

target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2032-08-02T04:31:37.580
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6865070846843604352
 2Mass ID (if available) : 19481505-2136182

Jupiter 2032-08-02T04:31:37 K9.28 G10.20 Pgt

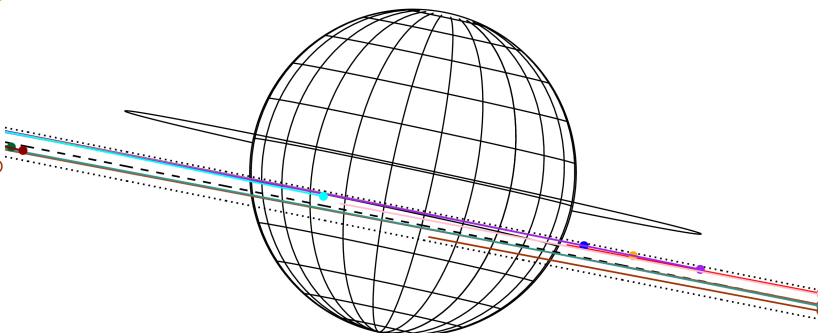
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s

RUWE (>1.4 is poor) : 1.33
 K magnitude : 9.281
 G magnitude : 10.203
 RP magnitude : 9.883
 BP magnitude : 10.386
 DUPflag : 0
 Distance (au) : 4.146
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -15.13
 Sun-Target sep (deg) : 165.02
 Sun-Moon sep (deg) : 149.75
 B (ring opening deg) : -1.02
 PA of pole (deg) : -12.05
 Pole direction: RA (deg): 268.05661
 Dec (deg): 64.49656
 C/A sky separation (") : 7.289
 C/A sky separation (km) : 21916.2
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2032-08-02T04:31:37 K9.28 G10.20
 Pgt



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

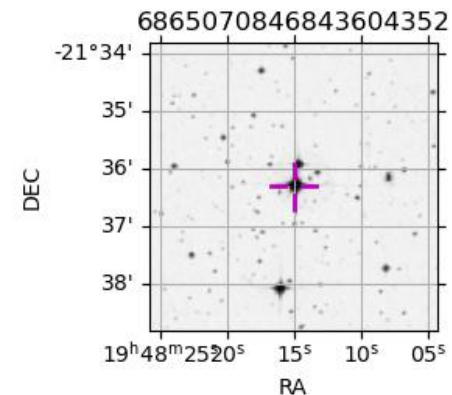


2032-08-02T04:31:37.5800 at: 19 48 15.0485 s: -21 36 18.429 C/A 7.296" PA 348.71 deg v_sky -15.13 km/s D 04.15 AU

Credit: Styled after SORA/Lucky Star

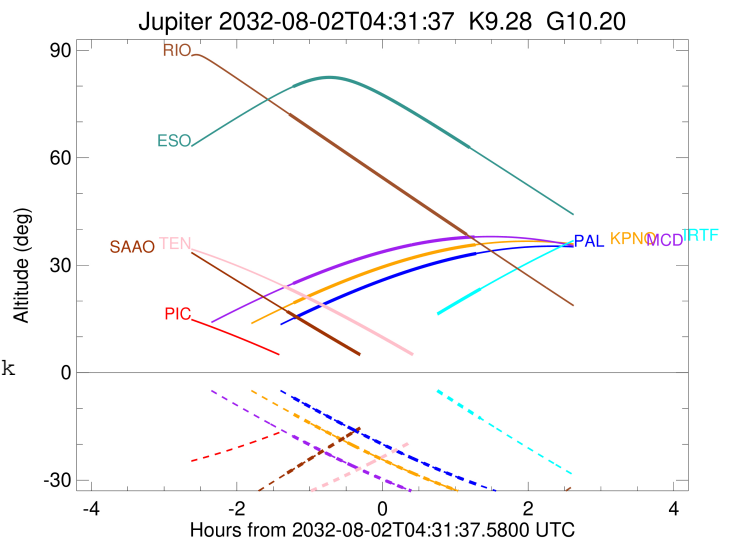
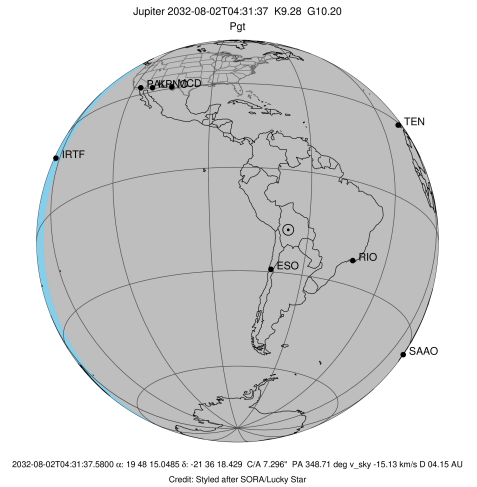
Observable events with sun below -5 deg and altitude above 5 deg

