

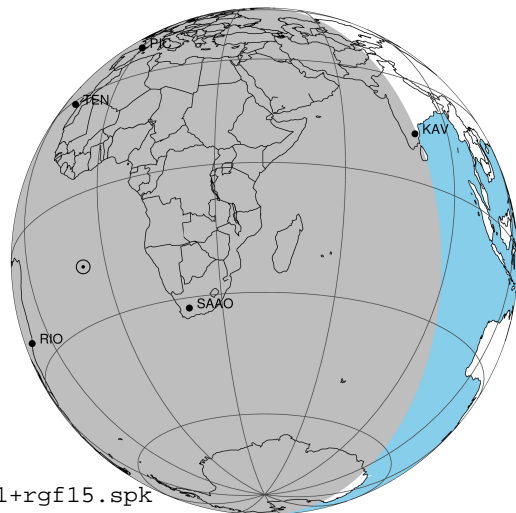
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-05-08T00:24:50.070  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4066630792907474944  
 2Mass ID (if available) : 18104888-2259363

Jupiter 2043-05-08T00:24:50 K8.34 G10.71 Pgt

ICRS Star Coord at Epoch: 18h 10m 48.88721s -22:59:36.37214s

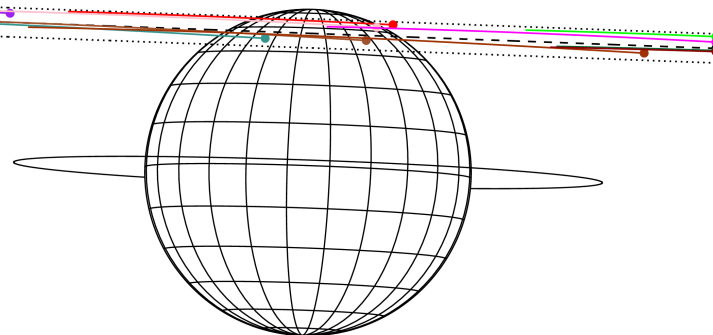
RUWE (>1.4 is poor) : 0.85  
 K magnitude : 8.343  
 G magnitude : 10.713  
 RP magnitude : 9.980  
 BP magnitude : 11.300  
 DUPflag : 0  
 Distance (au) : 4.527  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : -7.49  
 Sun-Target sep (deg) : 134.25  
 Sun-Moon sep (deg) : 118.23  
 B (ring opening deg) : -2.43  
 PA of pole (deg) : -2.00  
 Pole direction: RA (deg): 268.05666  
 Dec (deg): 64.49732  
 C/A sky separation (") : 18.559  
 C/A sky separation (km) : 60938.6  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

Jupiter 2043-05-08T00:24:50 K8.34 G10.71  
 Pgt



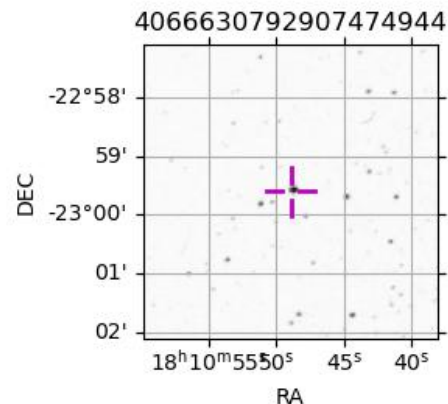
2043-05-08T00:24:50.0700 α: 18 10 48.8872 δ: -22 59 36.372 C/A \*\*\*\*\* PA 177.88 deg v\_sky - 7.49 km/s D 04.53 AU  
 Credit: Styled after SORA/Lucky Star

