

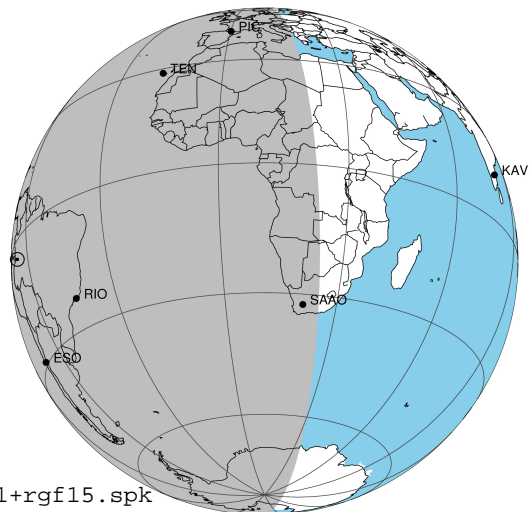
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-04-01T04:34:36.800
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4068702685188835584
 2Mass ID (if available) : 17521776-2253402

Jupiter 2031-04-01T04:34:36 K9.10 G14.87 Pgt

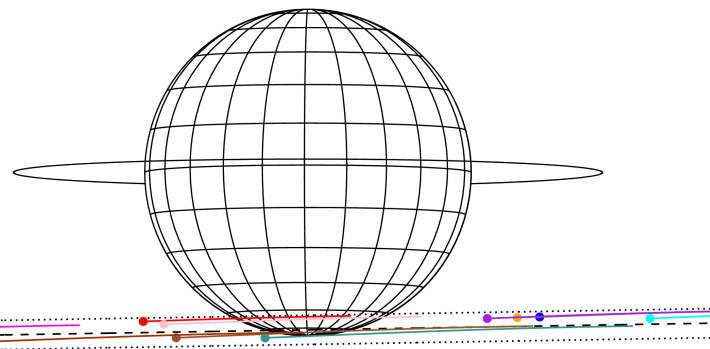
ICRS Star Coord at Epoch: 17h 52m 17.75953s -22:53:40.37290s

RUWE (>1.4 is poor) : 1.04
 K magnitude : 9.096
 G magnitude : 14.875
 RP magnitude : 13.488
 BP magnitude : 17.316
 DUPflag : 0
 Distance (au) : 4.997
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 6.65
 Sun-Target sep (deg) : 102.60
 Sun-Moon sep (deg) : 154.44
 B (ring opening deg) : -2.61
 PA of pole (deg) : -0.01
 Pole direction: RA (deg): 268.05698
 Dec (deg): 64.49651
 C/A sky separation (") : 19.018
 C/A sky separation (km) : 68925.5
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

Jupiter 2031-04-01T04:34:36 K9.10 G14.87
 Pgt



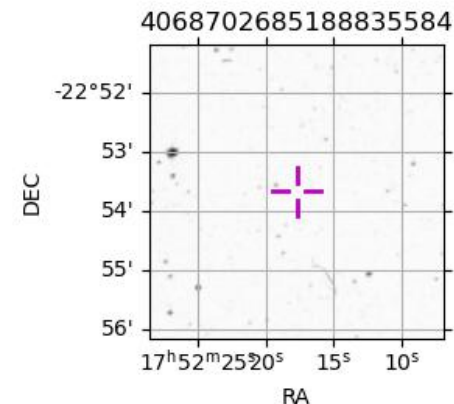
Earth
 PIC
 PAL
 PMO
 KPNO
 MCD
 TEN
 IRTF
 KAV
 RIO
 ESO
 SAAO



2031-04-01T04:34:36.8000 α: 17 52 17.7595 δ: -22 53 40.373 C/A ***** PA 0.95 deg v_sky + 6.65 km/s D 05.00 AU
 Credit: Styled after SORA/Lucky Star