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	+ +	AUG 02 03:18	- AUG 02 05:48	Pie
PMO	Purple Mtn Obs. Nanking	32.1	118.8				Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+ +	AUG 02 03:18	- AUG 02 05:48	Pie
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	AUG 02 03:17	- AUG 02 05:47	Pie
TEN	Teide Obs./Tenerife	28.3	343.5	+	AUG 02 03:10	- AUG 02 03:10	Pin
IRTF	Mauna Kea/IRTF	19.8	204.5	+	AUG 02 05:52	- AUG 02 05:52	Pne
KAV	Kavalur Observatory	12.6	78.8				Pnn
RIO	Rio de Janeiro	-22.9	316.8	+ +	AUG 02 03:14	- AUG 02 05:40	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	AUG 02 03:17	- AUG 02 05:43	Pie
AAT	Siding Spring (AAT)	-31.3	149.1				Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	AUG 02 03:13	- AUG 02 03:13	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0				Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-02T04:33:51.240
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      : 6865070846843604352
2Mass ID (if available) : 19481505-2136182
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s
RUWE (>1.4 is poor) : 1.33
K magnitude          : 9.281
G magnitude          : 10.203
RP magnitude         : 9.883
BP magnitude         : 10.386
DUPflag             : 0
Distance (au)       : 4.146
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.13
Sun-Target sep (deg) : 165.02
Sun-Moon sep (deg)  : 149.58
B (ring opening deg) : -1.02
PA of pole (deg)    : -12.05
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation ("): 5.506
C/A sky separation (km): 16555.8
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
    
```

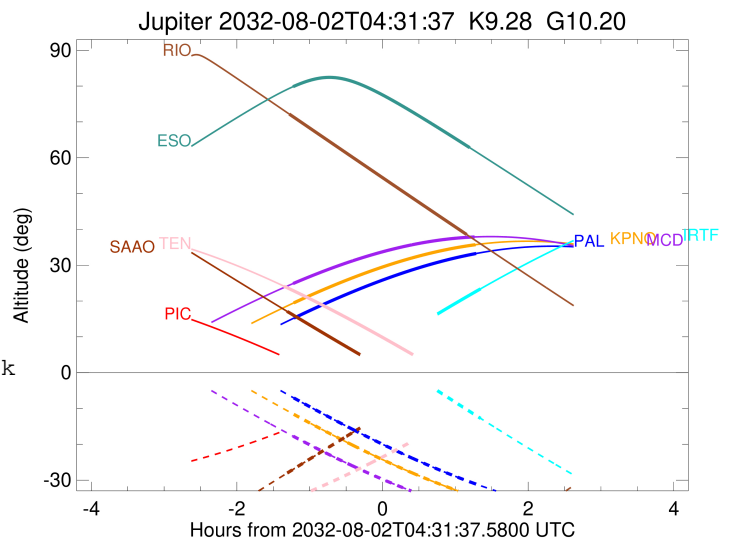
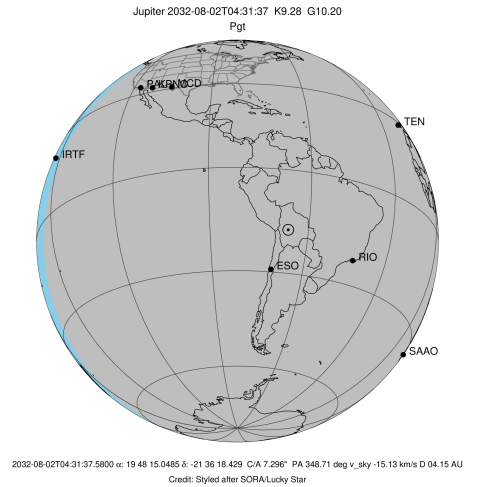


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-02T03:18:43.013	15.25	-7.09	71491.9	-12.78	-14.53
Jupiter	E	2032-08-02T05:48:43.082	33.25	-31.10	71491.9	-14.19	-16.12

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-02T04:33:26.510
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       : 6865070846843604352
2Mass ID (if available) : 19481505-2136182
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s
RUWE (>1.4 is poor) : 1.33
K magnitude          : 9.281
G magnitude          : 10.203
RP magnitude         : 9.883
BP magnitude         : 10.386
DUPflag             : 0
Distance (au)        : 4.146
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.13
Sun-Target sep (deg) : 165.02
Sun-Moon sep (deg)   : 149.66
B (ring opening deg) : -1.02
PA of pole (deg)     : -12.05
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 5.531
C/A sky separation (km) : 16629.1
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
    
```

