

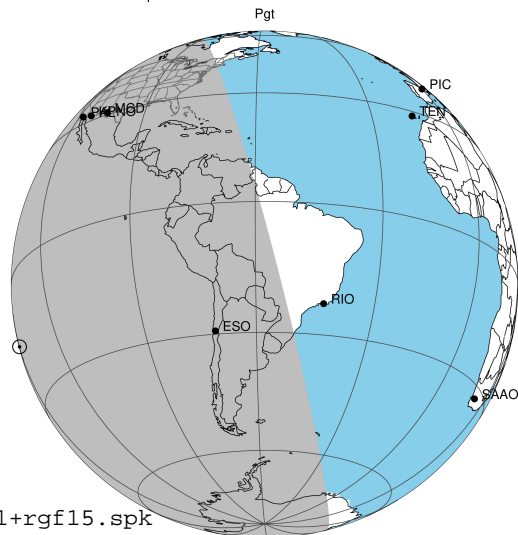
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2044-04-29T09:53:03.940  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 6859985506784302720  
 2Mass ID (if available) : 20310973-1914250

Jupiter 2044-04-29T09:53:03 K9.91 G12.28 Pgt

ICRS Star Coord at Epoch: 20h 31m 09.74390s -19:14:25.13248s

RUWE (>1.4 is poor) : 1.01  
 K magnitude : 9.912  
 G magnitude : 12.284  
 RP magnitude : 11.559  
 BP magnitude : 12.872  
 DUPflag : 0  
 Distance (au) : 4.989  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 11.54  
 Sun-Target sep (deg) : 93.77  
 Sun-Moon sep (deg) : 115.70  
 B (ring opening deg) : -0.87  
 PA of pole (deg) : -15.98  
 Pole direction: RA (deg): 268.05685  
 Dec (deg): 64.49729  
 C/A sky separation (") : 9.202  
 C/A sky separation (km) : 33296.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2044-04-29T09:53:03 K9.91 G12.28

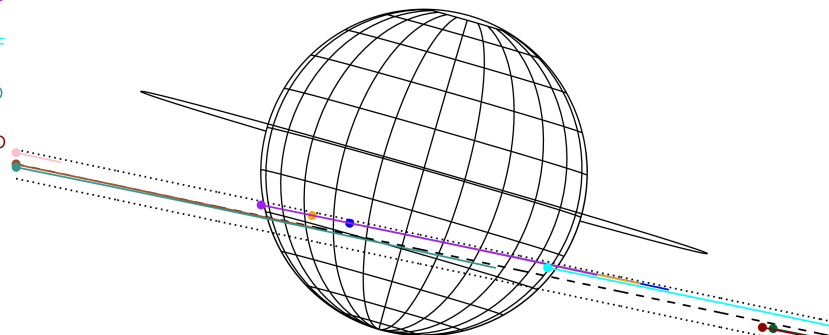


2044-04-29T09:53:03.9400 cc: 20 31 09.7439 s: -19 14 25.132 C/A 9.209° PA 348.09 deg v\_sky +11.54 km/s D 04.99 AU