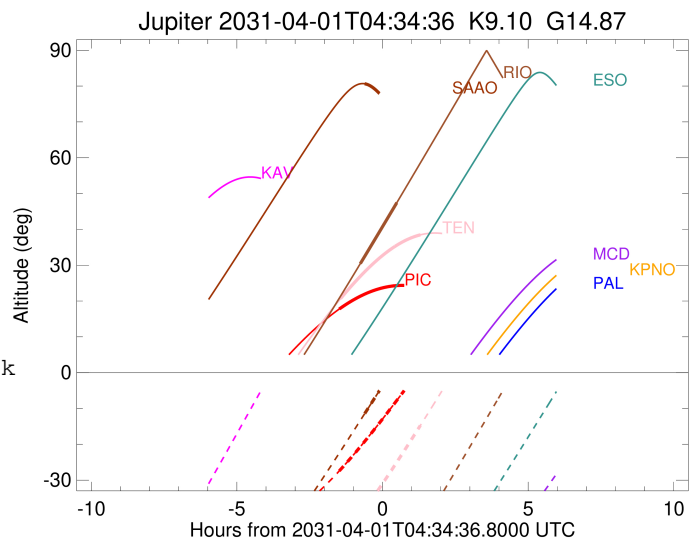
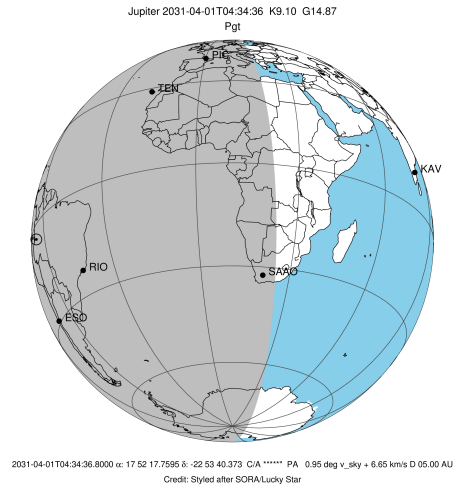
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	APR 01 03:05 - APR 01 03:05	Pin
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	APR 01 03:08 - APR 01 05:52	Pie
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	+ +	APR 01 03:49 - APR 01 05:04	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	APR 01 03:58 - APR 01 03:58	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-04-01T04:32:57.410
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      : 4068702685188835584
2Mass ID (if available) : 17521776-2253402
ICRS Star Coord at Epoch: 17h 52m 17.75953s -22:53:40.37290s
RUWE (>1.4 is poor) : 1.04
K magnitude          : 9.096
G magnitude          : 14.875
RP magnitude         : 13.488
BP magnitude         : 17.316
DUPflag             : 0
Distance (au)       : 4.997
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 6.65
Sun-Target sep (deg) : 102.60
Sun-Moon sep (deg)  : 154.58
B (ring opening deg) : -2.61
PA of pole (deg)    : -0.01
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 17.429
C/A sky separation (km) : 63166.5
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
    
