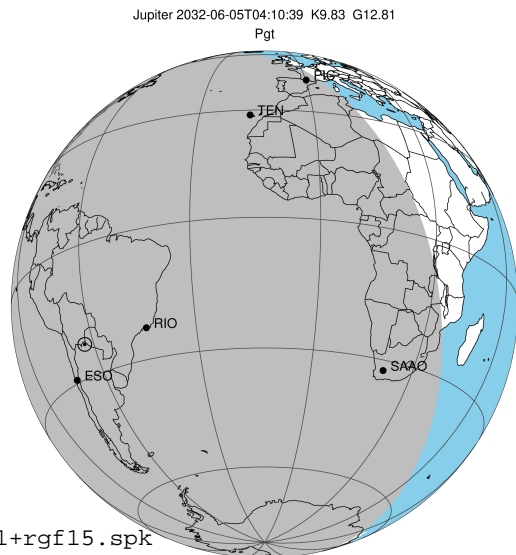


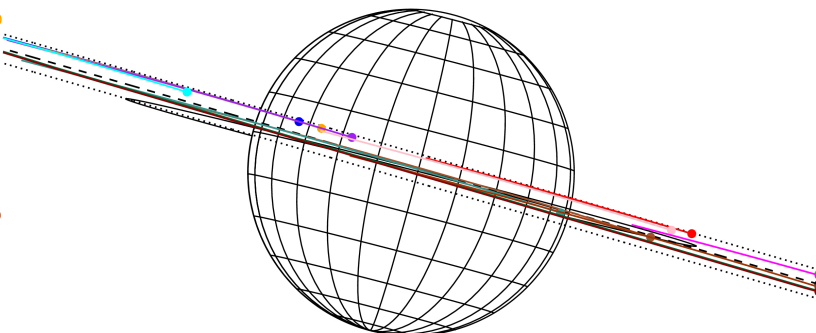
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2032-06-05T04:10:39.530
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 6854417545541845376
 2Mass ID (if available) : 20141555-2012077

Jupiter 2032-06-05T04:10:39 K9.83 G12.81 Pgt

ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
 RUWE (>1.4 is poor) : 1.00
 K magnitude : 9.834
 G magnitude : 12.810
 RP magnitude : 11.961
 BP magnitude : 13.573
 DUPflag : 0
 Distance (au) : 4.404
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -6.87
 Sun-Target sep (deg) : 133.36
 Sun-Moon sep (deg) : 98.45
 B (ring opening deg) : -0.99
 PA of pole (deg) : -14.48
 Pole direction: RA (deg): 268.05665
 Dec (deg): 64.49655
 C/A sky separation (") : 0.827
 C/A sky separation (km) : 2641.4
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk



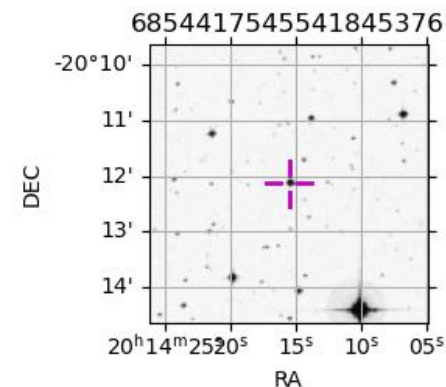
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 AAT
 SAAO
 MSO



2032-06-05T04:10:39.5300 az: 20 14 15.5514 s: -20 12 07.866 C/A 0.827 PA 163.89 deg v_sky - 6.87 km/s D 04.40 AU
 Credit: Styled after SORA/Lucky Star