Credit: Styled after SORA/Lucky Star

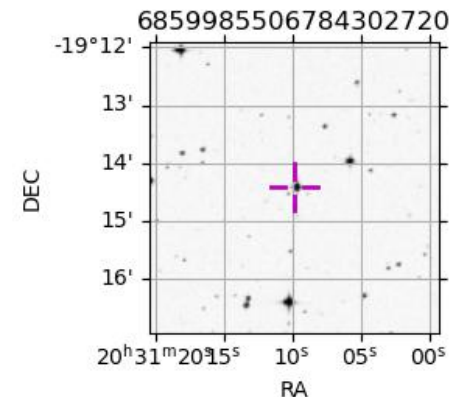
Earth

- PAL
- KPNO
- MCD
- TEN
- IRTF
- RIO
- ESO
- AAT
- MSO



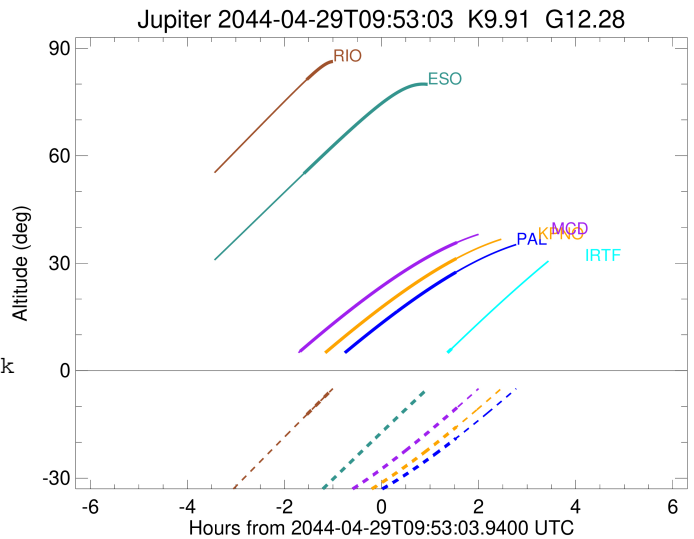
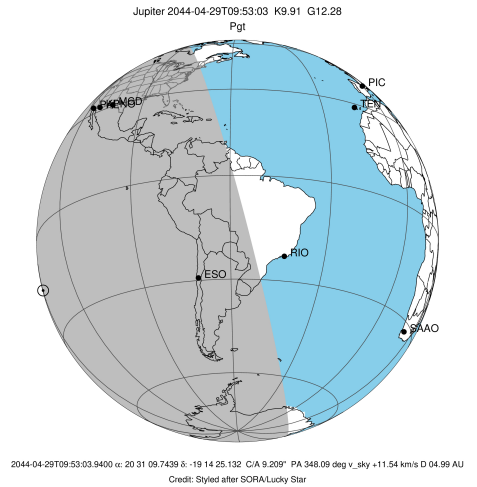
Observable events with sun below -5 deg and altitude above 5 deg

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 29 11:25 - APR 29 11:25		Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8				Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	APR 29 11:25 - APR 29 11:25		Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+ +	APR 29 08:12 - APR 29 11:26		Pie
TEN	Teide Obs./Tenerife	28.3	343.5				Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	APR 29 11:19 - APR 29 11:19		Pne
KAV	Kavalur Observatory	12.6	78.8				Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	APR 29 08:20 - APR 29 08:20		Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	APR 29 08:17 - APR 29 08:17		Pin
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            : 2044-04-29T09:48:01.930
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      : 6859985506784302720
2Mass ID (if available) : 20310973-1914250
ICRS Star Coord at Epoch: 20h 31m 09.74390s -19:14:25.13248s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 9.912
G magnitude          : 12.284
RP magnitude         : 11.559
BP magnitude         : 12.872
DUPflag             : 0
Distance (au)       : 4.989
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.54
Sun-Target sep (deg) : 93.77
Sun-Moon sep (deg)  : 115.70
B (ring opening deg) : -0.87
PA of pole (deg)    : -15.98
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49729
C/A sky separation ("): 7.809
C/A sky separation (km): 28255.5
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
    
```

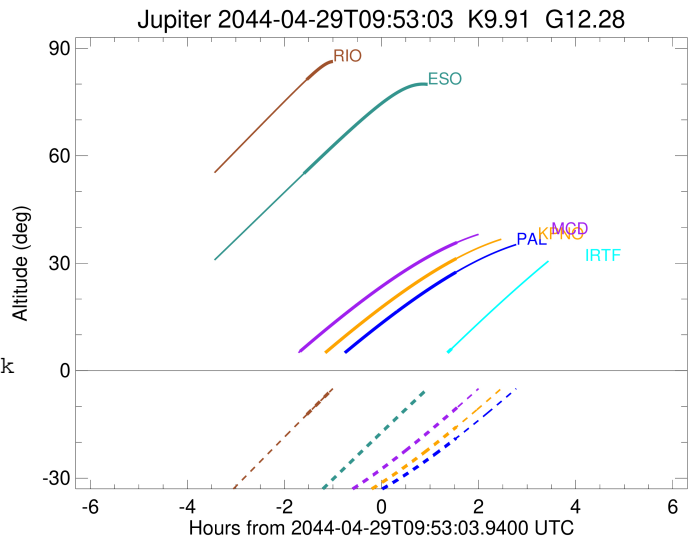
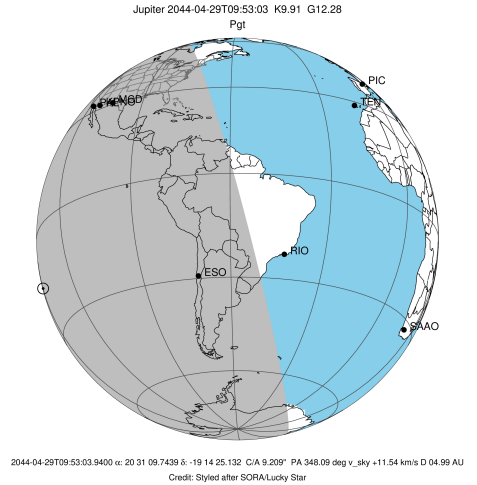


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-04-29T08:12:18.261	-5.72x	-41.66	71491.8	-27.81	-31.04
Jupiter	E	2044-04-29T11:25:09.016	27.49	-18.88	71491.9	-19.02	-21.49

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-04-29T09:48:16.670
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      : 6859985506784302720
2Mass ID (if available) : 20310973-1914250
ICRS Star Coord at Epoch: 20h 31m 09.74390s -19:14:25.13248s
RUWE (>1.4 is poor) : 1.01
K magnitude          : 9.912
G magnitude          : 12.284
RP magnitude         : 11.559
BP magnitude         : 12.872
DUPflag             : 0
Distance (au)       : 4.989
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.54
Sun-Target sep (deg) : 93.77
Sun-Moon sep (deg)  : 115.78
B (ring opening deg) : -0.87
PA of pole (deg)    : -15.98
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49729
C/A sky separation (") : 7.812
C/A sky separation (km) : 28267.5
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
    
```