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



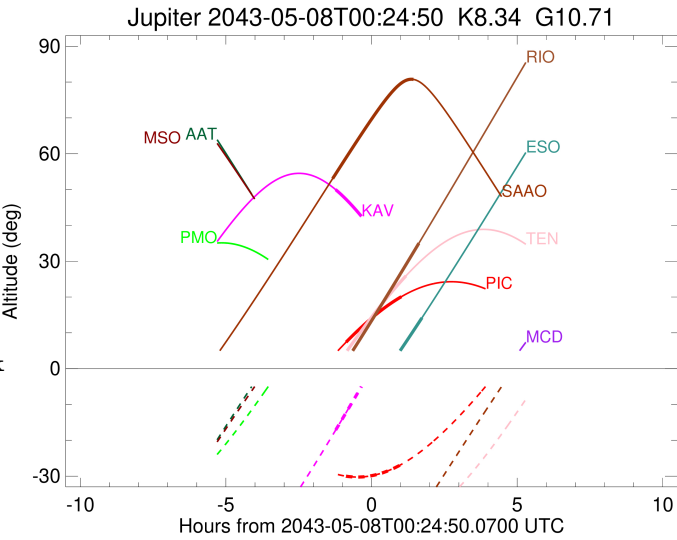
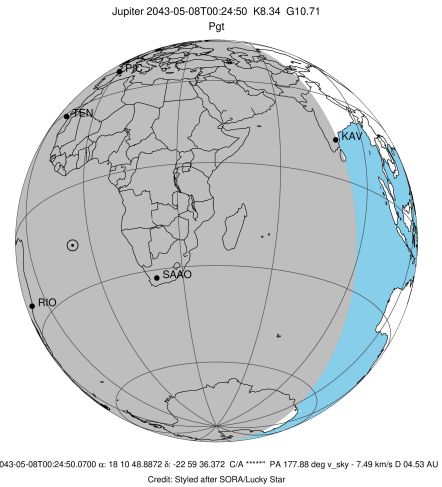
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+ +	MAY 07 23:32 - MAY 08 01:26	Pie
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	+ +	MAY 08 01:35 - MAY 08 01:35	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	MAY 07 23:11 - MAY 07 23:11	Pin
RIO	Rio de Janeiro	-22.9	316.8	+ +	MAY 08 02:02 - MAY 08 02:02	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	MAY 08 02:08 - MAY 08 02:08	Pne
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	MAY 07 23:04 - MAY 08 01:51	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-08T00:29:36.210
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       : 4066630792907474944
2Mass ID (if available) : 18104888-2259363
ICRS Star Coord at Epoch: 18h 10m 48.88721s -22:59:36.37214s
RUWE (>1.4 is poor) : 0.85
K magnitude           : 8.343
G magnitude           : 10.713
RP magnitude          : 9.980
BP magnitude          : 11.300
DUPflag              : 0
Distance (au)        : 4.527
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -7.49
Sun-Target sep (deg) : 134.25
Sun-Moon sep (deg)   : 118.23
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.00
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 20.235
C/A sky separation (km): 66441.5
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
    
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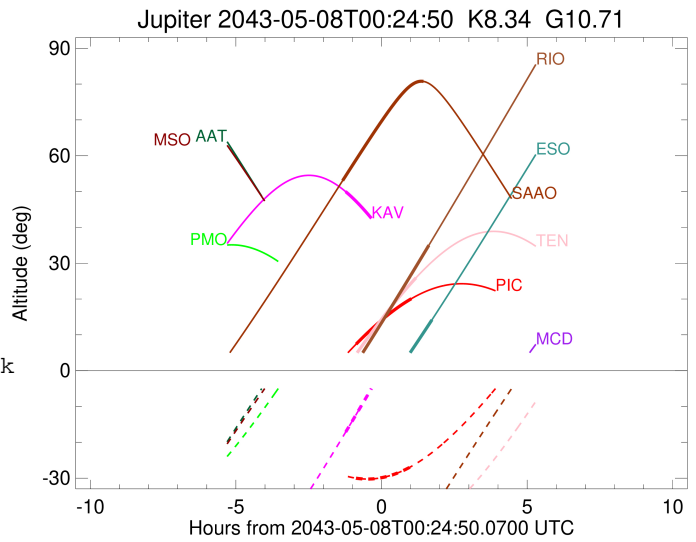
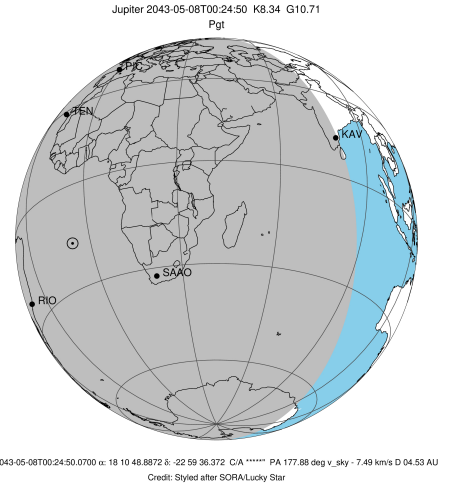


