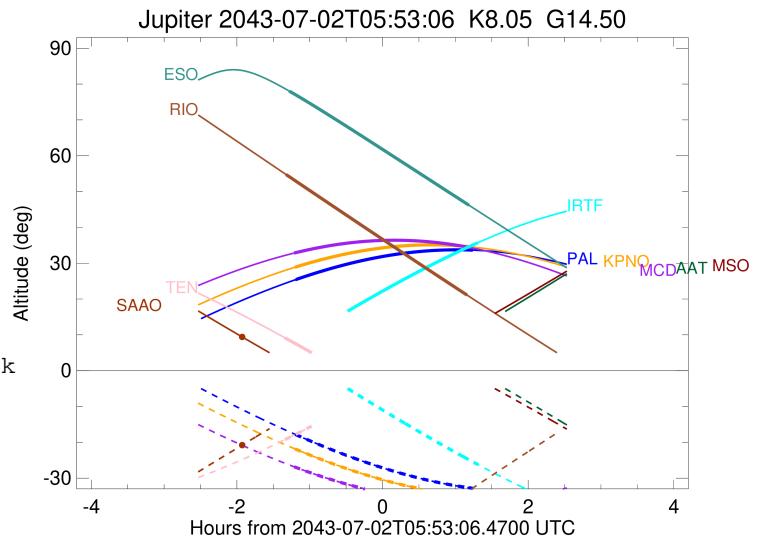
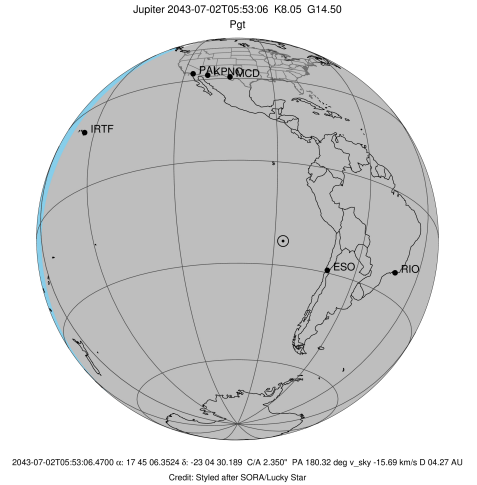
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	JUL 02 04:41 - JUL 02 07:07	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	JUL 02 04:41 - JUL 02 07:07	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	JUL 02 04:40 - JUL 02 07:06	Pie
TEN	Teide Obs./Tenerife	28.3	343.5	+	JUL 02 04:32 - JUL 02 04:32	Pin
IRTF	Mauna Kea/IRTF	19.8	204.5	+	JUL 02 07:11 - JUL 02 07:11	Pne
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	JUL 02 04:33 - JUL 02 07:02	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	JUL 02 04:36 - JUL 02 07:04	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            : 2043-07-02T05:54:32.620
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       : 4068845239329259264
2Mass ID (if available) : 17450634-2304297
ICRS Star Coord at Epoch: 17h 45m 06.35241s -23:04:30.18883s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.050
G magnitude          : 14.500
RP magnitude         : 12.957
BP magnitude         : 17.837
DUPflag             : 0
Distance (au)        : 4.267
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.69
Sun-Target sep (deg) : 166.89
Sun-Moon sep (deg)   : 131.28
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.77
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 4.051
C/A sky separation (km) : 12536.2
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
    
```

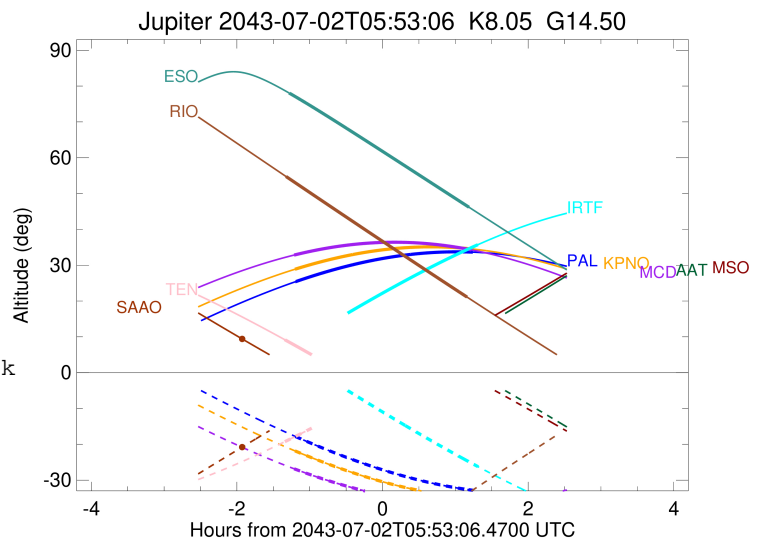
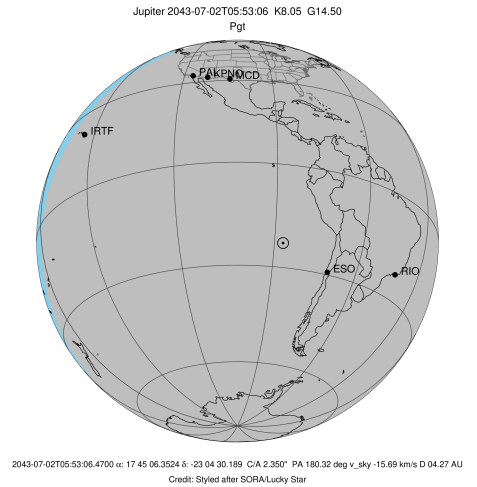


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-02T04:41:24.146	25.39	-17.82	71491.8	9.41	10.73