```

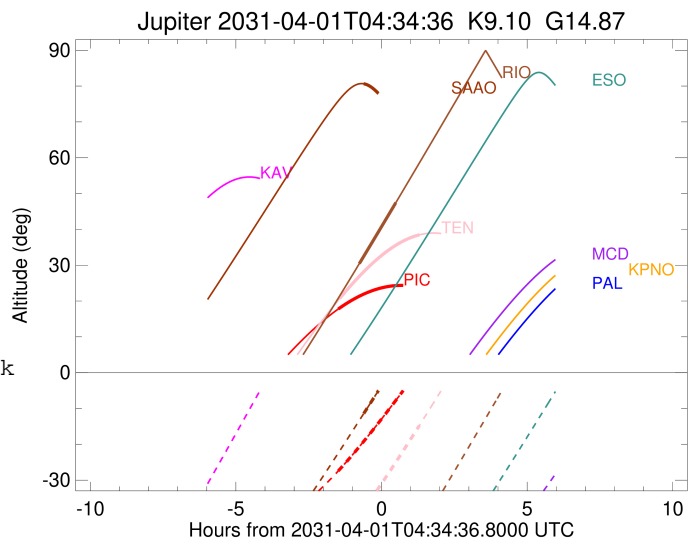
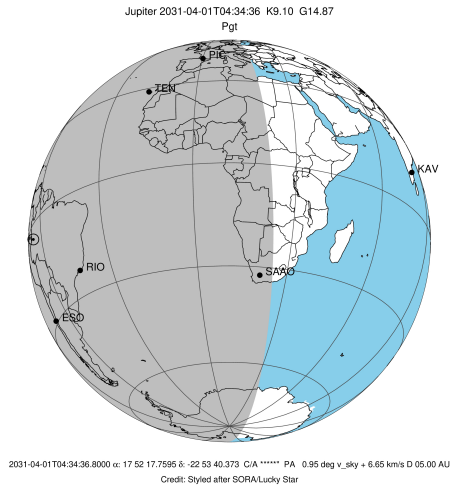


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-04-01T03:05:45.556	17.79	-27.39	71484.5	-63.40	-66.21
Jupiter	E	2031-04-01T06:00:52.109	23.55	2.57x	71484.8	-60.98	-63.98

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-04-01T04:29:50.780
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      : 4068702685188835584
2Mass ID (if available) : 17521776-2253402
ICRS Star Coord at Epoch: 17h 52m 17.75953s -22:53:40.37290s
RUWE (>1.4 is poor) : 1.04
K magnitude          : 9.096
G magnitude          : 14.875
RP magnitude         : 13.488
BP magnitude         : 17.316
DUPflag             : 0
Distance (au)       : 4.997
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 6.65
Sun-Target sep (deg) : 102.60
Sun-Moon sep (deg)   : 154.88
B (ring opening deg) : -2.61
PA of pole (deg)     : -0.01
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 17.733
C/A sky separation (km) : 64269.5
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
    
```

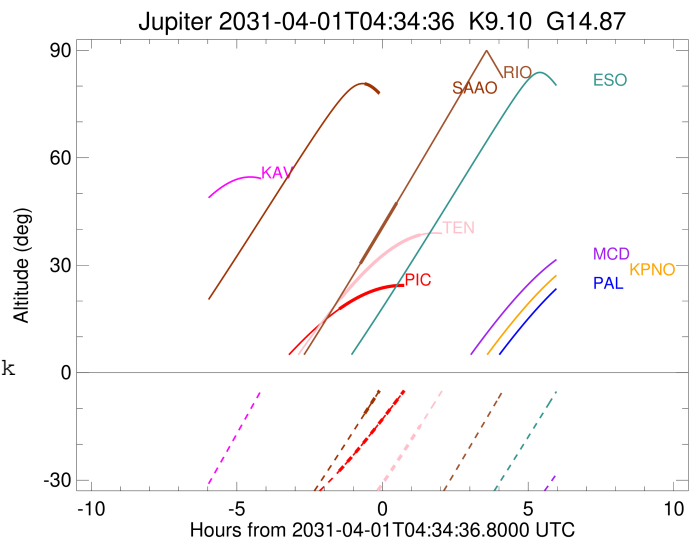
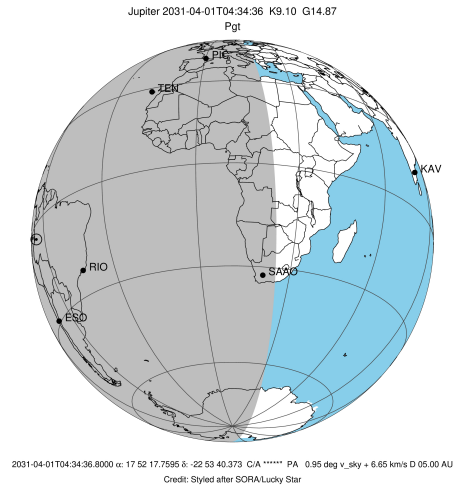


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-04-01T03:08:16.530	20.67	-46.75	71484.2	-65.79	-68.39
Jupiter	E	2031-04-01T05:52:35.052	38.47	-14.75	71484.6	-62.47	-65.35

