

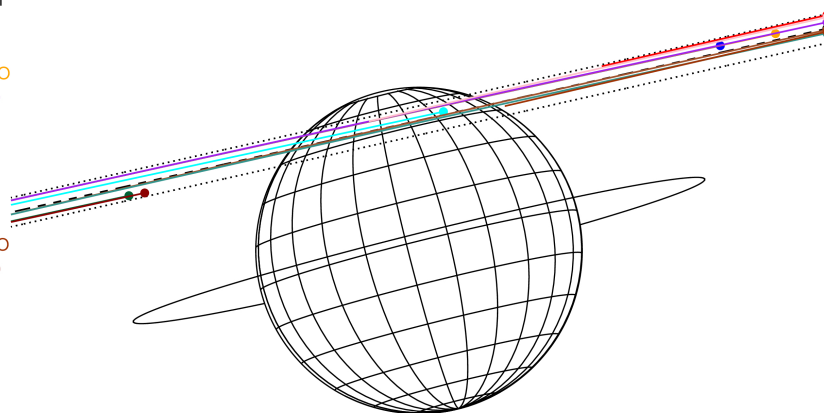
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2042-05-23T05:30:17.640
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6255163126922869760
 2Mass ID (if available) : 15353523-1809479

Jupiter 2042-05-23T05:30:17 K9.72 G13.25 Pgt

ICRS Star Coord at Epoch: 15h 35m 35.11616s -18:09:49.67855s
 RUWE (>1.4 is poor) : 1.39
 K magnitude : 9.725
 G magnitude : 13.255
 RP magnitude : 12.132
 BP magnitude : 14.544
 DUPflag : 0
 Distance (au) : 4.376
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -16.71
 Sun-Target sep (deg) : 174.18
 Sun-Moon sep (deg) : 125.00
 B (ring opening deg) : -3.28
 PA of pole (deg) : 14.01
 Pole direction: RA (deg): 268.05646
 Dec (deg): 64.49730
 C/A sky separation (") : 17.517
 C/A sky separation (km) : 55596.1
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



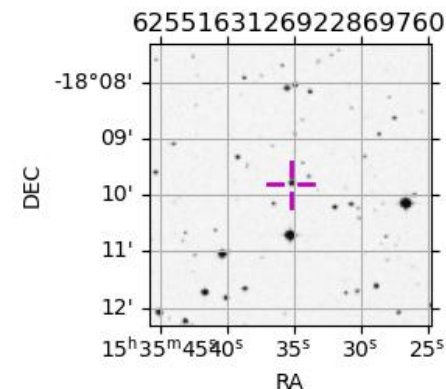
Earth
 PIC
 PAL
 KPNO
 MCD
 TEN
 IRTF
 RIO
 ESO
 AAT
 SAAO
 MSO



2042-05-23T05:30:17.6400 a: 15 35 35.1162 d: -18 09 49.679 C/A ***** PA 192.69 deg v_sky -16.72 km/s D 04.38 AU
 Credit: Styled after SORA/Lucky Star