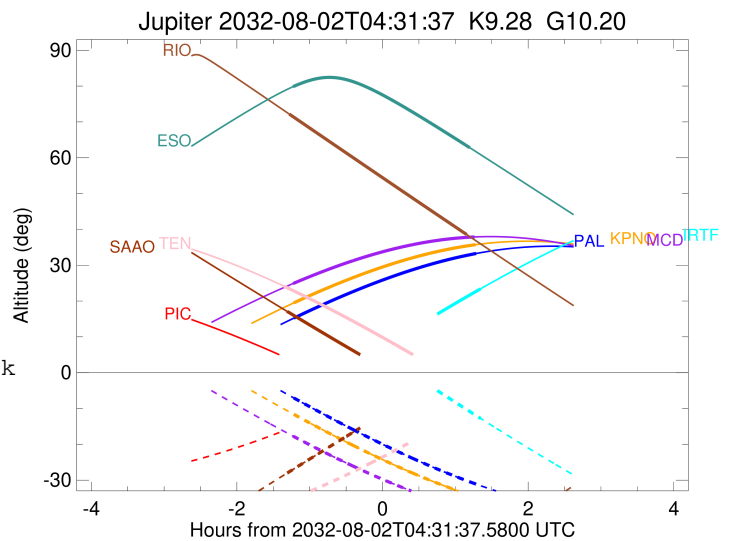
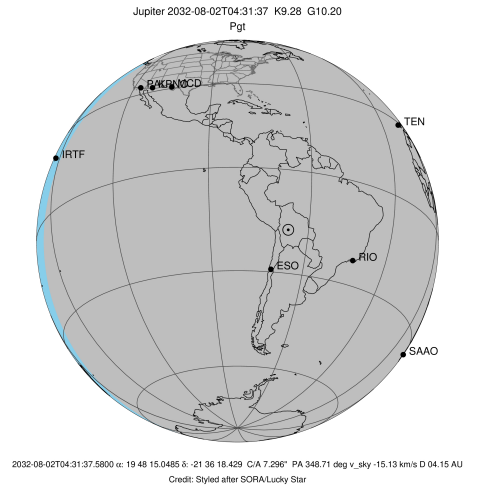


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-02T03:18:26.978	19.47	-11.61	71491.9	-12.79	-14.54
Jupiter	E	2032-08-02T05:48:12.395	35.71	-34.63	71491.9	-14.31	-16.25