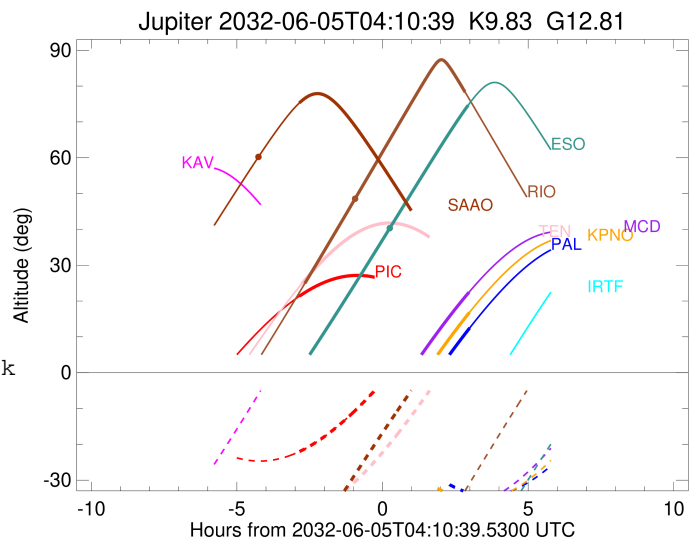
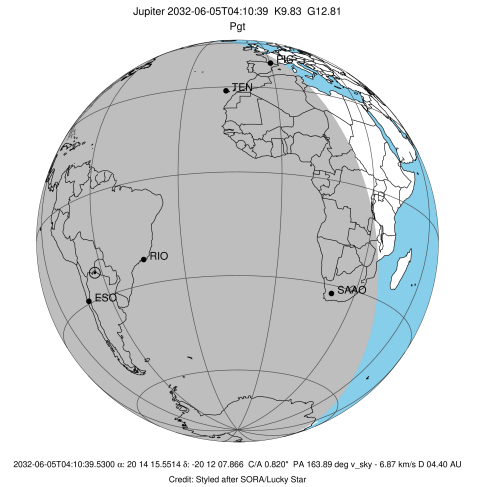
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	JUN 05 01:19 - JUN 05 01:19	Pin
PAL	Palomar Mt (200")	33.4	243.1	+	JUN 05 07:10 - JUN 05 07:10	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	JUN 05 07:09 - JUN 05 07:09	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	JUN 05 07:08 - JUN 05 07:08	Pne
TEN	Teide Obs./Tenerife	28.3	343.5	+	JUN 05 01:24 - JUN 05 01:24	Pin
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	+	JUN 05 01:30 - JUN 05 07:00	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	JUN 05 07:07 - JUN 05 07:07	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	JUN 05 01:19 - JUN 05 01:19	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-06-05T04:04:57.620
Event type            : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code         : PIC
Location              : Pic du Midi
Latitude (deg)        : 42.93656
E. Longitude (deg)    : 0.14231
Altitude (km)         : 2.890
Gaia source ID       : 6854417545541845376
2Mass ID (if available) : 20141555-2012077
ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.834
G magnitude           : 12.810
RP magnitude          : 11.961
BP magnitude          : 13.573
DUPflag              : 0
Distance (au)         : 4.404
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -6.87
Sun-Target sep (deg)  : 133.36
Sun-Moon sep (deg)    : 98.92
B (ring opening deg) : -0.99
PA of pole (deg)      : -14.48
Pole direction: RA (deg): 268.05665
Dec (deg): 64.49655
C/A sky separation (") : 2.440
C/A sky separation (km) : 7792.0
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
    