Jupiter	E	2043-07-02T07:07:33.926	33.64	-32.82	71491.7	10.60	12.07

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-02T05:54:04.360
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        : 4068845239329259264
2Mass ID (if available) : 17450634-2304297
ICRS Star Coord at Epoch: 17h 45m 06.35241s -23:04:30.18883s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.050
G magnitude           : 14.500
RP magnitude          : 12.957
BP magnitude          : 17.837
DUPflag              : 0
Distance (au)         : 4.267
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.69
Sun-Target sep (deg)  : 166.89
Sun-Moon sep (deg)    : 131.35
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.77
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 4.036
C/A sky separation (km) : 12489.8
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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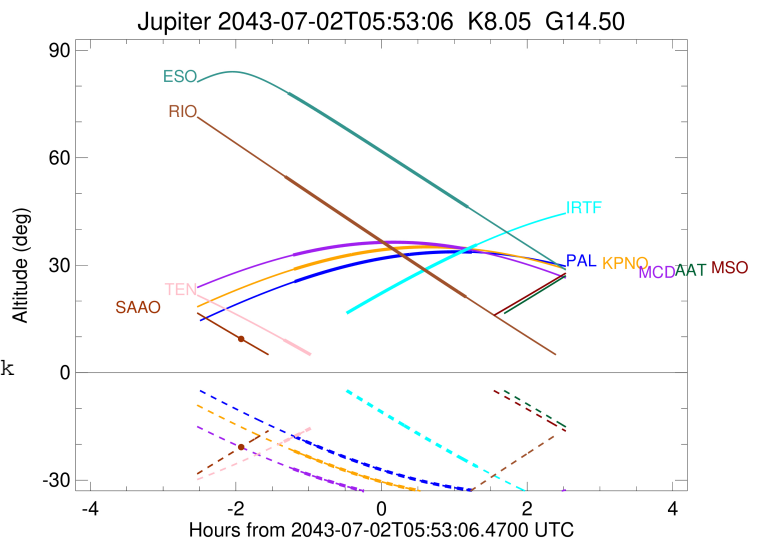
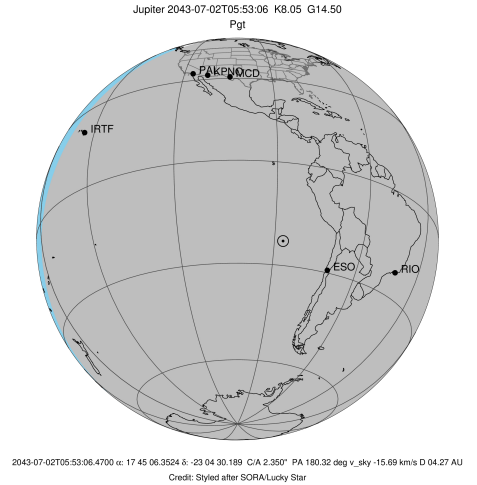


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-02T04:41:00.397	28.87	-21.84	71491.8	9.42	10.74
Jupiter	E	2043-07-02T07:07:03.997	34.52	-34.89	71491.7	10.51	11.97

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-02T05:53:21.220
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        : 4068845239329259264
2Mass ID (if available) : 17450634-2304297
ICRS Star Coord at Epoch: 17h 45m 06.35241s -23:04:30.18883s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.050
G magnitude           : 14.500
RP magnitude          : 12.957
BP magnitude          : 17.837