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-08-02T04:32:45.650
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        : 6865070846843604352
2Mass ID (if available) : 19481505-2136182
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s
RUWE (>1.4 is poor) : 1.33
K magnitude           : 9.281
G magnitude           : 10.203
RP magnitude          : 9.883
BP magnitude          : 10.386
DUPflag              : 0
Distance (au)         : 4.146
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.13
Sun-Target sep (deg)  : 165.02
Sun-Moon sep (deg)    : 149.76
B (ring opening deg) : -1.02
PA of pole (deg)      : -12.05
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 5.563
C/A sky separation (km) : 16726.4
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
    
```

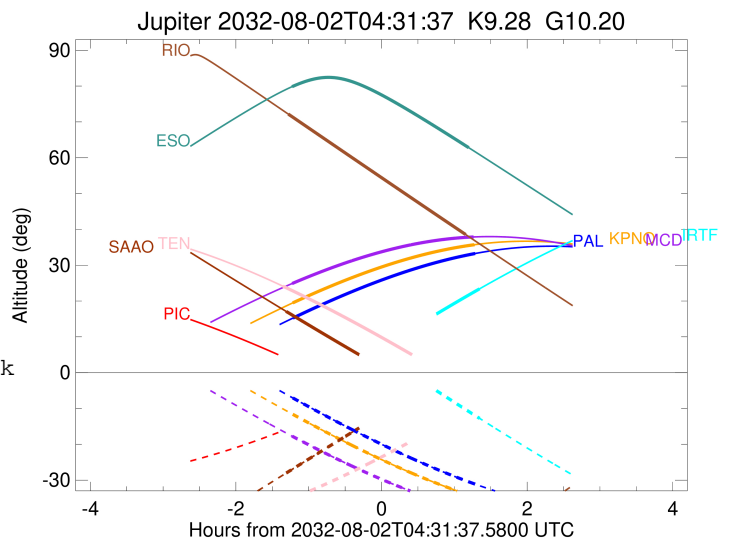
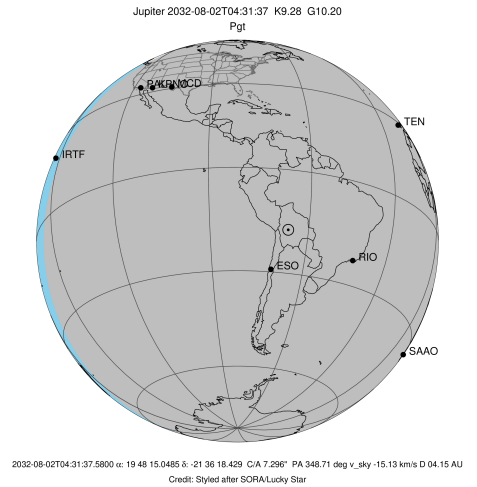


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-02T03:17:56.522	24.87	-17.72	71491.9	-12.79	-14.55
Jupiter	E	2032-08-02T05:47:25.456	37.88	-38.63	71491.9	-14.47	-16.43

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-08-02T04:25:08.500
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        : 6865070846843604352
2Mass ID (if available) : 19481505-2136182
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s
RUWE (>1.4 is poor) : 1.33
K magnitude           : 9.281
G magnitude           : 10.203
RP magnitude          : 9.883
BP magnitude          : 10.386
DUPflag              : 0
Distance (au)         : 4.145
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -15.13
Sun-Target sep (deg)  : 165.02
Sun-Moon sep (deg)    : 150.48
B (ring opening deg) : -1.02
PA of pole (deg)      : -12.05
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 6.412
C/A sky separation (km) : 19277.4
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
    
```