```

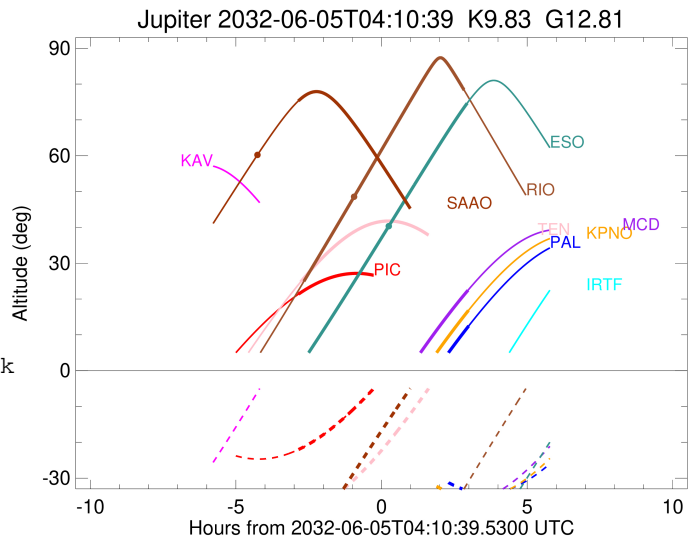
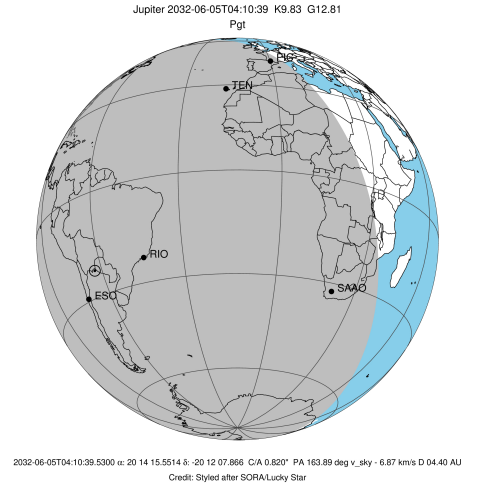


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-06-05T01:19:37.800	21.36	-22.02	71492.0	5.21	5.96
Jupiter	E	2032-06-05T06:50:49.314	10.43	24.56x	71492.0	6.77	7.72

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-06-05T04:20:29.380
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       : 6854417545541845376
2Mass ID (if available) : 20141555-2012077
ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.834
G magnitude          : 12.810
RP magnitude         : 11.961
BP magnitude         : 13.573
DUPflag             : 0
Distance (au)        : 4.403
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -6.87
Sun-Target sep (deg) : 133.36
Sun-Moon sep (deg)  : 98.00
B (ring opening deg) : -0.99
PA of pole (deg)    : -14.48
Pole direction: RA (deg): 268.05665
Dec (deg): 64.49655
C/A sky separation ("): 2.160
C/A sky separation (km): 6896.8
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
    
```

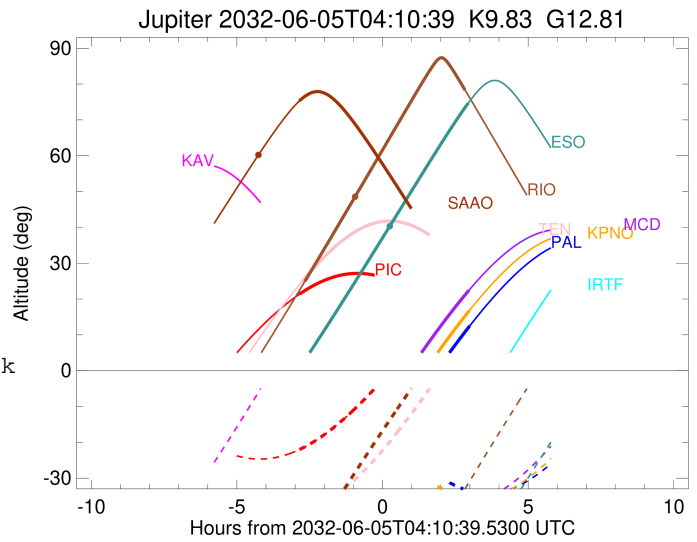
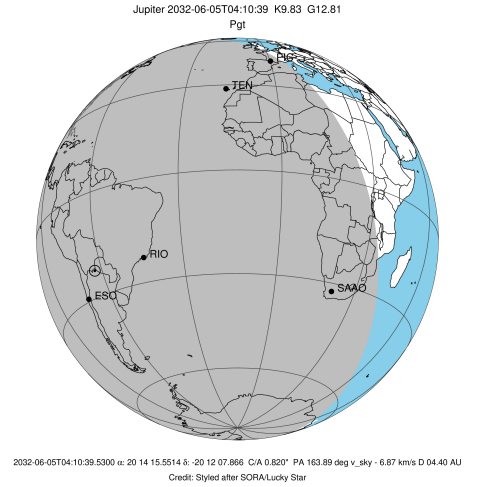