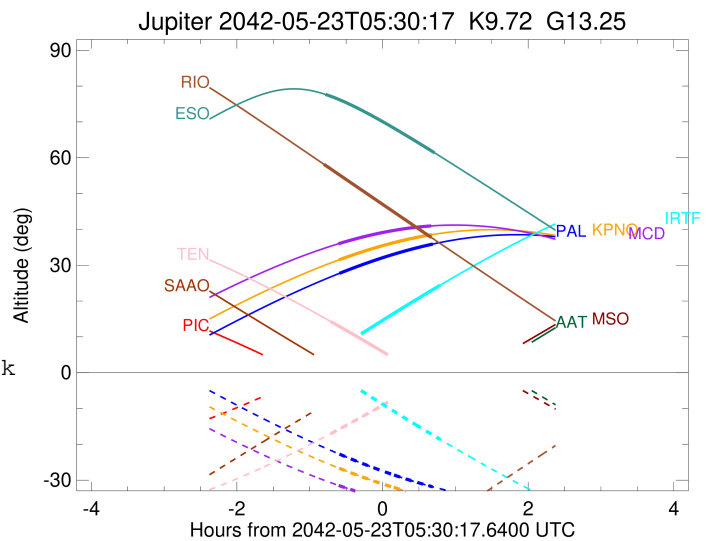
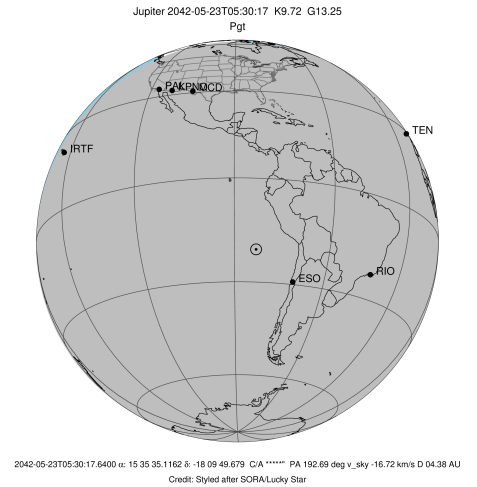
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events	Interval	OEcode
PIC	Pic du Midi	42.9	0.1				Pnn
PAL	Palomar Mt (200")	33.4	243.1	+ +	MAY 23 04:54 - MAY 23 06:11		Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8				Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	MAY 23 04:54 - MAY 23 06:11		Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	MAY 23 04:54 - MAY 23 06:10		Pie
TEN	Teide Obs./Tenerife	28.3	343.5	+	MAY 23 04:47 - MAY 23 04:47		Pin
IRTF	Mauna Kea/IRTF	19.8	204.5	+	MAY 23 06:17 - MAY 23 06:17		Pne
KAV	Kavalur Observatory	12.6	78.8				Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	MAY 23 04:42 - MAY 23 06:10		Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAY 23 04:43 - MAY 23 06:13		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            : 2042-05-23T05:33:14.440
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      : 6255163126922869760
2Mass ID (if available) : 15353523-1809479
ICRS Star Coord at Epoch: 15h 35m 35.11616s -18:09:49.67855s
RUWE (>1.4 is poor) : 1.39
K magnitude         : 9.725
G magnitude         : 13.255
RP magnitude        : 12.132
BP magnitude        : 14.544
DUPflag            : 0
Distance (au)       : 4.376
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.71
Sun-Target sep (deg) : 174.18
Sun-Moon sep (deg)  : 125.75
B (ring opening deg) : -3.28
PA of pole (deg)    : 14.01
Pole direction: RA (deg): 268.05646
Dec (deg): 64.49730
C/A sky separation ("): 18.830
C/A sky separation (km): 59762.6
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
    
```

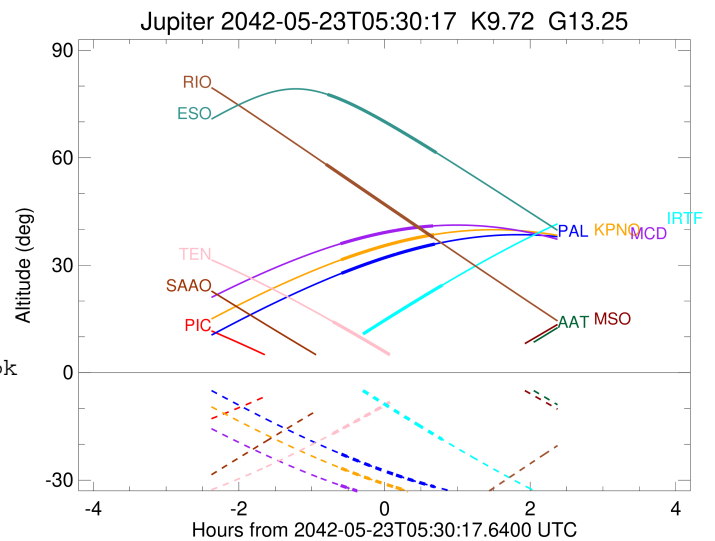
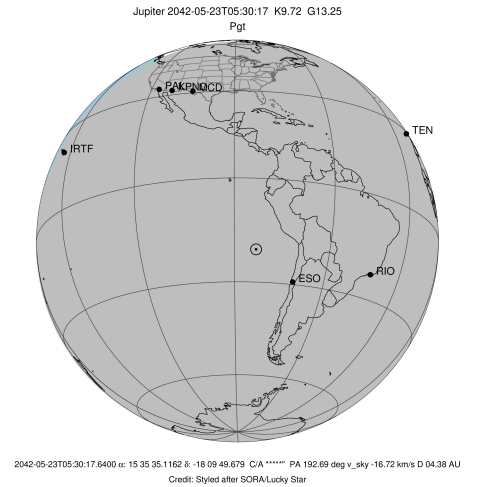


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-05-23T04:54:49.662	27.73	-22.74	71482.2	54.82	58.20
Jupiter	E	2042-05-23T06:11:35.111	35.88	-31.85	71481.4	58.31	61.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2042-05-23T05:32:51.230
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        : 6255163126922869760
2Mass ID (if available) : 15353523-1809479
ICRS Star Coord at Epoch: 15h 35m 35.11616s -18:09:49.67855s
RUWE (>1.4 is poor) : 1.39
K magnitude           : 9.725
G magnitude           : 13.255
RP magnitude          : 12.132
BP magnitude          : 14.544
DUPflag              : 0
Distance (au)         : 4.376
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.71
Sun-Target sep (deg)  : 174.18
Sun-Moon sep (deg)   : 125.76
B (ring opening deg) : -3.28
PA of pole (deg)     : 14.01
Pole direction: RA (deg): 268.05646
Dec (deg): 64.49730
C/A sky separation ("): 18.847
C/A sky separation (km): 59815.0
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
    
```

