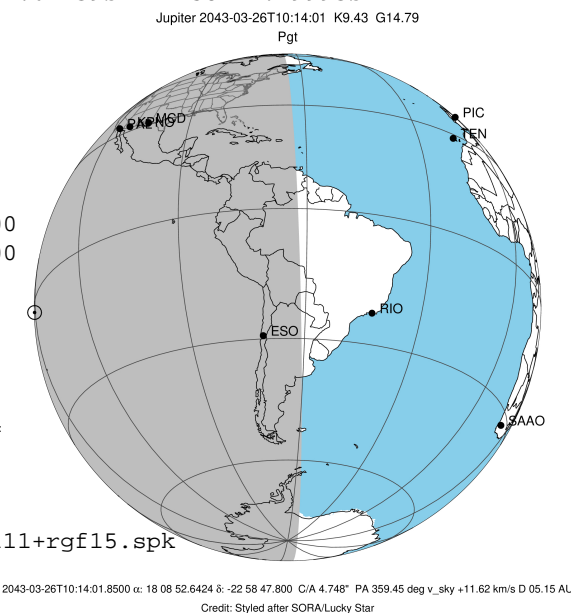


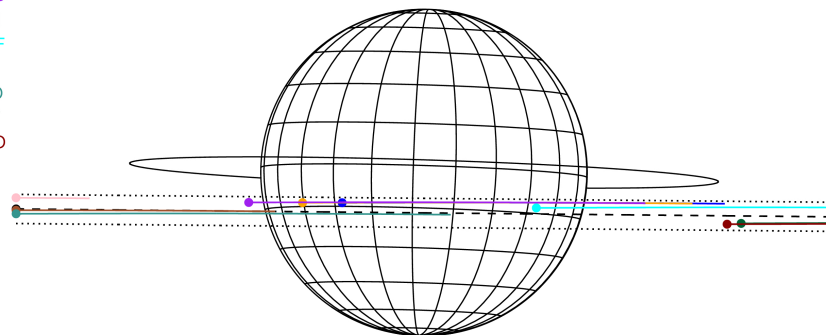
target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2043-03-26T10:14:01.850  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4066588667856410112  
 2Mass ID (if available) : 18085263-2258476

Jupiter 2043-03-26T10:14:01 K9.43 G14.79 Pgt

ICRS Star Coord at Epoch: 18h 08m 52.64239s -22:58:47.79993s  
 RUWE (>1.4 is poor) : 0.88  
 K magnitude : 9.428  
 G magnitude : 14.787  
 RP magnitude : 13.493  
 BP magnitude : 16.672  
 DUPflag : 0  
 Distance (au) : 5.149  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 11.62  
 Sun-Target sep (deg) : 93.01  
 Sun-Moon sep (deg) : 77.87  
 B (ring opening deg) : -2.46  
 PA of pole (deg) : -1.79  
 Pole direction: RA (deg): 268.05664  
 Dec (deg): 64.49732  
 C/A sky separation (") : 4.738  
 C/A sky separation (km) : 17691.1  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk