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-06-05T01:22:51.614	-57.23x	16.74x	71492.0	2.50	2.86
Jupiter	E	2032-06-05T07:10:14.376	12.48	-33.56	71492.0	8.01	9.14

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-06-05T04:20:50.760
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        : 6854417545541845376
2Mass ID (if available) : 20141555-2012077
ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.834
G magnitude           : 12.810
RP magnitude          : 11.961
BP magnitude          : 13.573
DUPflag              : 0
Distance (au)         : 4.403
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -6.87
Sun-Target sep (deg) : 133.36
Sun-Moon sep (deg)   : 98.06
B (ring opening deg) : -0.99
PA of pole (deg)     : -14.48
Pole direction: RA (deg): 268.05665
Dec (deg): 64.49655
C/A sky separation (") : 2.187
C/A sky separation (km) : 6984.0
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
    
```

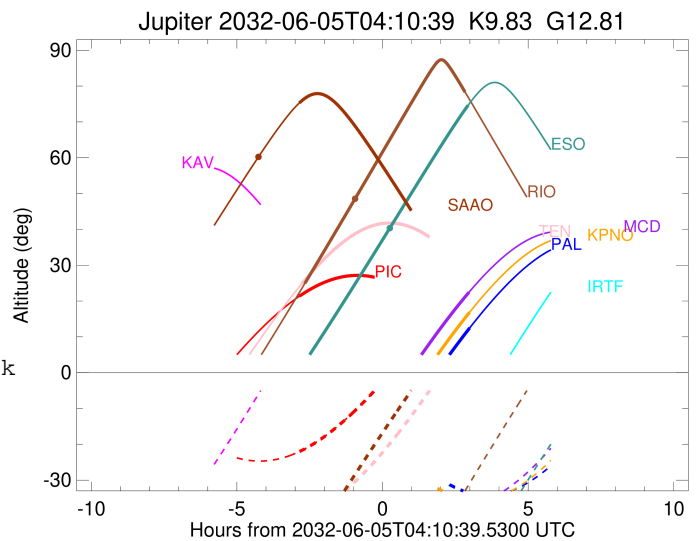
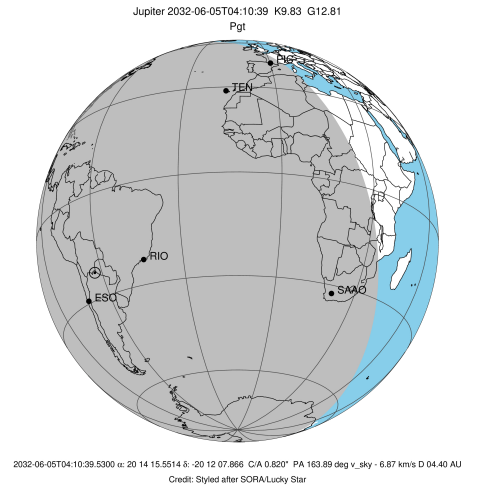


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-06-05T01:23:59.946	-52.93x	11.86x	71492.0	2.57	2.94
Jupiter	E	2032-06-05T07:09:46.148	16.80	-35.48	71492.0	7.99	9.12

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-06-05T04:21:01.560
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      : 6854417545541845376
2Mass ID (if available) : 20141555-2012077
ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.834
G magnitude          : 12.810
RP magnitude         : 11.961
BP magnitude         : 13.573
DUPflag             : 0
Distance (au)       : 4.403
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -6.87
Sun-Target sep (deg) : 133.36
Sun-Moon sep (deg)  : 98.17
B (ring opening deg) : -0.99
PA of pole (deg)    : -14.48
Pole direction: RA (deg): 268.05665
Dec (deg): 64.49655
C/A sky separation (") : 2.236
C/A sky separation (km) : 7140.9
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
    
```

