

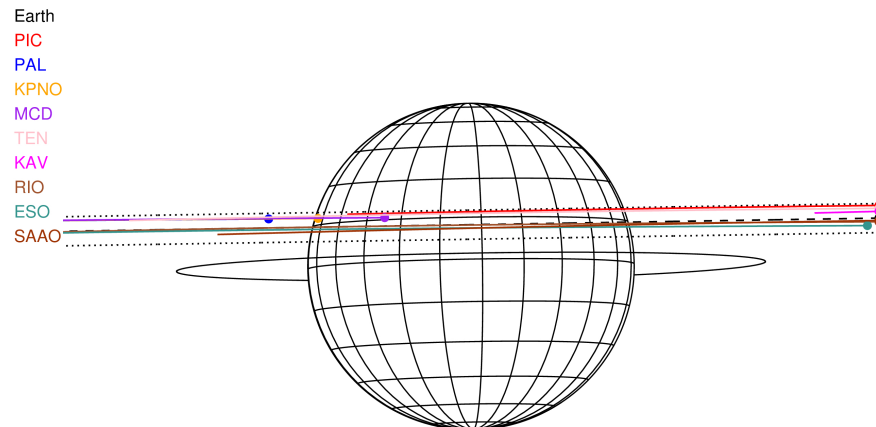
target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2031-05-26T03:01:29.620
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4116881253085024512
 2Mass ID (if available) : 17431020-2252390

Jupiter 2031-05-26T03:01:29 K8.47 G14.38 Pgt

ICRS Star Coord at Epoch: 17h 43m 10.19558s -22:52:39.04959s
 RUWE (>1.4 is poor) : 0.95
 K magnitude : 8.474
 G magnitude : 14.379
 RP magnitude : 12.918
 BP magnitude : 17.215
 DUPflag : 0
 Distance (au) : 4.334
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : -14.34
 Sun-Target sep (deg) : 158.14
 Sun-Moon sep (deg) : 148.79
 B (ring opening deg) : -2.61
 PA of pole (deg) : 0.98
 Pole direction: RA (deg): 268.05694
 Dec (deg): 64.49651
 C/A sky separation (") : 5.827
 C/A sky separation (km) : 18313.8
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk

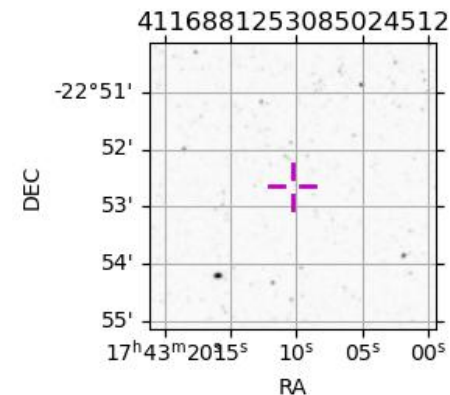


2031-05-26T03:01:29.6200 at: 17 43 10.1956 s: -22 52 39.050 C/A 5.815" PA 180.93 deg v_sky -14.34 km/s D 04.33 AU
 Credit: Styled after SORA/Lucky Star