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-04-01T04:26:19.020
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      : 4068702685188835584
2Mass ID (if available) : 17521776-2253402
ICRS Star Coord at Epoch: 17h 52m 17.75953s -22:53:40.37290s
RUWE (>1.4 is poor) : 1.04
K magnitude          : 9.096
G magnitude          : 14.875
RP magnitude         : 13.488
BP magnitude         : 17.316
DUPflag             : 0
Distance (au)        : 4.997
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 6.65
Sun-Target sep (deg) : 102.60
Sun-Moon sep (deg)  : 155.31
B (ring opening deg) : -2.61
PA of pole (deg)    : -0.01
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (" ) : 19.312
C/A sky separation (km) : 69994.1
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
    
```

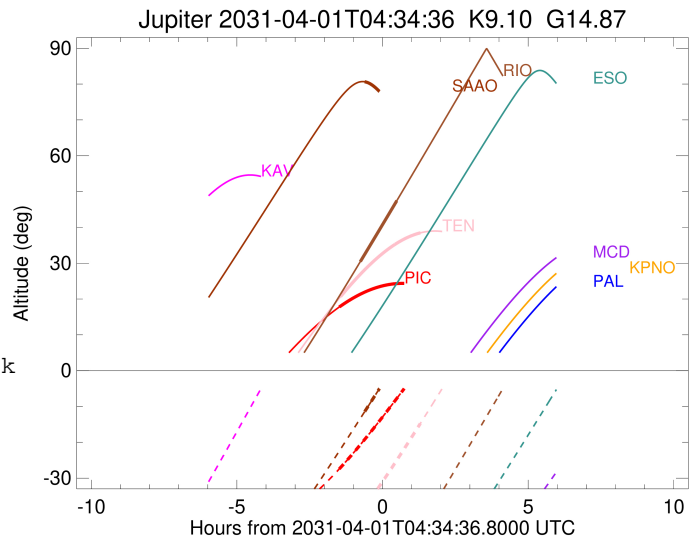
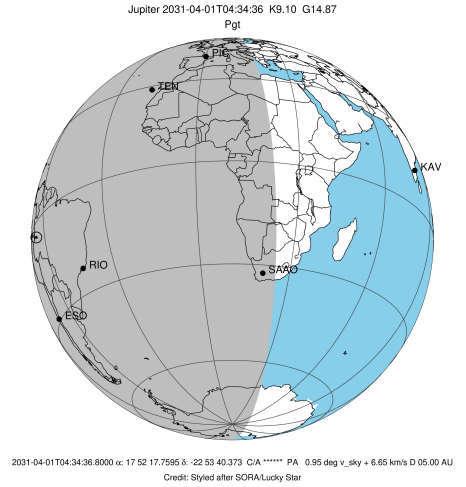


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-04-01T03:48:59.625	30.45	-67.78	71482.9	-80.20	-81.34
Jupiter	E	2031-04-01T05:04:01.226	47.43	-54.26	71483.2	-75.89	-77.51

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-04-01T04:36:30.710
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     : 4068702685188835584
2Mass ID (if available) : 17521776-2253402
ICRS Star Coord at Epoch: 17h 52m 17.75953s -22:53:40.37290s
RUWE (>1.4 is poor) : 1.04
K magnitude         : 9.096
G magnitude         : 14.875
RP magnitude        : 13.488
BP magnitude        : 17.316
DUPflag            : 0
Distance (au)      : 4.997
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 6.65
Sun-Target sep (deg) : 102.60
Sun-Moon sep (deg)  : 154.71
B (ring opening deg) : -2.61
PA of pole (deg)    : -0.01
Pole direction: RA (deg): 268.05698
Dec (deg): 64.49651
C/A sky separation (") : 19.309
C/A sky separation (km) : 69980.2
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	2031-04-01T03:58:06.428	80.63	-11.39	71483.0	-78.78	-80.08
Jupiter	E	2031-04-01T05:14:55.891	69.73	4.80x	71483.1	-77.34	-78.80