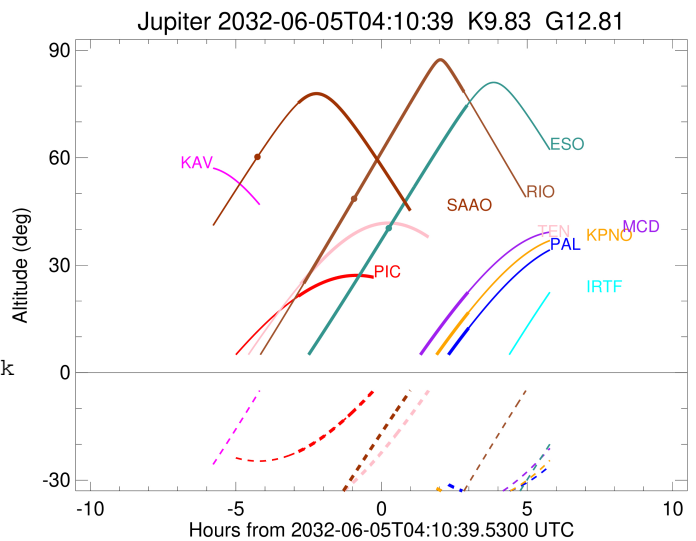
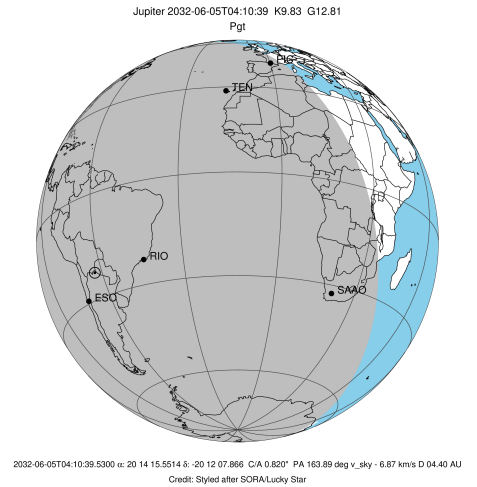


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-06-05T01:25:24.742	-46.29x	5.07x	71492.0	2.74	3.14
Jupiter	E	2032-06-05T07:08:49.025	22.44	-36.78	71492.0	7.97	9.10

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-06-05T04:08:38.940
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        : 6854417545541845376
2Mass ID (if available) : 20141555-2012077
ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
RUWE (>1.4 is poor)  : 1.00
K magnitude           : 9.834
G magnitude           : 12.810
RP magnitude          : 11.961
BP magnitude          : 13.573
DUPflag              : 0
Distance (au)         : 4.404
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -6.87
Sun-Target sep (deg)  : 133.36
Sun-Moon sep (deg)   : 99.09
B (ring opening deg) : -0.99
PA of pole (deg)     : -14.48
Pole direction: RA (deg): 268.05665
Dec (deg): 64.49655
C/A sky separation (") : 2.291
C/A sky separation (km) : 7317.8
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
    