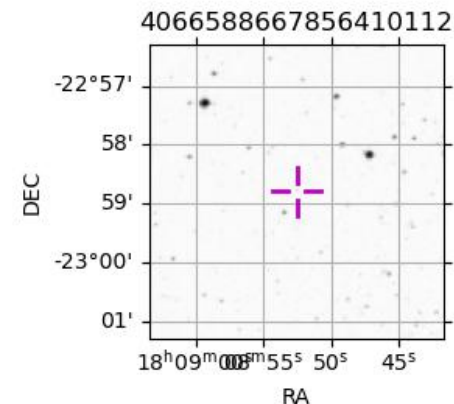


Earth  
 PAL  
 KPNO  
 MCD  
 TEN  
 IRTF  
 RIO  
 ESO  
 AAT  
 MSO



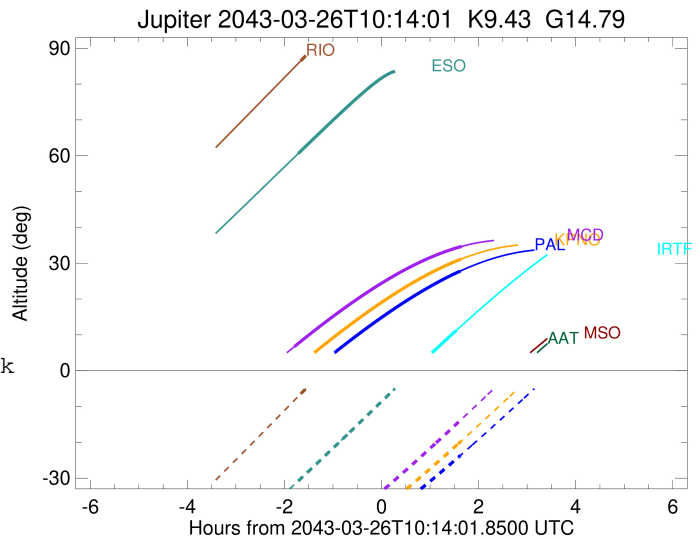
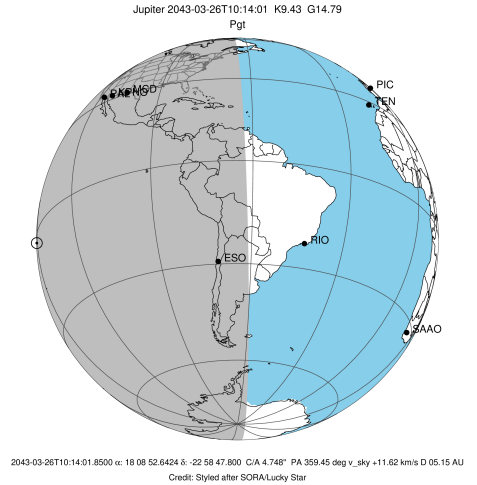
Observable events with sun below -5 deg and altitude above 5 deg

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	+	MAR 26 11:51 - MAR 26 11:51	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 26 11:52 - MAR 26 11:52	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 26 08:26 - MAR 26 11:53	Pie
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5	+	MAR 26 11:46 - MAR 26 11:46	Pne
KAV	Kavalur Observatory	12.6	78.8			Pnn
RIO	Rio de Janeiro	-22.9	316.8	+	MAR 26 08:34 - MAR 26 08:34	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAR 26 08:30 - MAR 26 08:30	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             : 2043-03-26T10:08:08.320
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        : 4066588667856410112
2Mass ID (if available) : 18085263-2258476
ICRS Star Coord at Epoch: 18h 08m 52.64239s -22:58:47.79993s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 9.428
G magnitude           : 14.787
RP magnitude          : 13.493
BP magnitude          : 16.672
DUPflag              : 0
Distance (au)         : 5.149
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 11.62
Sun-Target sep (deg)  : 93.01
Sun-Moon sep (deg)    : 77.98
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.79
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (" ) : 3.533
C/A sky separation (km) : 13193.7
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
    
```

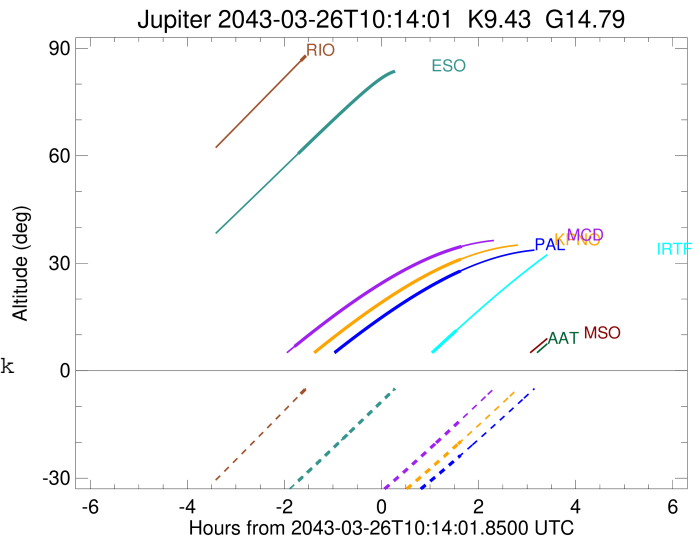
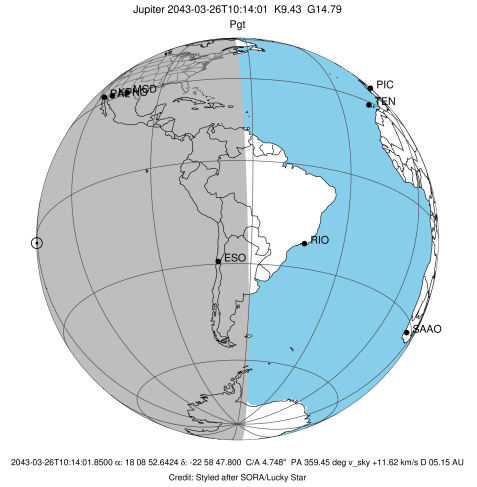


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-26T08:26:14.885	-4.17x	-53.75	71491.6	-12.54	-14.27
Jupiter	E	2043-03-26T11:51:35.276	27.83	-23.65	71491.8	-8.91	-10.16

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-26T10:08:29.030
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      : 4066588667856410112
2Mass ID (if available) : 18085263-2258476
ICRS Star Coord at Epoch: 18h 08m 52.64239s -22:58:47.79993s
RUWE (>1.4 is poor) : 0.88
K magnitude          : 9.428
G magnitude          : 14.787
RP magnitude         : 13.493
BP magnitude         : 16.672
DUPflag             : 0
Distance (au)       : 5.149
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.62
Sun-Target sep (deg) : 93.01
Sun-Moon sep (deg)  : 78.05
B (ring opening deg) : -2.46
PA of pole (deg)    : -1.79
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (" ) : 3.520
C/A sky separation (km) : 13143.6
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
    
```