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-07T23:32:26.431	7.39	-30.01	71485.1	67.46	69.92
Jupiter	E	2043-05-08T01:26:17.659	20.08	-26.72	71485.0	68.77	71.11

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-08T00:32:30.780
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      : 4066630792907474944
2Mass ID (if available) : 18104888-2259363
ICRS Star Coord at Epoch: 18h 10m 48.88721s -22:59:36.37214s
RUWE (>1.4 is poor) : 0.85
K magnitude          : 8.343
G magnitude          : 10.713
RP magnitude         : 9.980
BP magnitude         : 11.300
DUPflag             : 0
Distance (au)       : 4.527
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -7.49
Sun-Target sep (deg) : 134.25
Sun-Moon sep (deg)  : 118.11
B (ring opening deg) : -2.43
PA of pole (deg)    : -2.00
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 19.836
C/A sky separation (km) : 65133.1
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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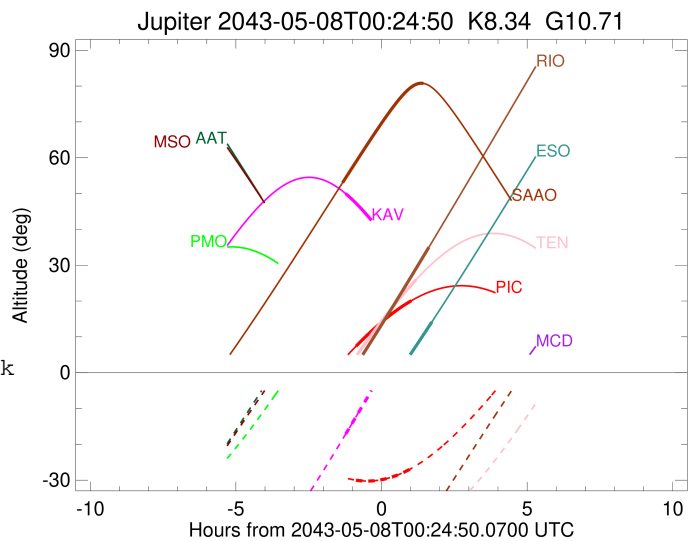
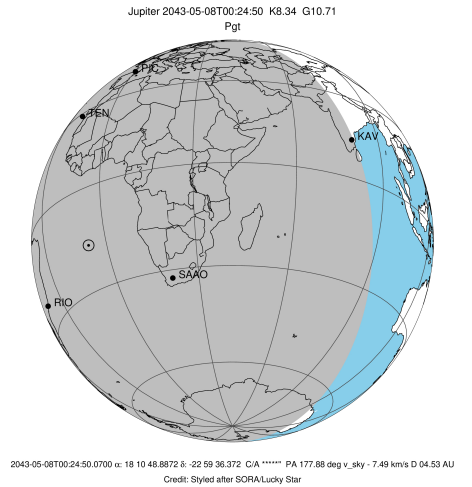


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-07T23:28:16.761	3.77x	-39.44	71485.4	64.42	67.15
Jupiter	E	2043-05-08T01:35:53.798	25.92	-44.13	71485.2	66.45	69.00