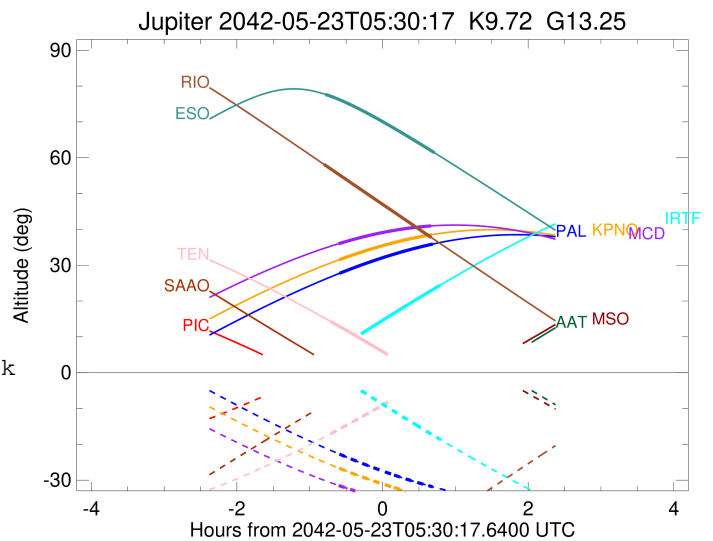
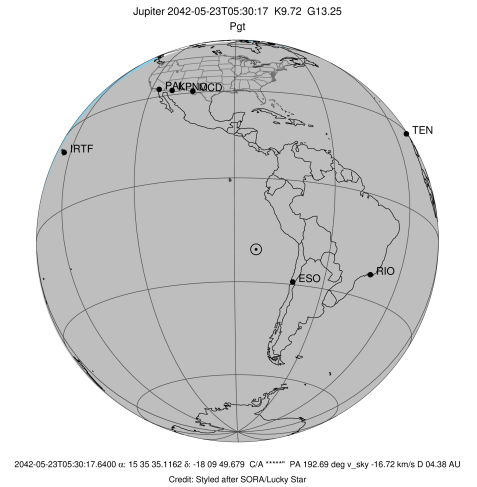


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-05-23T04:54:34.167	31.51	-26.67	71482.2	54.91	58.28
Jupiter	E	2042-05-23T06:11:04.831	38.53	-34.83	71481.4	58.37	61.54

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2042-05-23T05:32:15.120
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      : 6255163126922869760
2Mass ID (if available) : 15353523-1809479
ICRS Star Coord at Epoch: 15h 35m 35.11616s -18:09:49.67855s
RUWE (>1.4 is poor) : 1.39
K magnitude          : 9.725
G magnitude          : 13.255
RP magnitude         : 12.132
BP magnitude         : 14.544
DUPflag             : 0
Distance (au)       : 4.376
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -16.71
Sun-Target sep (deg) : 174.18
Sun-Moon sep (deg)  : 125.74
B (ring opening deg) : -3.28
PA of pole (deg)    : 14.01
Pole direction: RA (deg): 268.05646
Dec (deg): 64.49730
C/A sky separation ("): 18.883
C/A sky separation (km): 59930.7
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
    