DUPflag              : 0
Distance (au)         : 4.267
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.69
Sun-Target sep (deg)  : 166.89
Sun-Moon sep (deg)   : 131.44
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.77
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 4.018
C/A sky separation (km) : 12436.2
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
    
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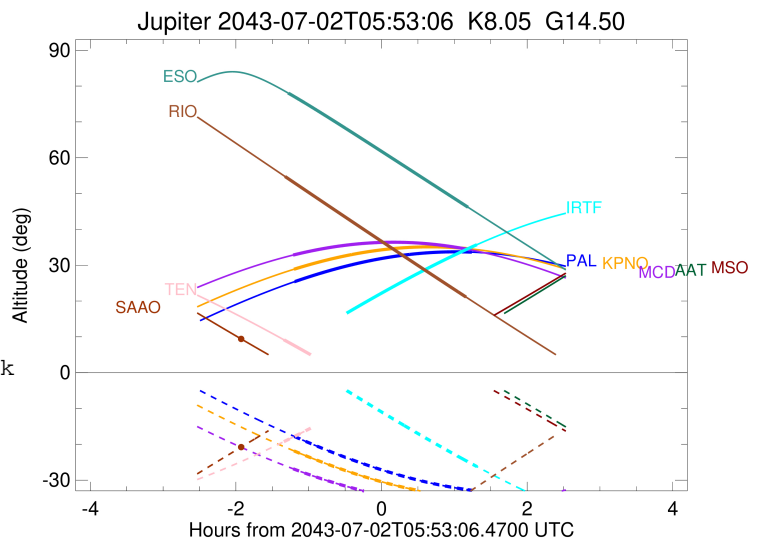
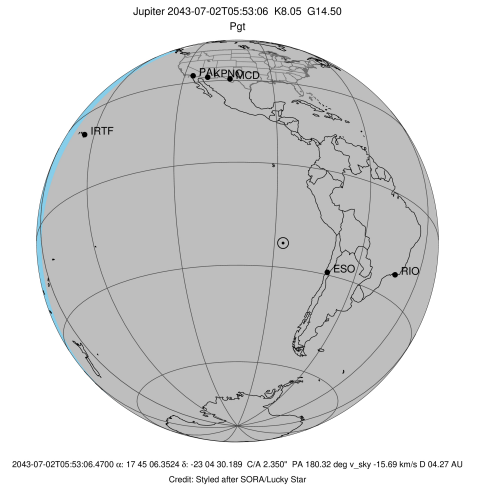


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-02T04:40:21.733	32.83	-26.84	71491.8	9.44	10.77
Jupiter	E	2043-07-02T07:06:20.711	34.28	-36.44	71491.7	10.40	11.84

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-02T05:47:17.140
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        : 4068845239329259264
2Mass ID (if available) : 17450634-2304297
ICRS Star Coord at Epoch: 17h 45m 06.35241s -23:04:30.18883s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.050
G magnitude           : 14.500
RP magnitude          : 12.957
BP magnitude          : 17.837
DUPflag              : 0
Distance (au)         : 4.267
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.69
Sun-Target sep (deg)  : 166.89
Sun-Moon sep (deg)    : 131.51
B (ring opening deg) : -2.42
PA of pole (deg)      : 0.77
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 3.336
C/A sky separation (km) : 10325.2
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
    
```

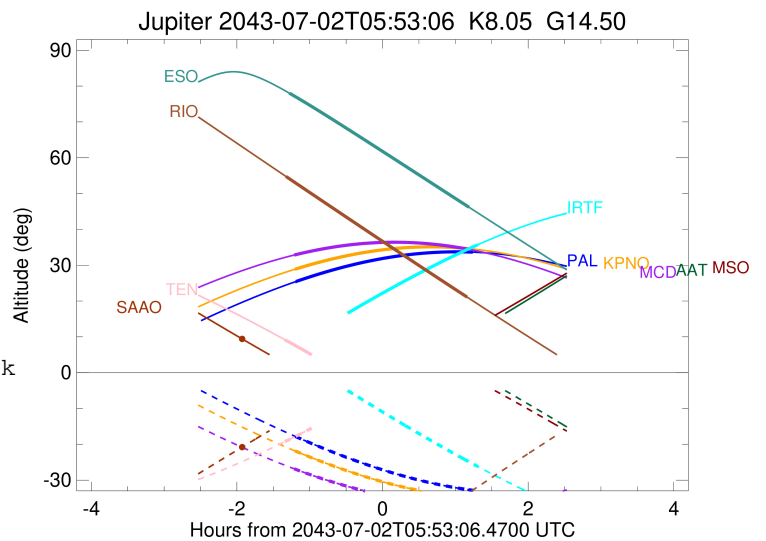
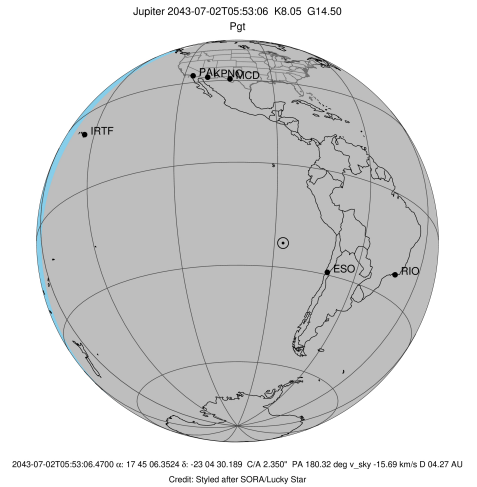