```

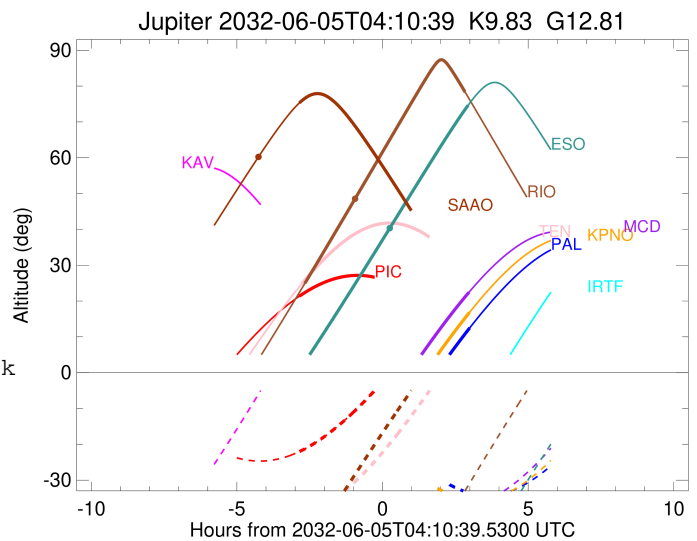
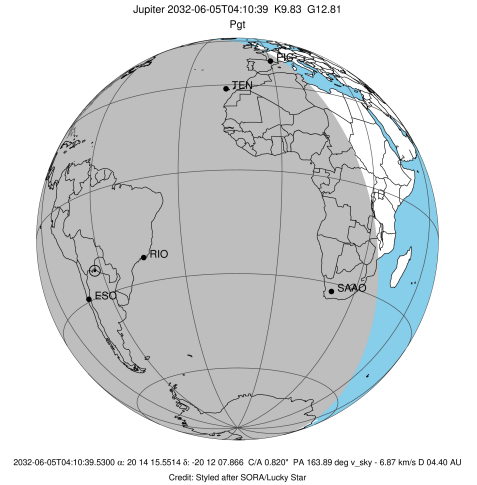


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-06-05T01:24:12.356	24.77	-39.06	71492.0	4.61	5.26
Jupiter	E	2032-06-05T06:52:14.330	30.07	7.90x	71492.0	6.34	7.24

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-06-05T04:17:38.270
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      : 6854417545541845376
2Mass ID (if available) : 20141555-2012077
ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.834
G magnitude          : 12.810
RP magnitude         : 11.961
BP magnitude         : 13.573
DUPflag             : 0
Distance (au)       : 4.403
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -6.87
Sun-Target sep (deg) : 133.36
Sun-Moon sep (deg)  : 99.21
B (ring opening deg) : -0.99
PA of pole (deg)    : -14.48
Pole direction: RA (deg): 268.05665
Dec (deg): 64.49655
C/A sky separation (") : 0.911
C/A sky separation (km) : 2910.2
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
    
```

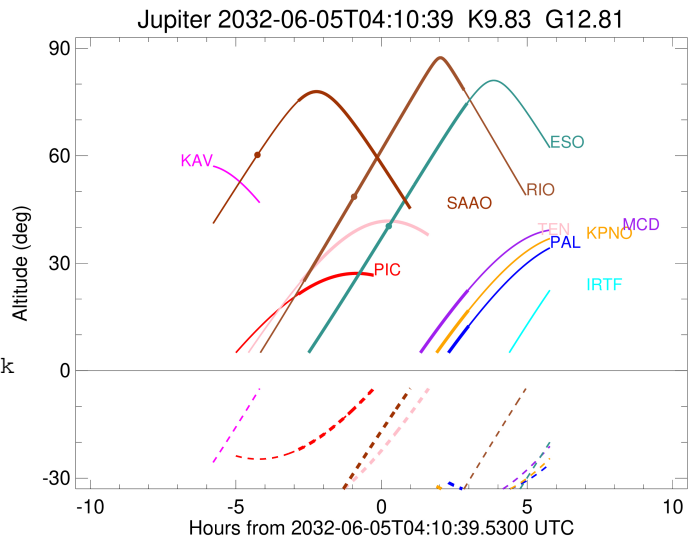
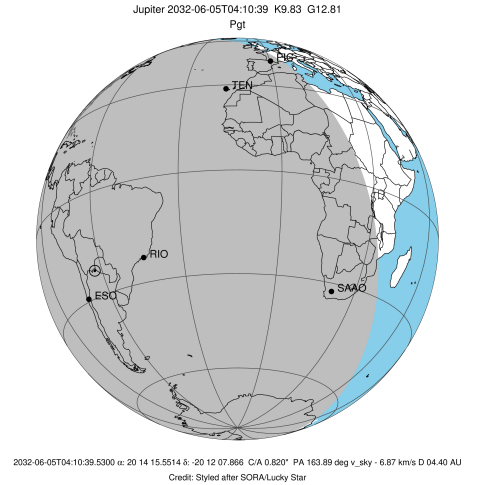


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-06-05T01:30:52.075	24.96	-71.43	71492.0	0.46	0.53
Jupiter	E	2032-06-05T07:00:51.377	78.31	-32.95	71492.0	3.19	3.64