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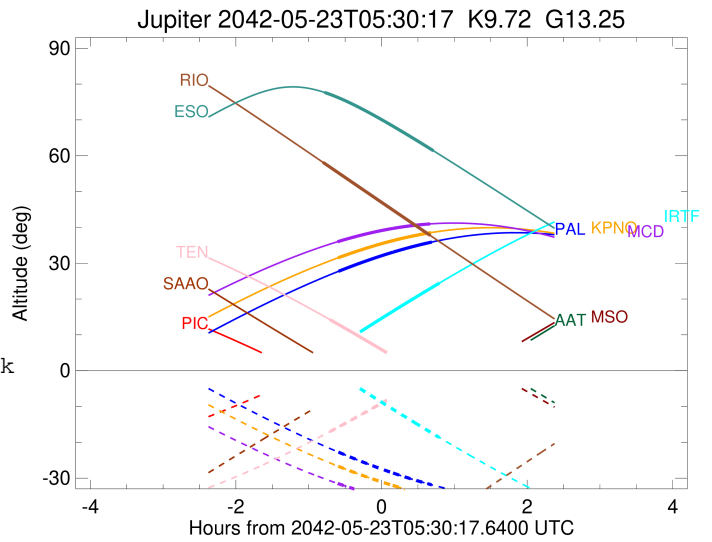
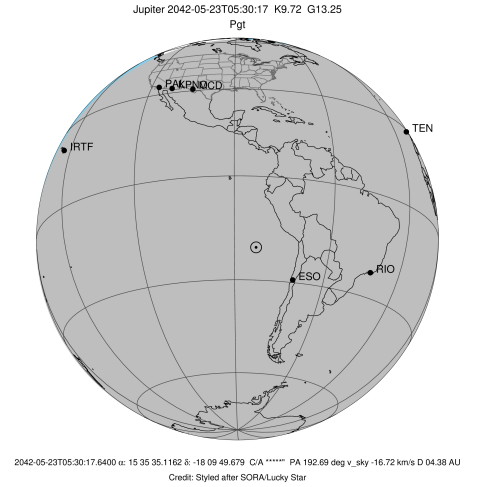


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-05-23T04:54:11.873	36.00	-31.49	71482.1	55.10	58.47
Jupiter	E	2042-05-23T06:10:15.906	40.96	-37.87	71481.3	58.50	61.66

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2042-05-23T05:26:09.740
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        : 6255163126922869760
2Mass ID (if available) : 15353523-1809479
ICRS Star Coord at Epoch: 15h 35m 35.11616s -18:09:49.67855s
RUWE (>1.4 is poor) : 1.39
K magnitude           : 9.725
G magnitude           : 13.255
RP magnitude          : 12.132
BP magnitude          : 14.544
DUPflag              : 0
Distance (au)         : 4.376
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.71
Sun-Target sep (deg)  : 174.18
Sun-Moon sep (deg)   : 124.75
B (ring opening deg) : -3.28
PA of pole (deg)     : 14.01
Pole direction: RA (deg): 268.05646
Dec (deg): 64.49730
C/A sky separation (") : 18.931
C/A sky separation (km) : 60083.0
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
    