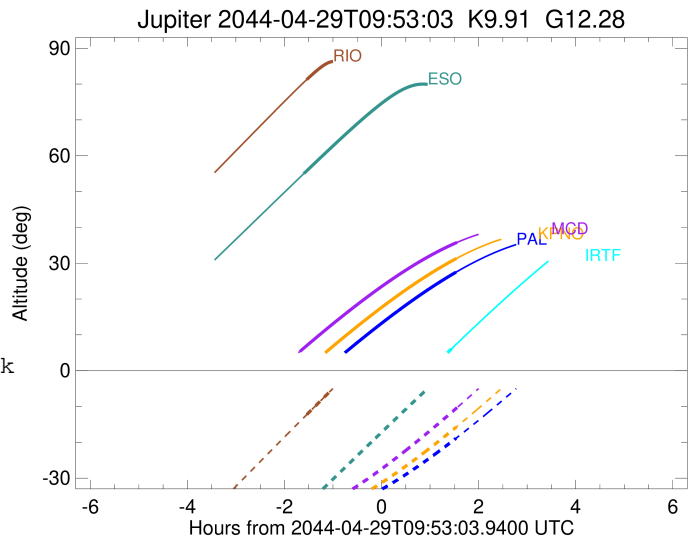
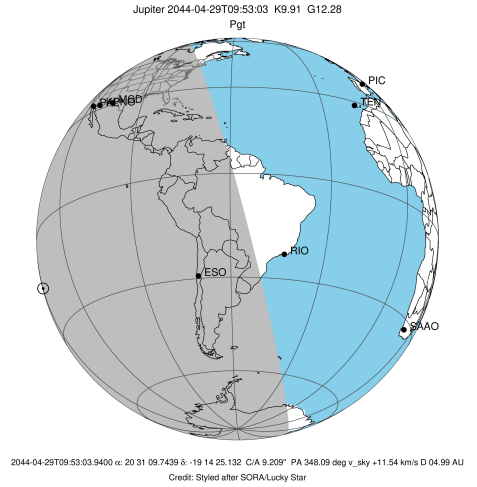


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-04-29T08:12:16.473	-1.08x	-42.06	71491.8	-27.77	-31.00
Jupiter	E	2044-04-29T11:25:37.558	31.31	-15.70	71491.9	-19.09	-21.57

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2044-04-29T09:48:48.320
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       : 6859985506784302720
2Mass ID (if available) : 20310973-1914250
ICRS Star Coord at Epoch: 20h 31m 09.74390s -19:14:25.13248s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.912
G magnitude           : 12.284
RP magnitude         : 11.559
BP magnitude         : 12.872
DUPflag              : 0
Distance (au)        : 4.989
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.54
Sun-Target sep (deg) : 93.77
Sun-Moon sep (deg)   : 115.89
B (ring opening deg) : -0.87
PA of pole (deg)     : -15.98
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49729
C/A sky separation (") : 7.812
C/A sky separation (km) : 28267.6
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
    