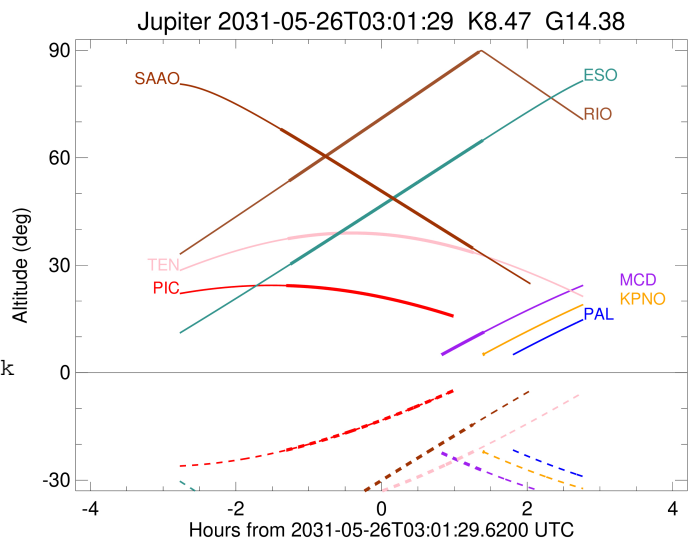
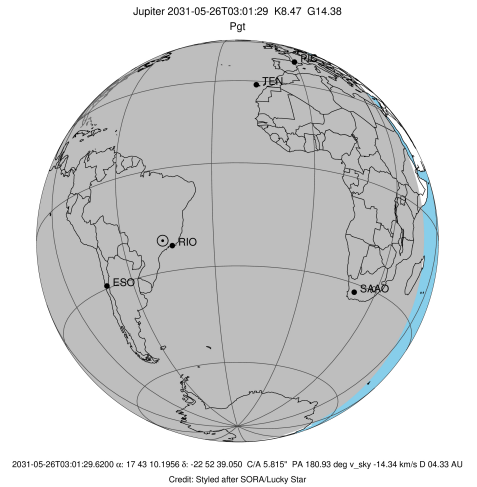
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events	Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	MAY 26 01:43	- MAY 26 01:43	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	+	MAY 26 04:26	- MAY 26 04:26	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAY 26 04:26	- MAY 26 04:26	Pne
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	MAY 26 01:44	- MAY 26 04:17	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	+ +	MAY 26 01:45	- MAY 26 04:21	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAY 26 01:46	- MAY 26 04:25	Pie
AAT	Siding Spring (AAT)	-31.3	149.1				Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	MAY 26 01:38	- MAY 26 04:16	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0				Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T02:59:36.290
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     : 4116881253085024512
2Mass ID (if available) : 17431020-2252390
ICRS Star Coord at Epoch: 17h 43m 10.19558s -22:52:39.04959s
RUWE (>1.4 is poor) : 0.95
K magnitude        : 8.474
G magnitude        : 14.379
RP magnitude       : 12.918
BP magnitude       : 17.215
DUPflag           : 0
Distance (au)     : 4.334
f0 (km)           : 0.00
g0 (km)           : 0.00
skyplane vel. (km/s) : -14.34
Sun-Target sep (deg) : 158.14
Sun-Moon sep (deg) : 148.66
B (ring opening deg) : -2.61
PA of pole (deg)   : 0.98
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 7.637
C/A sky separation (km) : 24004.1
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
    
```

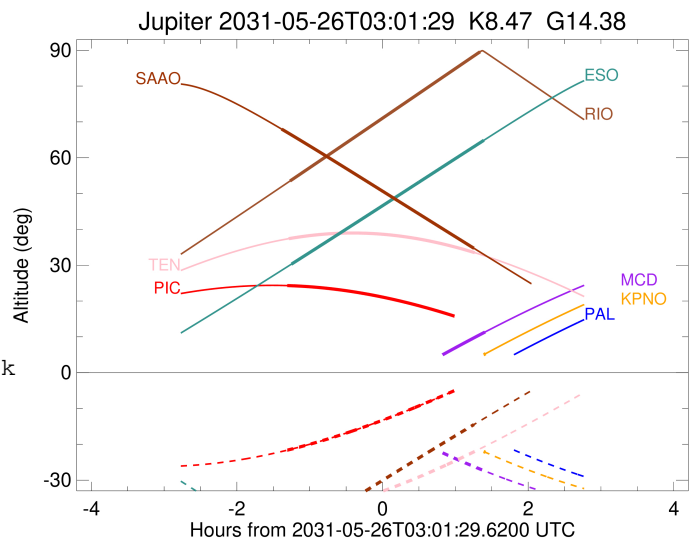
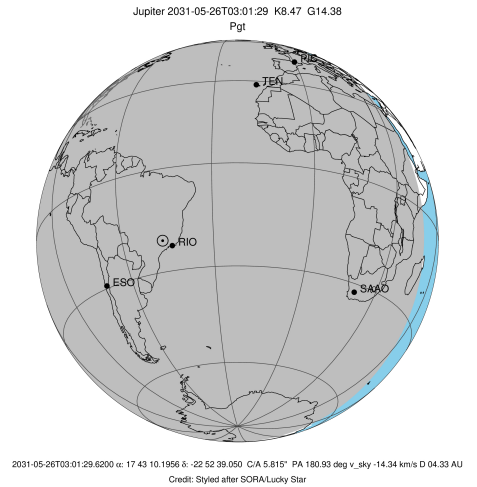


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T01:43:01.210	24.30	-21.63	71491.0	19.64	22.18
Jupiter	E	2031-05-26T04:16:21.446	14.04	-2.62x	71491.0	19.39	21.90

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T03:07:33.980
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       : 4116881253085024512
2Mass ID (if available) : 17431020-2252390
ICRS Star Coord at Epoch: 17h 43m 10.19558s -22:52:39.04959s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.474
G magnitude           : 14.379
RP magnitude          : 12.918
BP magnitude          : 17.215
DUPflag              : 0
Distance (au)         : 4.334
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.34
Sun-Target sep (deg) : 158.14
Sun-Moon sep (deg)   : 149.31
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.98
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (" ) : 6.819
C/A sky separation (km) : 21431.9
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
    
```