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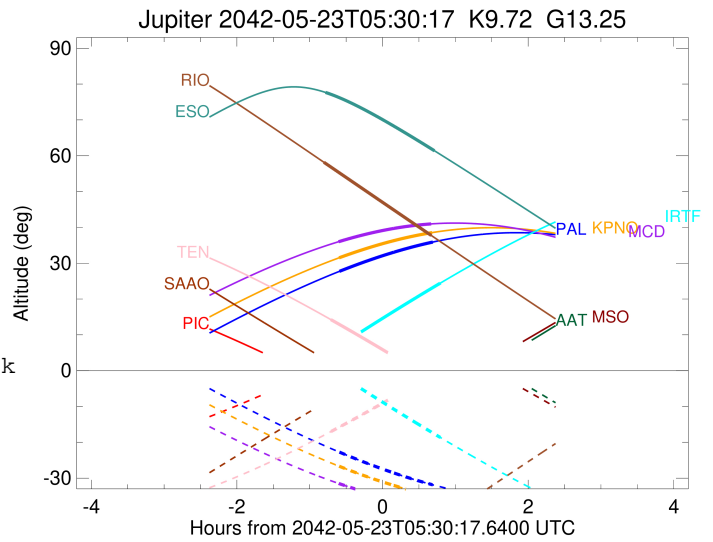
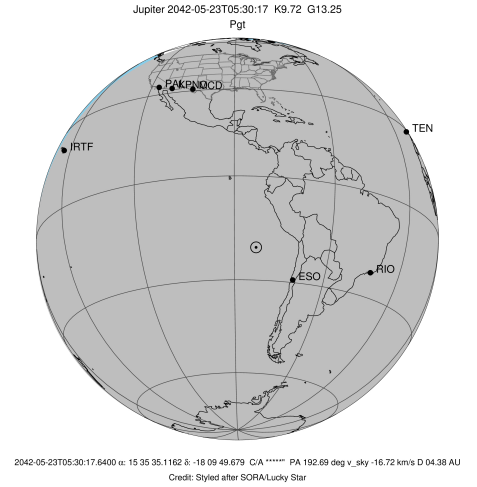


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-05-23T04:47:55.902	14.22	-16.98	71481.9	56.01	59.32
Jupiter	E	2042-05-23T06:04:31.970	-1.11x	-2.37x	71481.4	58.03	61.22

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2042-05-23T05:35:39.670
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       : 6255163126922869760
2Mass ID (if available) : 15353523-1809479
ICRS Star Coord at Epoch: 15h 35m 35.11616s -18:09:49.67855s
RUWE (>1.4 is poor) : 1.39
K magnitude          : 9.725
G magnitude          : 13.255
RP magnitude         : 12.132
BP magnitude         : 14.544
DUPflag             : 0
Distance (au)        : 4.376
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.71
Sun-Target sep (deg) : 174.18
Sun-Moon sep (deg)   : 125.73
B (ring opening deg) : -3.28
PA of pole (deg)     : 14.01
Pole direction: RA (deg): 268.05646
Dec (deg): 64.49730
C/A sky separation ("): 18.020
C/A sky separation (km): 57191.2
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
    
```

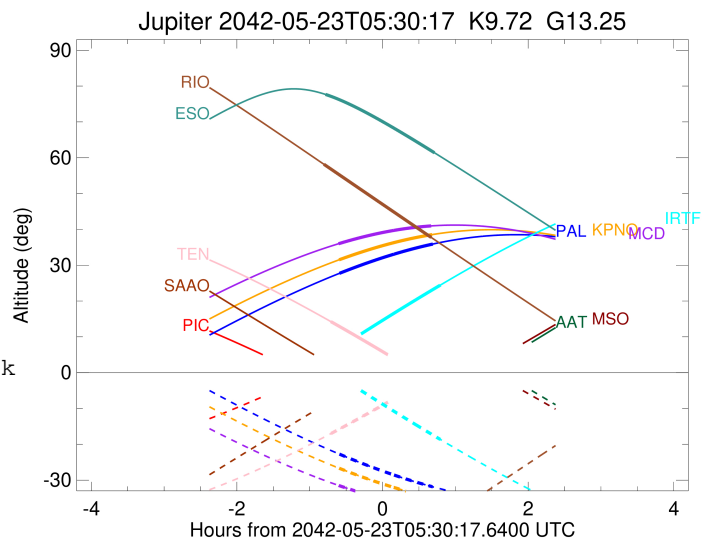
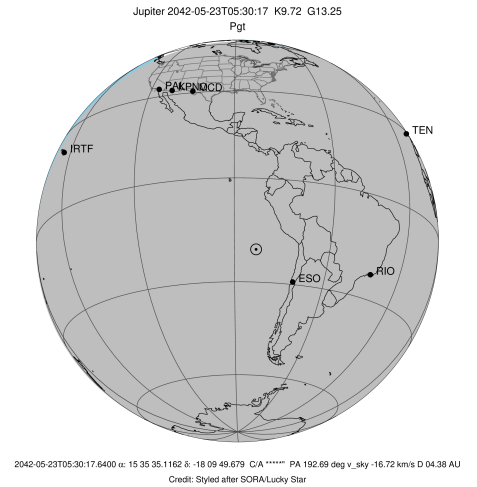


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-05-23T04:53:12.557	6.59	-0.80x	71483.1	51.16	54.70
Jupiter	E	2042-05-23T06:17:56.127	24.43	-18.64	71482.2	54.88	58.26

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2042-05-23T05:26:07.600
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        : 6255163126922869760
2Mass ID (if available) : 15353523-1809479
ICRS Star Coord at Epoch: 15h 35m 35.11616s -18:09:49.67855s
RUWE (>1.4 is poor) : 1.39
K magnitude           : 9.725
G magnitude           : 13.255
RP magnitude          : 12.132
BP magnitude          : 14.544
DUPflag              : 0
Distance (au)         : 4.376
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -16.71
Sun-Target sep (deg)  : 174.18
Sun-Moon sep (deg)   : 125.19
B (ring opening deg) : -3.28
PA of pole (deg)     : 14.01
Pole direction: RA (deg): 268.05646
Dec (deg): 64.49730
C/A sky separation (") : 17.482
C/A sky separation (km) : 55485.2
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
    
```