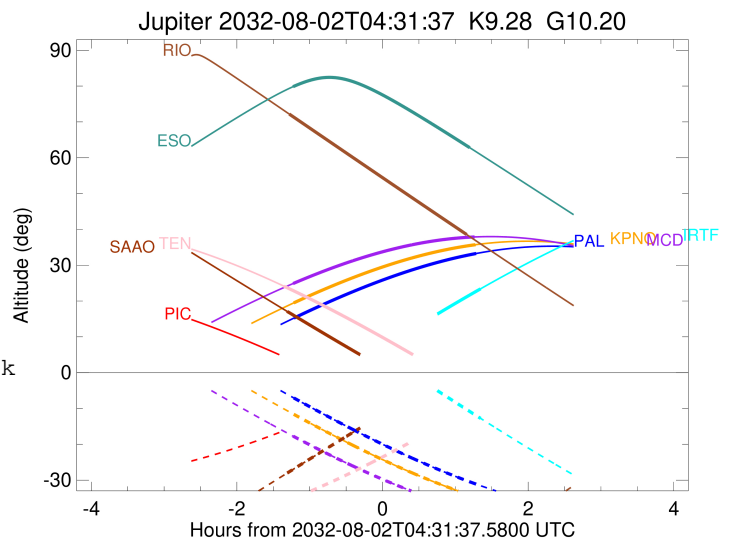
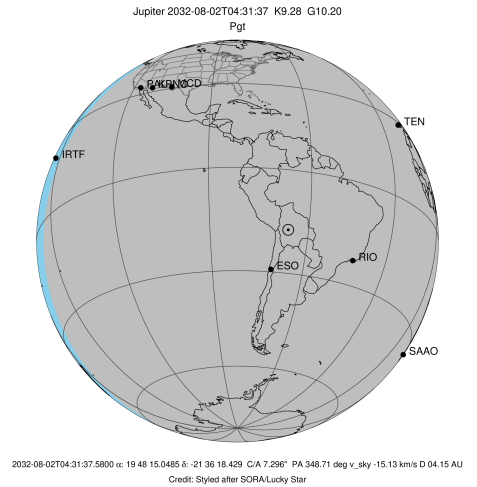


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-02T03:10:20.818	24.14	-36.06	71491.9	-14.25	-16.19
Jupiter	E	2032-08-02T05:40:34.517	-3.77x	-10.65	71491.9	-17.03	-19.28

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-02T04:37:23.060
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       : 6865070846843604352
2Mass ID (if available) : 19481505-2136182
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s
RUWE (>1.4 is poor) : 1.33
K magnitude           : 9.281
G magnitude           : 10.203
RP magnitude         : 9.883
BP magnitude         : 10.386
DUPflag              : 0
Distance (au)        : 4.146
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.13
Sun-Target sep (deg) : 165.02
Sun-Moon sep (deg)  : 149.10
B (ring opening deg) : -1.02
PA of pole (deg)    : -12.05
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 6.041
C/A sky separation (km) : 18163.2
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
    
```

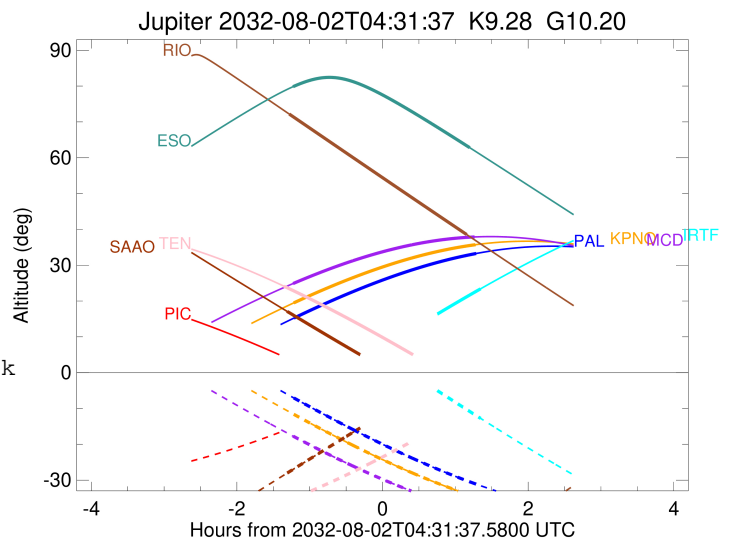
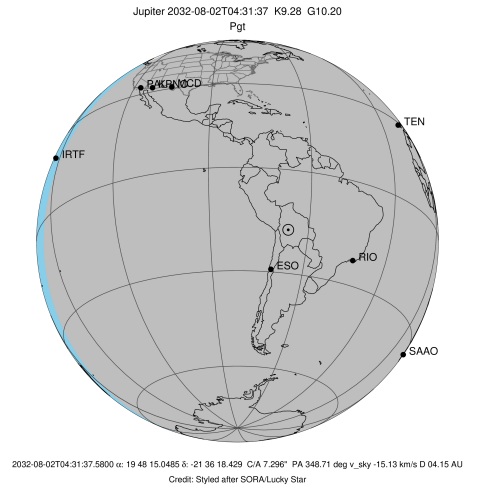


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-02T03:21:41.801	-8.26x	21.01x	71491.9	-14.49	-16.45
Jupiter	E	2032-08-02T05:52:27.448	23.41	-12.76	71491.9	-15.11	-17.15

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-08-02T04:27:37.480
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      : 6865070846843604352
2Mass ID (if available) : 19481505-2136182
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s
RUWE (>1.4 is poor) : 1.33
K magnitude          : 9.281
G magnitude          : 10.203
RP magnitude         : 9.883
BP magnitude         : 10.386
DUPflag             : 0
Distance (au)        : 4.145
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.13
Sun-Target sep (deg) : 165.02
Sun-Moon sep (deg)  : 150.58
B (ring opening deg) : -1.02
PA of pole (deg)    : -12.05
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 7.716
C/A sky separation (km) : 23199.2
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
    
```