```

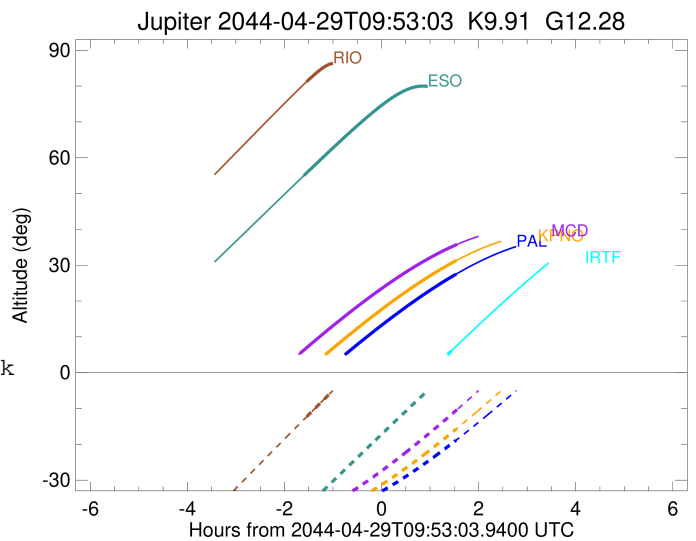
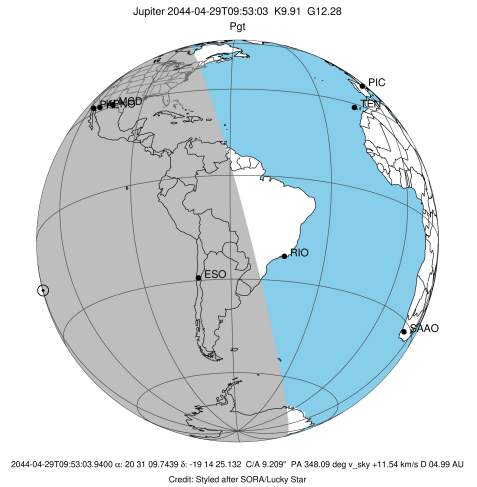


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-04-29T08:12:24.684	5.39	-40.95	71491.8	-27.69	-30.92
Jupiter	E	2044-04-29T11:26:26.837	35.80	-10.32	71491.9	-19.20	-21.69

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-04-29T09:45:48.060
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        : 6859985506784302720
2Mass ID (if available) : 20310973-1914250
ICRS Star Coord at Epoch: 20h 31m 09.74390s -19:14:25.13248s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.912
G magnitude           : 12.284
RP magnitude          : 11.559
BP magnitude          : 12.872
DUPflag              : 0
Distance (au)         : 4.989
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 11.54
Sun-Target sep (deg)  : 93.77
Sun-Moon sep (deg)   : 115.15
B (ring opening deg) : -0.87
PA of pole (deg)     : -15.98
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49729
C/A sky separation (") : 8.396
C/A sky separation (km) : 30382.1
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
    
```

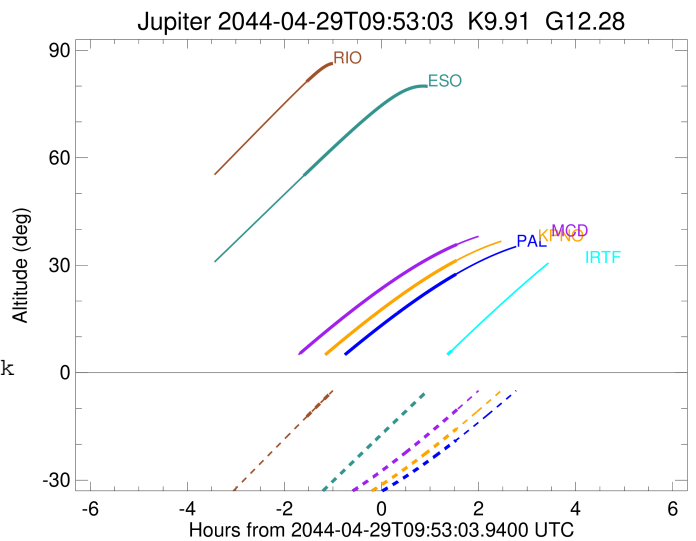
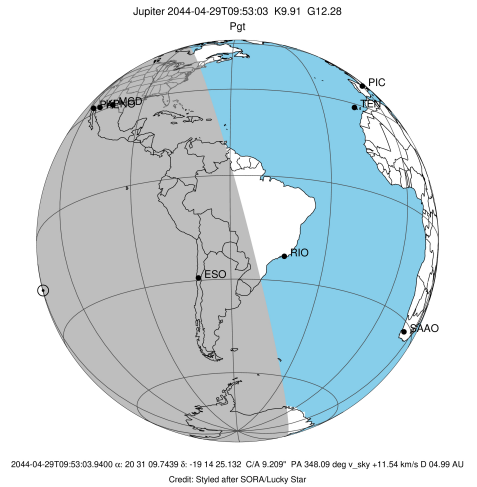