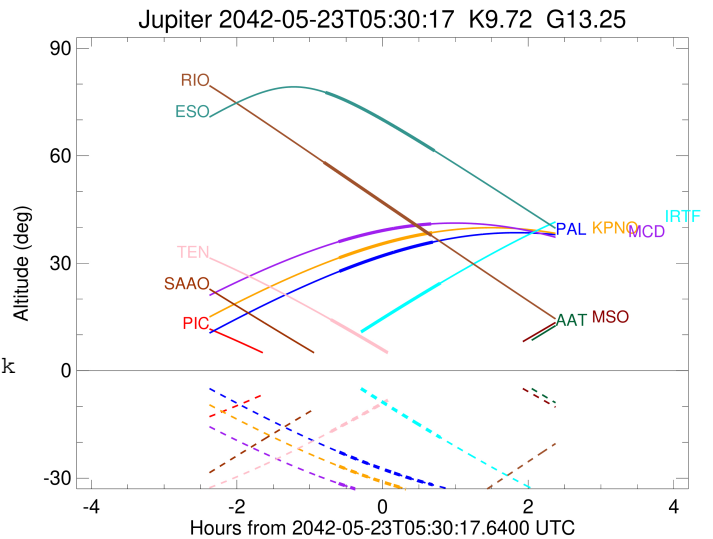
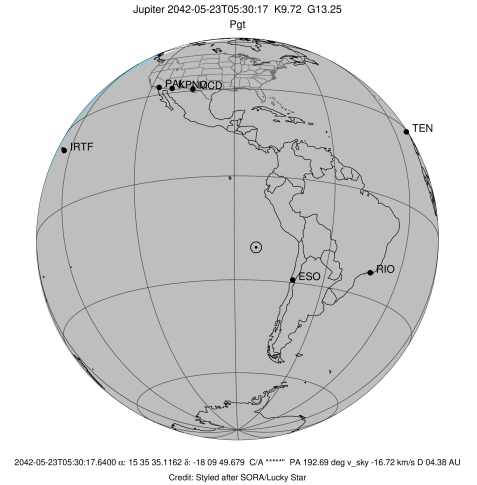


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2042-05-23T04:42:02.490	58.16	-63.83	71483.5	49.52	53.12
Jupiter	E	2042-05-23T06:10:21.047	37.77	-43.54	71482.9	51.98	55.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2042-05-23T05:28:12.870
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      : 6255163126922869760
2Mass ID (if available) : 15353523-1809479
ICRS Star Coord at Epoch: 15h 35m 35.11616s -18:09:49.67855s
RUWE (>1.4 is poor) : 1.39
K magnitude          : 9.725
G magnitude          : 13.255
RP magnitude         : 12.132
BP magnitude         : 14.544
DUPflag             : 0
Distance (au)       : 4.376
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -16.71
Sun-Target sep (deg) : 174.18
Sun-Moon sep (deg)  : 125.54
B (ring opening deg) : -3.28
PA of pole (deg)    : 14.01
Pole direction: RA (deg): 268.05646
Dec (deg): 64.49730
C/A sky separation ("): 17.240
C/A sky separation (km): 54717.3
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	2042-05-23T04:43:21.633	77.66	-81.46	71483.8	48.32	51.96
Jupiter	E	2042-05-23T06:13:07.324	61.38	-67.22	71483.1	51.26	54.80