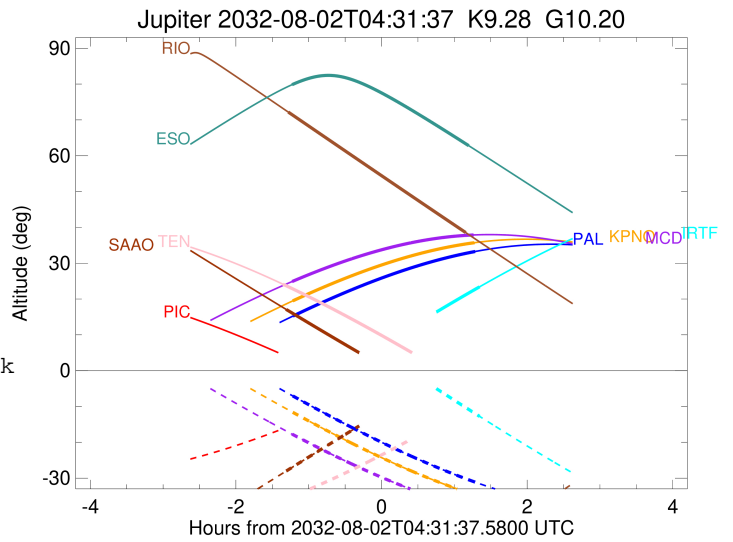
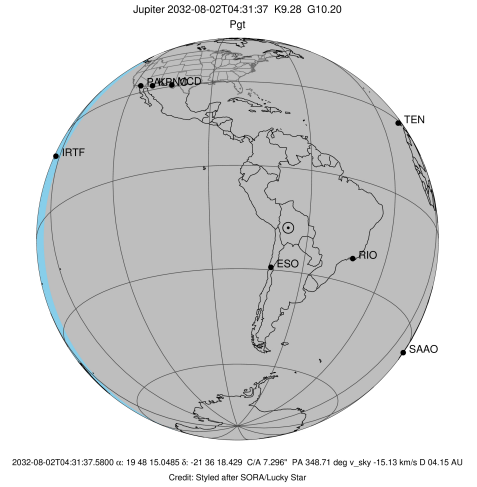


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-02T03:14:51.282	72.16	-83.69	71491.9	-17.62	-19.95
Jupiter	E	2032-08-02T05:40:51.168	38.58	-51.82	71491.8	-20.33	-22.94