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2032-06-05T04:22:28.970
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       : 6854417545541845376
2Mass ID (if available) : 20141555-2012077
ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
RUWE (>1.4 is poor) : 1.00
K magnitude          : 9.834
G magnitude          : 12.810
RP magnitude         : 11.961
BP magnitude         : 13.573
DUPflag             : 0
Distance (au)        : 4.403
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -6.87
Sun-Target sep (deg) : 133.36
Sun-Moon sep (deg)   : 98.90
B (ring opening deg) : -0.99
PA of pole (deg)     : -14.48
Pole direction: RA (deg): 268.05665
Dec (deg): 64.49655
C/A sky separation (") : 0.682
C/A sky separation (km) : 2179.4
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
    
```

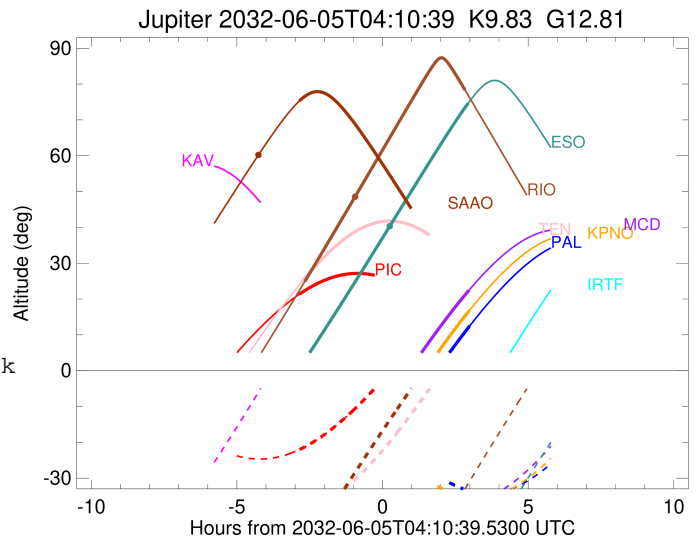
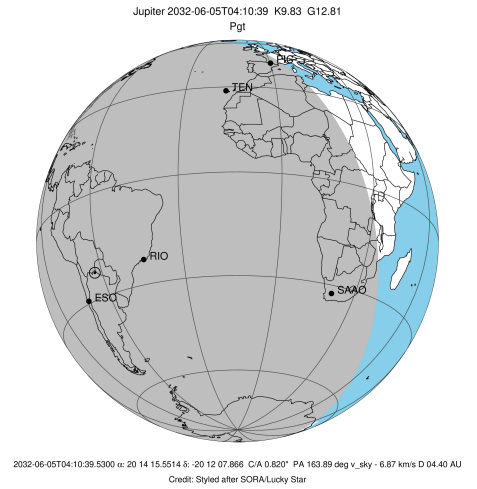


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2032-06-05T01:31:46.097	3.21x	-47.10	71492.0	-0.72	-0.82
Jupiter	E	2032-06-05T07:07:15.791	74.68	-56.71	71492.0	3.22	3.68


```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2032-06-05T04:05:05.020
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       : 6854417545541845376
2Mass ID (if available) : 20141555-2012077
ICRS Star Coord at Epoch: 20h 14m 15.55144s -20:12:07.86606s
RUWE (>1.4 is poor) : 1.00
K magnitude           : 9.834
G magnitude           : 12.810
RP magnitude          : 11.961
BP magnitude          : 13.573
DUPflag              : 0
Distance (au)        : 4.404
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -6.87
Sun-Target sep (deg) : 133.36
Sun-Moon sep (deg)   : 99.31
B (ring opening deg) : -0.99
PA of pole (deg)     : -14.48
Pole direction: RA (deg): 268.05665
Dec (deg): 64.49655
C/A sky separation ("): 0.088
C/A sky separation (km): 281.2
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	2032-06-05T01:19:39.219	75.32	-52.52	71492.0	-0.37	-0.43
Jupiter	E	2032-06-05T06:53:19.935	23.40	13.74x	71492.0	0.49	0.57