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-08T00:18:35.120
Event type           : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code        : KAV
Location             : Kavalur Observatory
Latitude (deg)       : 12.57556
E. Longitude (deg)   : 78.83167
Altitude (km)        : 0.722
Gaia source ID       : 4066630792907474944
2Mass ID (if available) : 18104888-2259363
ICRS Star Coord at Epoch: 18h 10m 48.88721s -22:59:36.37214s
RUWE (>1.4 is poor) : 0.85
K magnitude           : 8.343
G magnitude           : 10.713
RP magnitude          : 9.980
BP magnitude          : 11.300
DUPflag              : 0
Distance (au)        : 4.527
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.49
Sun-Target sep (deg) : 134.25
Sun-Moon sep (deg)   : 119.10
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.00
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 19.500
C/A sky separation (km): 64032.1
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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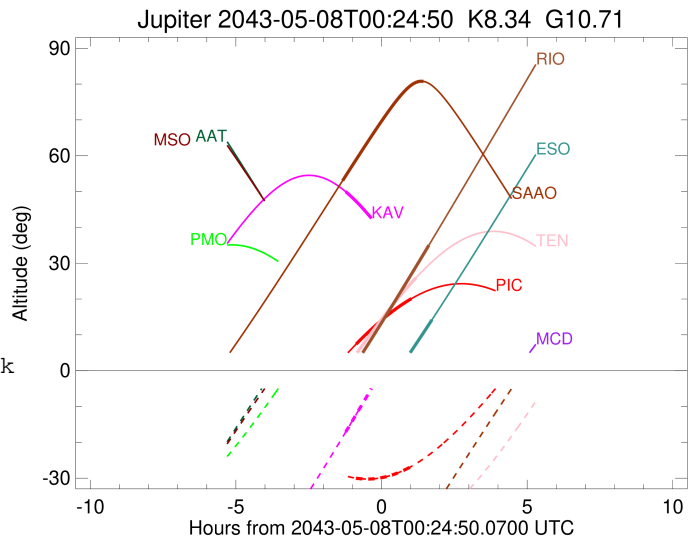
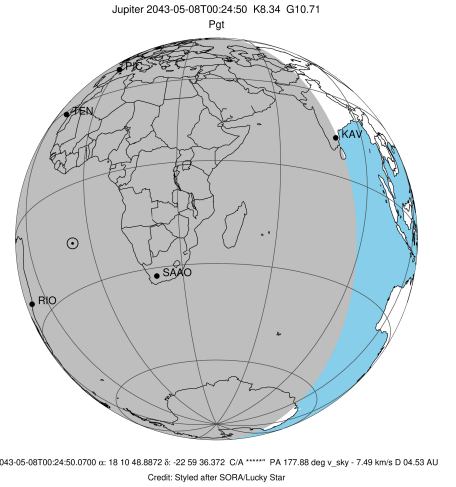


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-07T23:11:01.023	49.97	-17.14	71485.5	64.09	66.84
Jupiter	E	2043-05-08T01:26:38.494	27.20	14.32x	71485.6	62.61	65.48

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-08T00:35:06.480
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       : 4066630792907474944
2Mass ID (if available) : 18104888-2259363
ICRS Star Coord at Epoch: 18h 10m 48.88721s -22:59:36.37214s
RUWE (>1.4 is poor) : 0.85
K magnitude           : 8.343
G magnitude           : 10.713
RP magnitude          : 9.980
BP magnitude          : 11.300
DUPflag              : 0
Distance (au)         : 4.527
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.49
Sun-Target sep (deg) : 134.25
Sun-Moon sep (deg)   : 117.98
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.00
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 18.043
C/A sky separation (km): 59243.4
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
    
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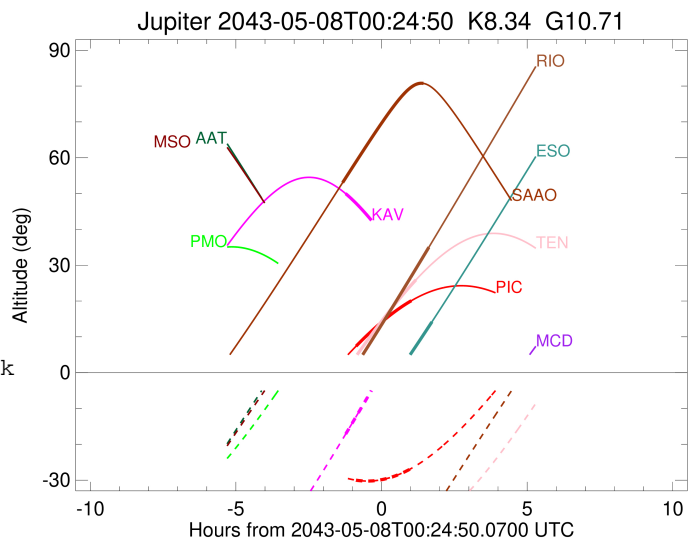
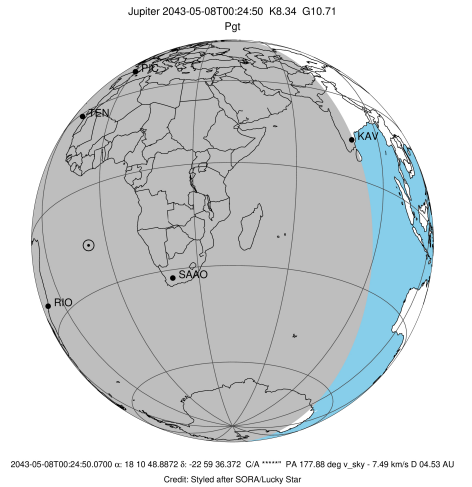