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-02T04:32:39.896	9.18	-19.26	71491.8	8.40	9.58
Jupiter	E	2043-07-02T07:02:33.548	-21.10x	9.10x	71491.8	8.16	9.31

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-07-02T05:58:05.340
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        : 4068845239329259264
2Mass ID (if available) : 17450634-2304297
ICRS Star Coord at Epoch: 17h 45m 06.35241s -23:04:30.18883s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.050
G magnitude           : 14.500
RP magnitude          : 12.957
BP magnitude          : 17.837
DUPflag              : 0
Distance (au)         : 4.267
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.69
Sun-Target sep (deg)  : 166.89
Sun-Moon sep (deg)   : 130.81
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.77
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 3.461
C/A sky separation (km): 10710.5
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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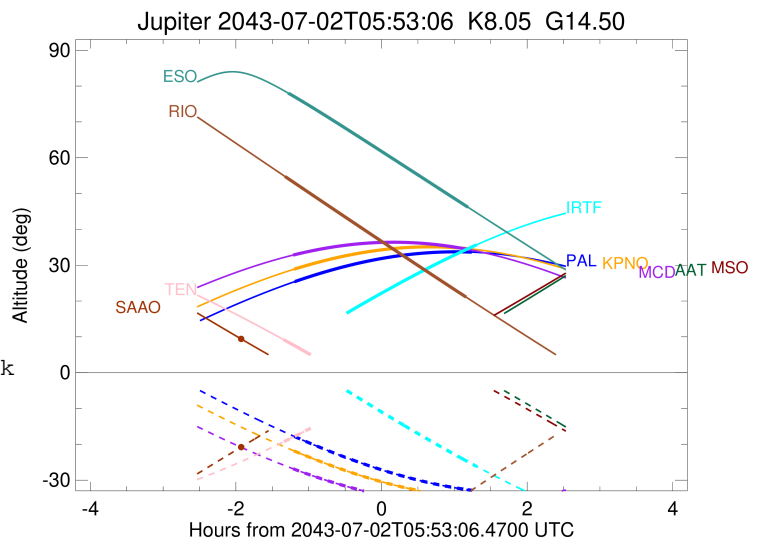
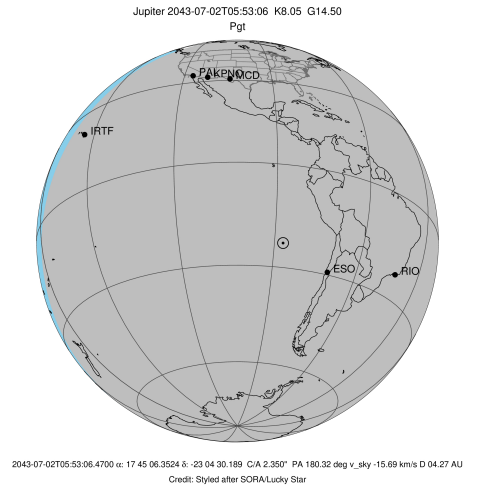


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-02T04:43:57.480	8.38	3.65x	71491.9	7.61	8.69
Jupiter	E	2043-07-02T07:11:43.911	35.72	-26.22	71491.8	9.48	10.81

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-02T05:47:55.610
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      : 4068845239329259264
2Mass ID (if available) : 17450634-2304297
ICRS Star Coord at Epoch: 17h 45m 06.35241s -23:04:30.18883s
RUWE (>1.4 is poor) : 0.94
K magnitude          : 8.050
G magnitude          : 14.500
RP magnitude         : 12.957