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-04-29T08:13:33.285	-36.08x	-43.77	71491.7	-30.01	-33.38
Jupiter	E	2044-04-29T11:19:39.374	6.11	-52.47	71491.9	-20.40	-23.02

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-04-29T09:54:31.870
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       : 6859985506784302720
2Mass ID (if available) : 20310973-1914250
ICRS Star Coord at Epoch: 20h 31m 09.74390s -19:14:25.13248s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.912
G magnitude           : 12.284
RP magnitude         : 11.559
BP magnitude         : 12.872
DUPflag              : 0
Distance (au)        : 4.989
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.54
Sun-Target sep (deg) : 93.77
Sun-Moon sep (deg)   : 116.66
B (ring opening deg) : -0.87
PA of pole (deg)     : -15.98
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49729
C/A sky separation (") : 9.419
C/A sky separation (km) : 34080.7
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
    
```

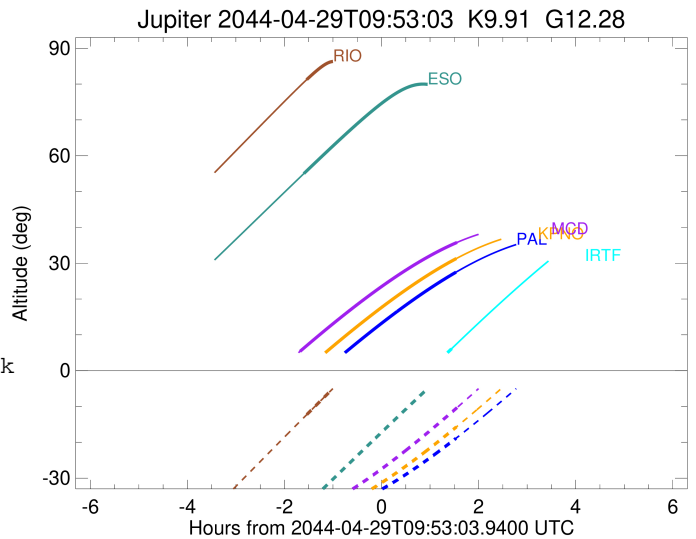
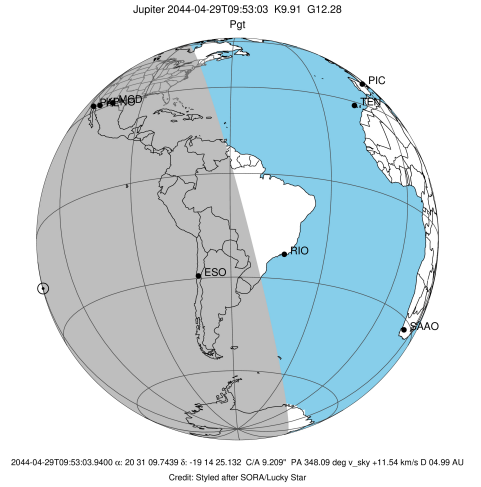


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2044-04-29T08:20:40.854	81.25	-12.27	71491.7	-32.03	-35.51
Jupiter	E	2044-04-29T11:28:13.208	53.95	27.97x	71491.8	-25.12	-28.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2044-04-29T09:50:39.010
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       : 6859985506784302720
2Mass ID (if available) : 20310973-1914250
ICRS Star Coord at Epoch: 20h 31m 09.74390s -19:14:25.13248s
RUWE (>1.4 is poor) : 1.01
K magnitude           : 9.912
G magnitude           : 12.284
RP magnitude          : 11.559
BP magnitude          : 12.872
DUPflag              : 0
Distance (au)        : 4.989
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.54
Sun-Target sep (deg) : 93.77
Sun-Moon sep (deg)   : 116.46
B (ring opening deg) : -0.87
PA of pole (deg)     : -15.98
Pole direction: RA (deg): 268.05685
Dec (deg): 64.49729
C/A sky separation (") : 9.439
C/A sky separation (km) : 34156.4
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	2044-04-29T08:17:16.310	55.05	-38.09	71491.7	-32.49	-35.99
Jupiter	E	2044-04-29T11:24:32.010	76.43	2.22x	71491.8	-24.88	-27.90