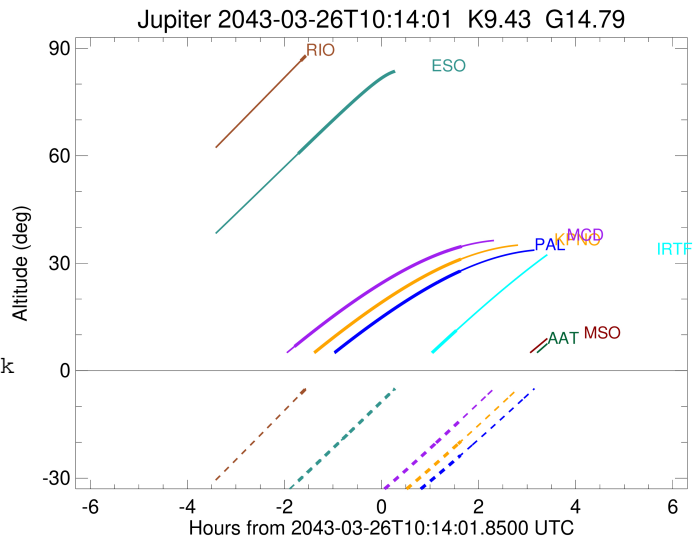
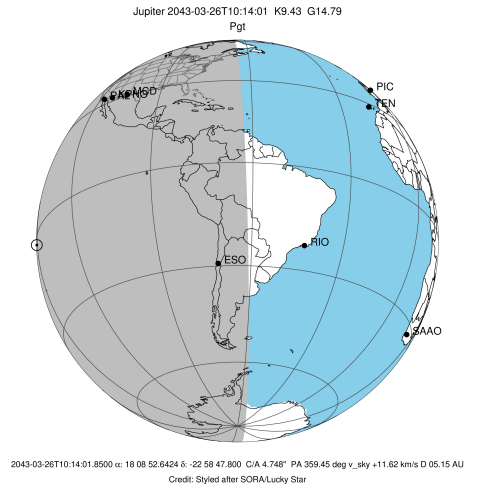


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-26T08:26:16.358	0.43x	-53.64	71491.6	-12.48	-14.20
Jupiter	E	2043-03-26T11:52:11.640	31.13	-19.72	71491.8	-8.92	-10.17

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-26T10:09:08.260
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        : 4066588667856410112
2Mass ID (if available) : 18085263-2258476
ICRS Star Coord at Epoch: 18h 08m 52.64239s -22:58:47.79993s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 9.428
G magnitude           : 14.787
RP magnitude          : 13.493
BP magnitude          : 16.672
DUPflag              : 0
Distance (au)         : 5.149
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 11.62
Sun-Target sep (deg)  : 93.01
Sun-Moon sep (deg)    : 78.14
B (ring opening deg) : -2.46
PA of pole (deg)      : -1.79
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 3.492
C/A sky separation (km) : 13040.0
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
    