BP magnitude         : 17.837
DUPflag             : 0
Distance (au)       : 4.267
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.69
Sun-Target sep (deg) : 166.89
Sun-Moon sep (deg)  : 131.96
B (ring opening deg) : -2.42
PA of pole (deg)    : 0.77
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation ("): 2.035
C/A sky separation (km): 6299.3
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
    
```

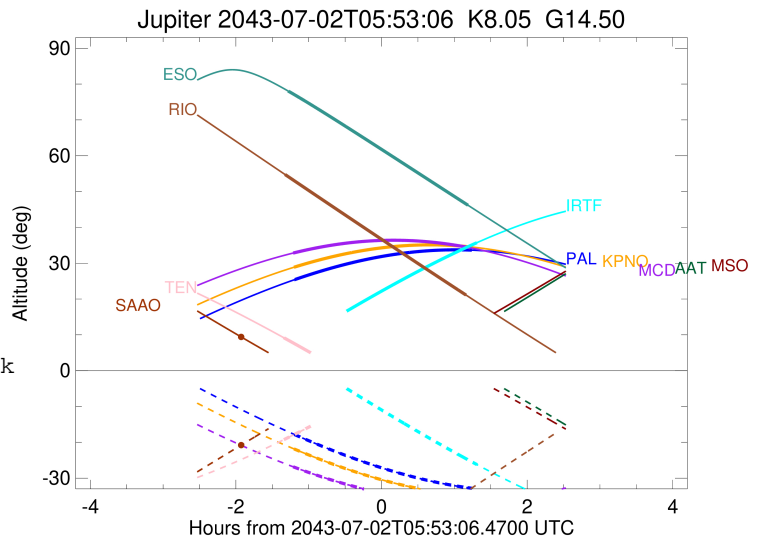
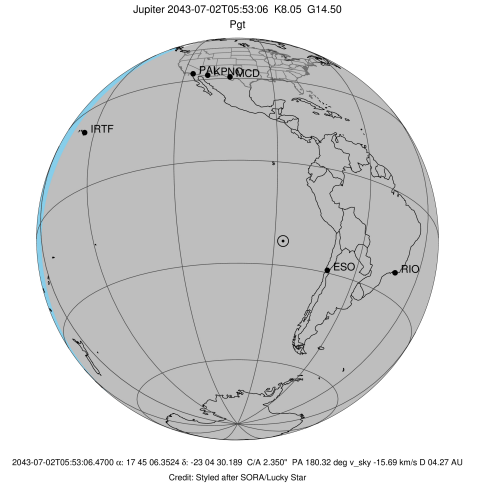


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-07-02T04:33:37.977	54.75	-67.74	71491.9	5.04	5.76
Jupiter	E	2043-07-02T07:02:47.293	21.10	-33.82	71491.9	4.95	5.65

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-07-02T05:50:10.480
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       : 4068845239329259264
2Mass ID (if available) : 17450634-2304297
ICRS Star Coord at Epoch: 17h 45m 06.35241s -23:04:30.18883s
RUWE (>1.4 is poor) : 0.94
K magnitude           : 8.050
G magnitude           : 14.500
RP magnitude         : 12.957
BP magnitude         : 17.837
DUPflag              : 0
Distance (au)        : 4.267
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.69
Sun-Target sep (deg) : 166.89
Sun-Moon sep (deg)   : 131.95
B (ring opening deg) : -2.42
PA of pole (deg)     : 0.77
Pole direction: RA (deg): 268.05669
Dec (deg): 64.49732
C/A sky separation (") : 2.052
C/A sky separation (km) : 6349.3
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	2043-07-02T04:36:18.010	78.03	-83.49	71491.9	4.84	5.53
Jupiter	E	2043-07-02T07:04:22.440	46.17	-58.66	71491.9	5.18	5.92