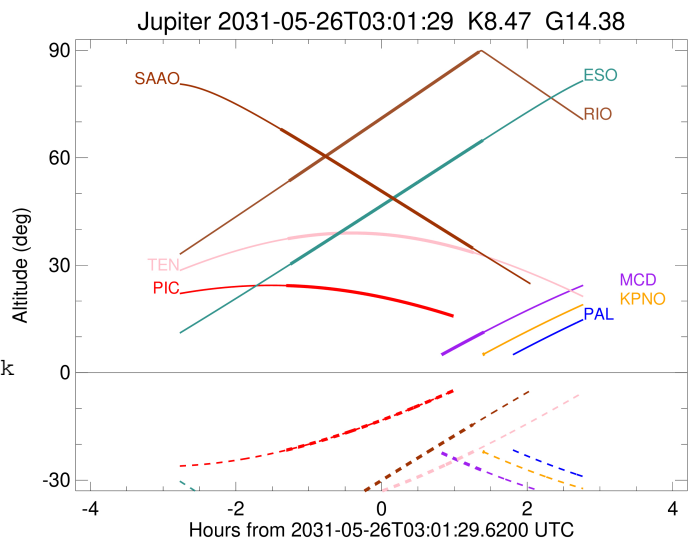
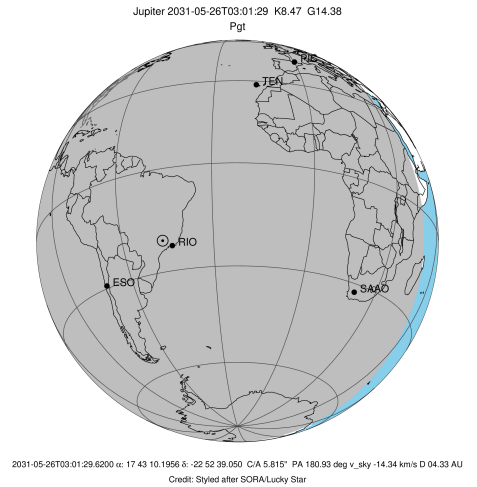


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T01:47:57.942	-26.07x	6.00x	71491.2	16.77	19.00
Jupiter	E	2031-05-26T04:26:22.488	5.28	-22.24	71491.1	18.07	20.44

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T03:07:33.620
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      : 4116881253085024512
2Mass ID (if available) : 17431020-2252390
ICRS Star Coord at Epoch: 17h 43m 10.19558s -22:52:39.04959s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 8.474
G magnitude          : 14.379
RP magnitude         : 12.918
BP magnitude         : 17.215
DUPflag             : 0
Distance (au)       : 4.334
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : -14.34
Sun-Target sep (deg) : 158.14
Sun-Moon sep (deg)  : 149.37
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.98
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 6.872
C/A sky separation (km) : 21601.1
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
    