```

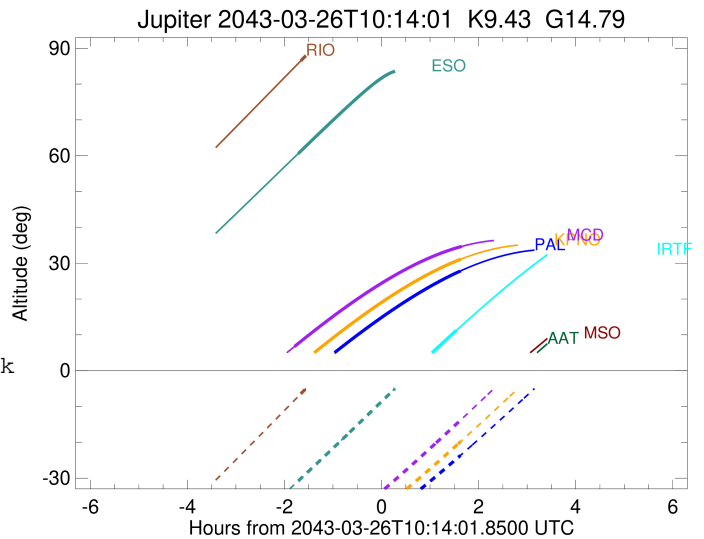
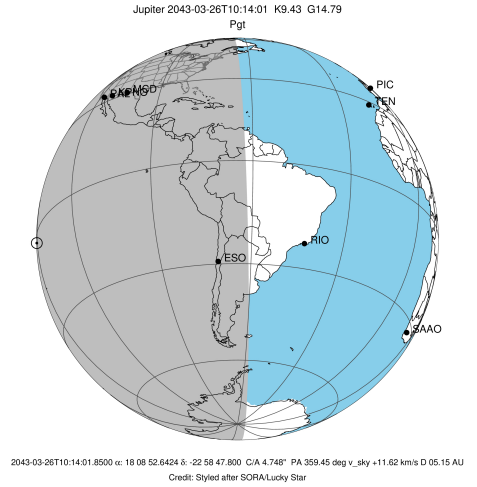


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-26T08:26:28.717	6.74	-51.55	71491.6	-12.35	-14.05
Jupiter	E	2043-03-26T11:53:10.413	34.68	-13.51	71491.8	-8.92	-10.17

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-26T10:05:48.170
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       : 4066588667856410112
2Mass ID (if available) : 18085263-2258476
ICRS Star Coord at Epoch: 18h 08m 52.64239s -22:58:47.79993s
RUWE (>1.4 is poor) : 0.88
K magnitude          : 9.428
G magnitude          : 14.787
RP magnitude         : 13.493
BP magnitude         : 16.672
DUPflag             : 0
Distance (au)        : 5.149
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.62
Sun-Target sep (deg) : 93.01
Sun-Moon sep (deg)   : 77.56
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.79
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation ("): 4.219
C/A sky separation (km): 15754.8
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
    
```

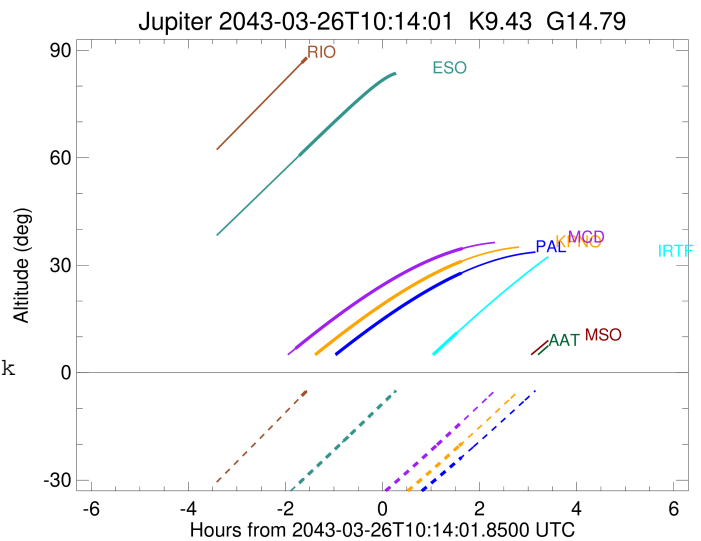
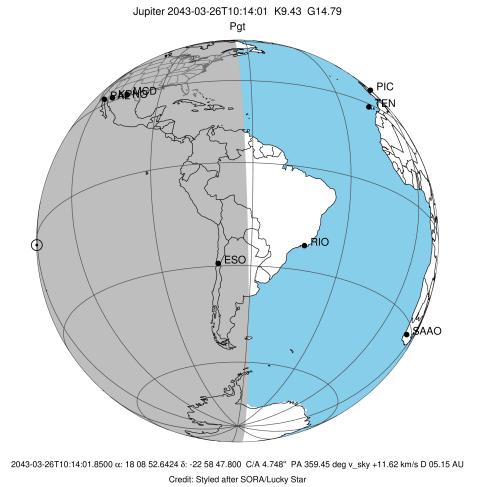