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-07T23:05:44.857	-3.48x	-37.40	71486.6	54.50	57.90
Jupiter	E	2043-05-08T02:02:27.247	35.01	-77.58	71486.3	57.14	60.39

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-05-08T00:34:07.230
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      : 4066630792907474944
2Mass ID (if available) : 18104888-2259363
ICRS Star Coord at Epoch: 18h 10m 48.88721s -22:59:36.37214s
RUWE (>1.4 is poor) : 0.85
K magnitude          : 8.343
G magnitude          : 10.713
RP magnitude         : 9.980
BP magnitude         : 11.300
DUPflag             : 0
Distance (au)       : 4.527
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : -7.49
Sun-Target sep (deg) : 134.25
Sun-Moon sep (deg)  : 117.72
B (ring opening deg) : -2.43
PA of pole (deg)    : -2.00
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation (" ) : 17.536
C/A sky separation (km) : 57581.1
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
    
```

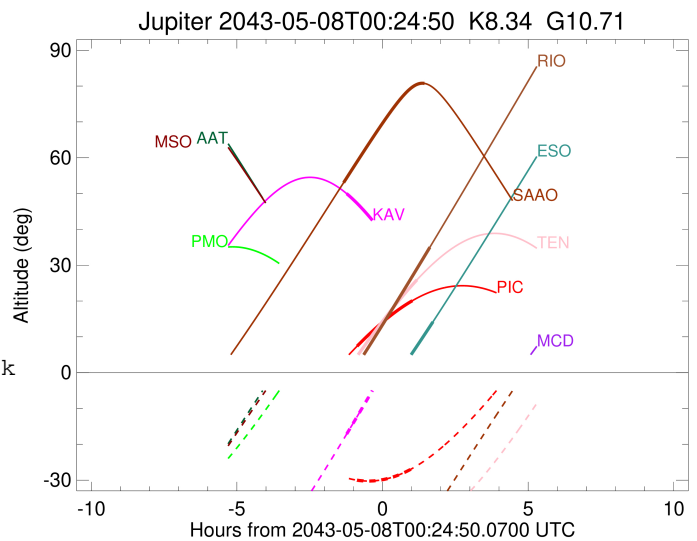
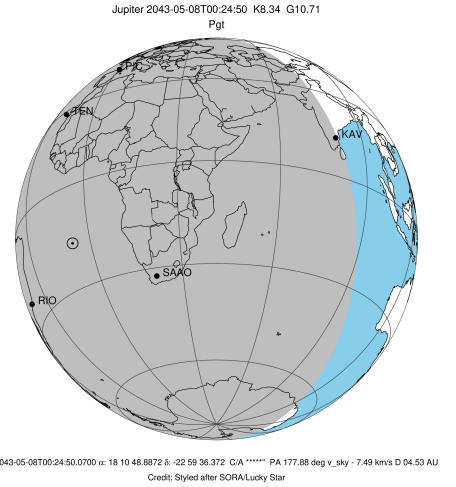


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-05-07T22:57:18.010	-21.69x	-11.96	71486.9	52.35	55.85
Jupiter	E	2043-05-08T02:08:43.988	14.18	-53.49	71486.6	54.91	58.29

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-05-08T00:28:21.840
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        : 4066630792907474944
2Mass ID (if available) : 18104888-2259363
ICRS Star Coord at Epoch: 18h 10m 48.88721s -22:59:36.37214s
RUWE (>1.4 is poor) : 0.85
K magnitude           : 8.343
G magnitude           : 10.713
RP magnitude          : 9.980
BP magnitude          : 11.300
DUPflag              : 0
Distance (au)         : 4.527
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : -7.49
Sun-Target sep (deg)  : 134.25
Sun-Moon sep (deg)    : 118.91
B (ring opening deg) : -2.43
PA of pole (deg)     : -2.00
Pole direction: RA (deg): 268.05666
Dec (deg): 64.49732
C/A sky separation ("): 18.234
C/A sky separation (km): 59871.0
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	2043-05-07T23:04:44.550	53.04	-73.20	71486.4	56.23	59.53
Jupiter	E	2043-05-08T01:51:17.970	80.73	-42.95	71486.3	56.98	60.23