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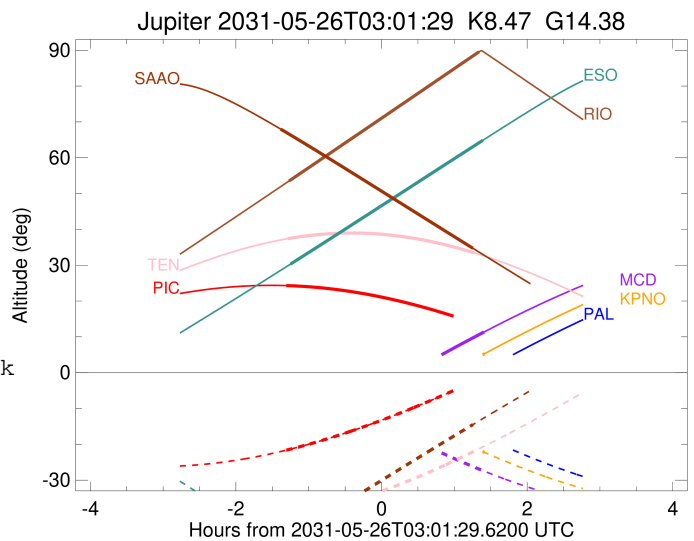
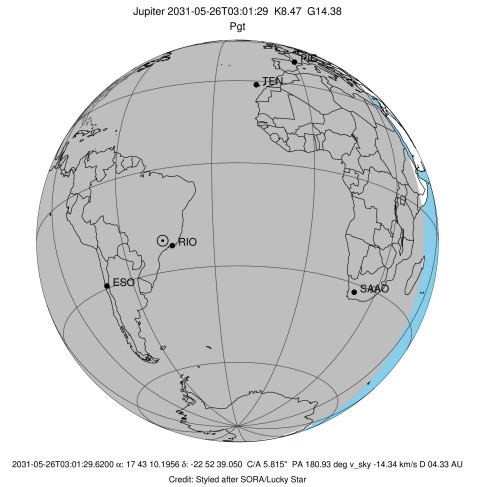


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T01:48:18.327	-19.40x	-0.54x	71491.2	16.90	19.14
Jupiter	E	2031-05-26T04:26:02.000	11.35	-27.48	71491.1	18.20	20.59

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T03:00:54.570
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       : 4116881253085024512
2Mass ID (if available) : 17431020-2252390
ICRS Star Coord at Epoch: 17h 43m 10.19558s -22:52:39.04959s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.474
G magnitude           : 14.379
RP magnitude          : 12.918
BP magnitude          : 17.215
DUPflag              : 0
Distance (au)         : 4.334
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -14.34
Sun-Target sep (deg) : 158.14
Sun-Moon sep (deg)   : 148.94
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.98
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation ("): 7.402
C/A sky separation (km): 23265.4
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
    