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-08-02T04:30:31.720
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       : 6865070846843604352
2Mass ID (if available) : 19481505-2136182
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s
RUWE (>1.4 is poor) : 1.33
K magnitude          : 9.281
G magnitude          : 10.203
RP magnitude         : 9.883
BP magnitude         : 10.386
DUPflag             : 0
Distance (au)        : 4.146
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.13
Sun-Target sep (deg) : 165.02
Sun-Moon sep (deg)   : 150.32
B (ring opening deg) : -1.02
PA of pole (deg)     : -12.05
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 7.643
C/A sky separation (km) : 22980.8
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
    
```

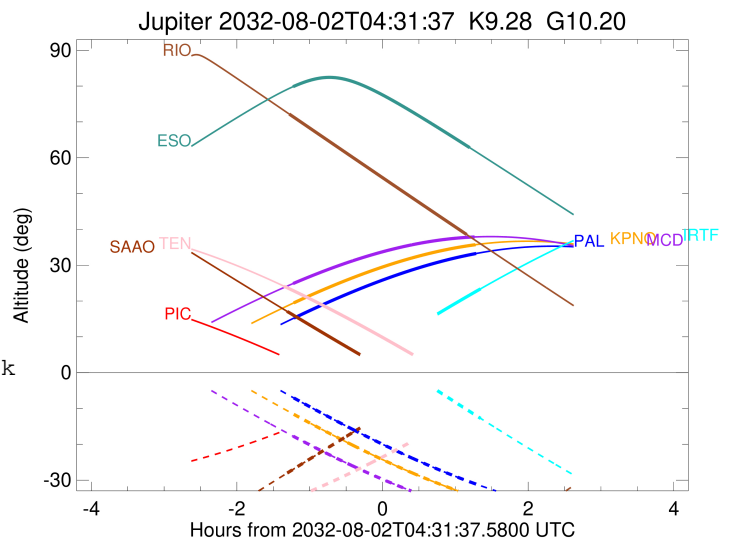
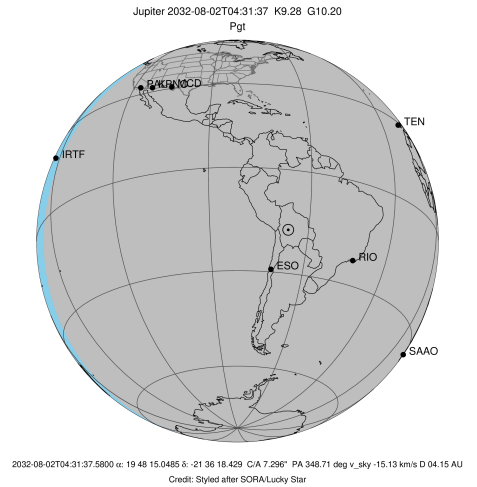


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-08-02T03:17:53.079	79.82	-66.18	71491.9	-17.67	-20.00
Jupiter	E	2032-08-02T05:43:21.567	62.83	-73.09	71491.8	-19.98	-22.55


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-08-02T04:26:26.980
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : SAAO
Location             : So. Afr. Astro. Obs. (Sutherland)
Latitude (deg)       : -32.37953
E. Longitude (deg)   : 20.81070
Altitude (km)        : 1.768
Gaia source ID       : 6865070846843604352
2Mass ID (if available) : 19481505-2136182
ICRS Star Coord at Epoch: 19h 48m 15.04846s -21:36:18.42867s
RUWE (>1.4 is poor) : 1.33
K magnitude          : 9.281
G magnitude          : 10.203
RP magnitude         : 9.883
BP magnitude         : 10.386
DUPflag             : 0
Distance (au)        : 4.145
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -15.13
Sun-Target sep (deg) : 165.02
Sun-Moon sep (deg)   : 150.40
B (ring opening deg) : -1.02
PA of pole (deg)     : -12.05
Pole direction: RA (deg): 268.05661
Dec (deg): 64.49656
C/A sky separation (") : 8.795
C/A sky separation (km) : 26442.4
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
    
```



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	2032-08-02T03:13:02.960	17.10	-28.03	71491.8	-20.41	-23.03
Jupiter	E	2032-08-02T05:40:28.599	-11.27x	2.23x	71491.8	-22.87	-25.72