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-26T08:26:57.277	-32.49x	-53.17	71491.5	-14.76	-16.76
Jupiter	E	2043-03-26T11:46:32.579	11.24	-60.69	71491.7	-10.66	-12.14

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-26T10:17:01.290
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        : 4066588667856410112
2Mass ID (if available) : 18085263-2258476
ICRS Star Coord at Epoch: 18h 08m 52.64239s -22:58:47.79993s
RUWE (>1.4 is poor) : 0.88
K magnitude           : 9.428
G magnitude           : 14.787
RP magnitude          : 13.493
BP magnitude          : 16.672
DUPflag              : 0
Distance (au)         : 5.149
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 11.62
Sun-Target sep (deg)  : 93.01
Sun-Moon sep (deg)    : 78.77
B (ring opening deg) : -2.46
PA of pole (deg)      : -1.79
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 4.784
C/A sky separation (km) : 17864.9
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
    
```

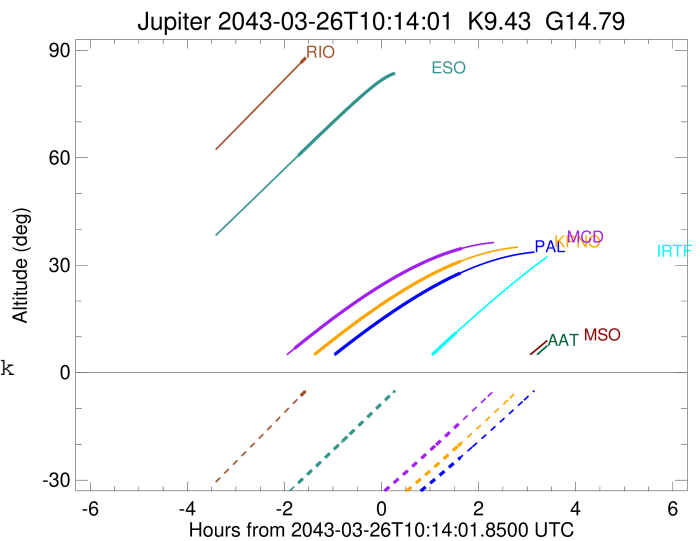
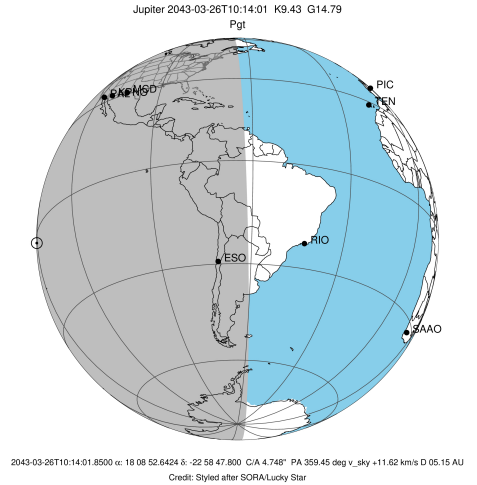


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-26T08:34:17.762	86.49	-6.45	71491.4	-15.53	-17.62
Jupiter	E	2043-03-26T11:59:25.942	46.33	39.70x	71491.5	-13.73	-15.60

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-26T10:13:08.130
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       : 4066588667856410112
2Mass ID (if available) : 18085263-2258476
ICRS Star Coord at Epoch: 18h 08m 52.64239s -22:58:47.79993s
RUWE (>1.4 is poor) : 0.88
K magnitude          : 9.428
G magnitude           : 14.787
RP magnitude         : 13.493
BP magnitude         : 16.672
DUPflag              : 0
Distance (au)        : 5.149
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 11.62
Sun-Target sep (deg) : 93.01
Sun-Moon sep (deg)   : 78.73
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.79
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation ("): 4.921
C/A sky separation (km): 18376.4
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	2043-03-26T08:30:58.207	60.57	-30.81	71491.3	-16.36	-18.54
Jupiter	E	2043-03-26T11:55:48.251	71.73	13.49x	71491.5	-13.76	-15.64