```

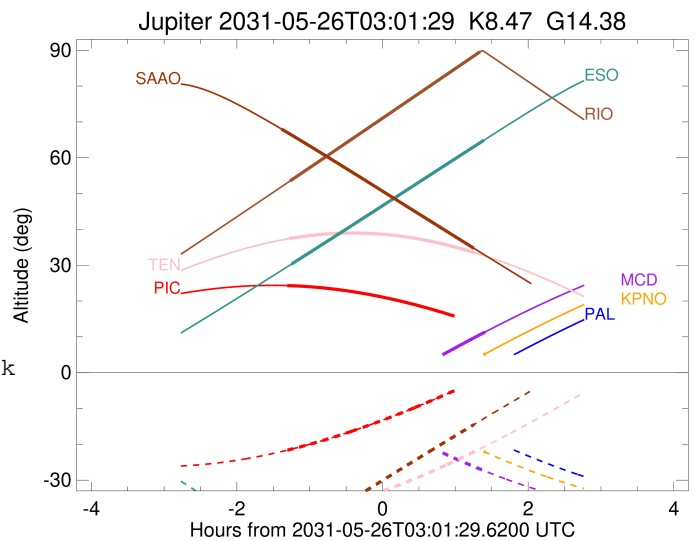
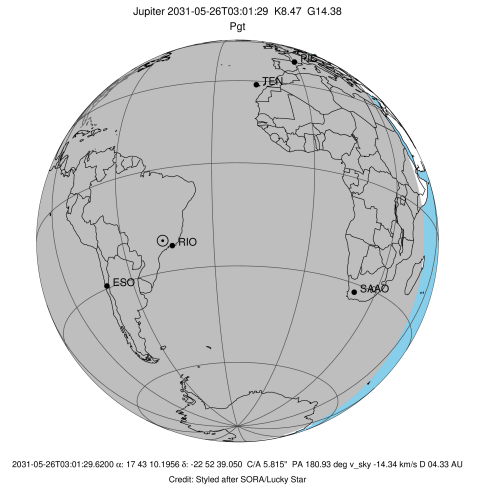


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T01:44:25.046	37.41	-39.80	71491.0	18.86	21.32
Jupiter	E	2031-05-26T04:17:25.214	33.50	-22.00	71491.0	18.87	21.33

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T03:03:44.750
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       : 4116881253085024512
2Mass ID (if available) : 17431020-2252390
ICRS Star Coord at Epoch: 17h 43m 10.19558s -22:52:39.04959s
RUWE (>1.4 is poor) : 0.95
K magnitude          : 8.474
G magnitude          : 14.379
RP magnitude         : 12.918
BP magnitude         : 17.215
DUPflag             : 0
Distance (au)        : 4.334
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.34
Sun-Target sep (deg) : 158.14
Sun-Moon sep (deg)  : 149.48
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.98
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (" ) : 5.779
C/A sky separation (km) : 18164.1
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
    
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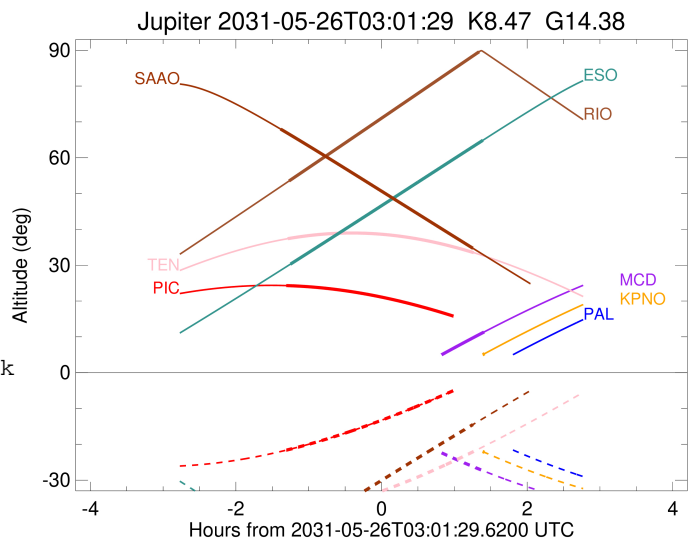
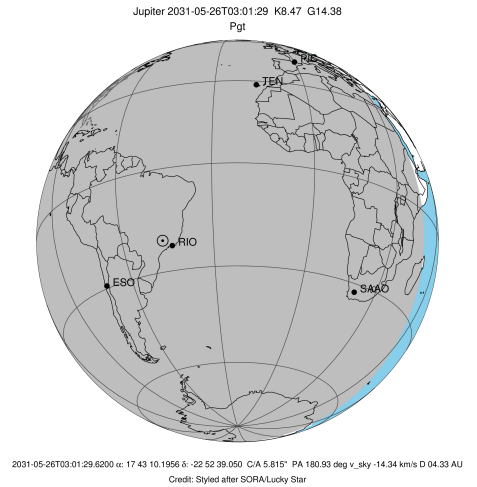


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T01:45:18.990	53.50	-74.93	71491.4	14.31	16.26
Jupiter	E	2031-05-26T04:21:51.487	89.55	-68.63	71491.4	14.89	16.90

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-05-26T03:06:02.890
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     : 4116881253085024512
2Mass ID (if available) : 17431020-2252390
ICRS Star Coord at Epoch: 17h 43m 10.19558s -22:52:39.04959s
RUWE (>1.4 is poor) : 0.95
K magnitude         : 8.474
G magnitude         : 14.379
RP magnitude        : 12.918
BP magnitude        : 17.215
DUPflag            : 0
Distance (au)      : 4.334
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : -14.34
Sun-Target sep (deg) : 158.14
Sun-Moon sep (deg)  : 149.65
B (ring opening deg) : -2.61
PA of pole (deg)    : 0.98
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 5.372
C/A sky separation (km) : 16884.1
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
    
```

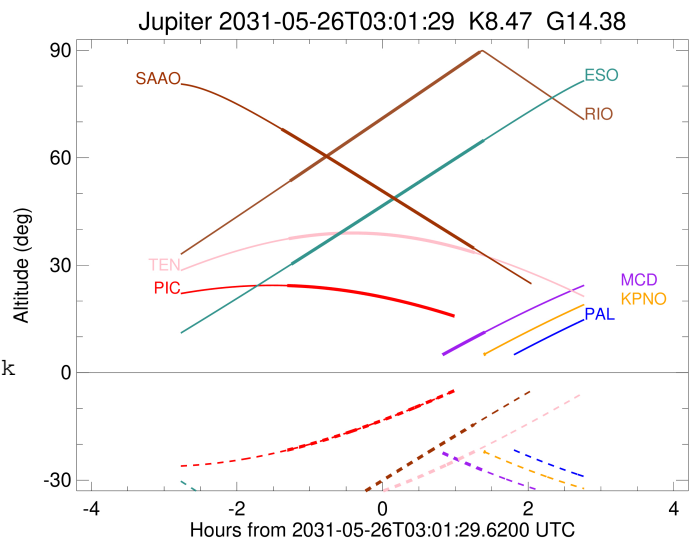
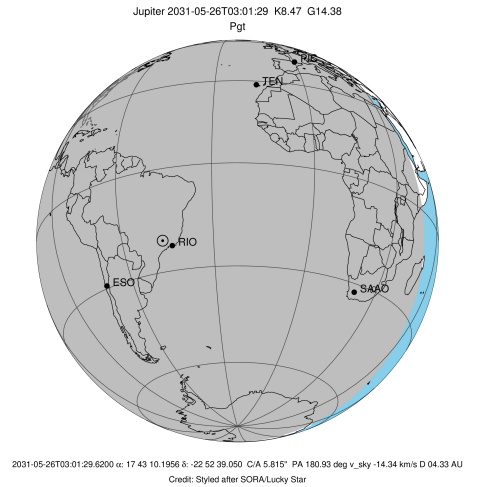


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-26T01:46:27.386	30.29	-50.13	71491.5	13.07	14.86
Jupiter	E	2031-05-26T04:25:02.174	64.86	-81.31	71491.5	14.08	15.99

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-05-26T02:57:22.590
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       : 4116881253085024512
2Mass ID (if available) : 17431020-2252390
ICRS Star Coord at Epoch: 17h 43m 10.19558s -22:52:39.04959s
RUWE (>1.4 is poor) : 0.95
K magnitude           : 8.474
G magnitude           : 14.379
RP magnitude          : 12.918
BP magnitude          : 17.215
DUPflag              : 0
Distance (au)        : 4.334
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -14.34
Sun-Target sep (deg) : 158.14
Sun-Moon sep (deg)   : 148.73
B (ring opening deg) : -2.61
PA of pole (deg)     : 0.98
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation ("): 5.339
C/A sky separation (km): 16780.8
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	2031-05-26T01:38:21.085	67.99	-47.62	71491.5	13.81	15.70
Jupiter	E	2031-05-26T04:16:49.921	34.72	-14.48	71491.5	13.15	14.95