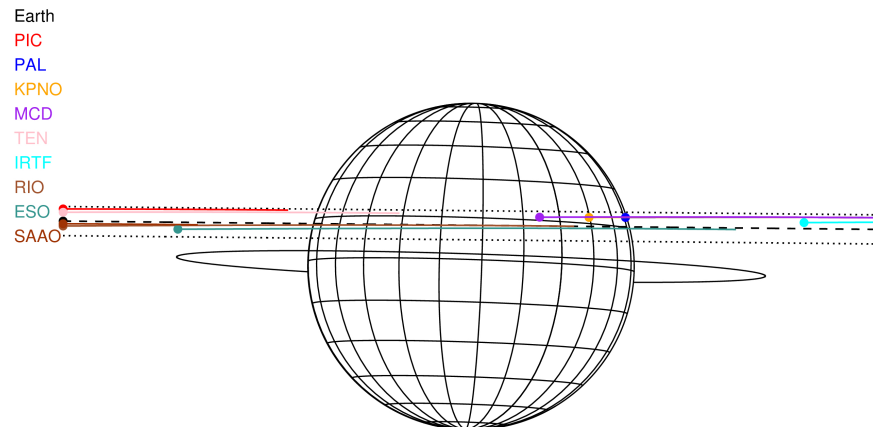
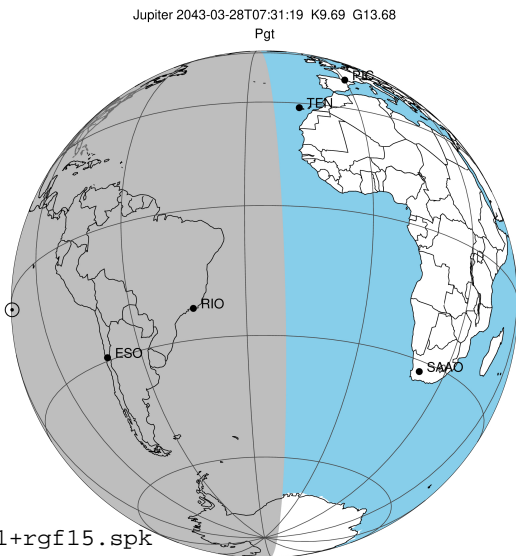


target : Jupiter
 target radius (km) : 71492.00
 C/A epoch : 2043-03-28T07:31:19.140
 Event type : Pgt
 : Jupiter occs: geocentric, topocentric
 : Not a ringed target
 Gaia source ID : 4066587254759184256
 2Mass ID (if available) : 18092806-2258333

Jupiter 2043-03-28T07:31:19 K9.69 G13.68 Pgt

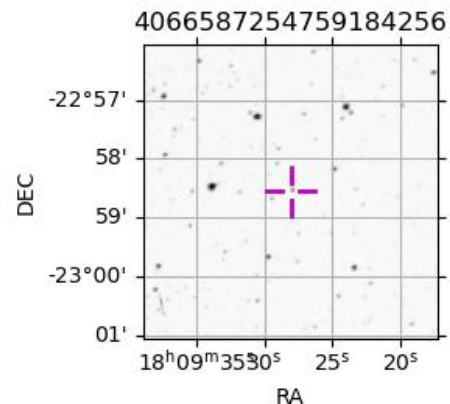
ICRS Star Coord at Epoch: 18h 09m 28.07623s -22:58:33.32468s
 RUWE (>1.4 is poor) : 0.93
 K magnitude : 9.687
 G magnitude : 13.676
 RP magnitude : 12.606
 BP magnitude : 14.851
 DUPflag : 0
 Distance (au) : 5.118
 f0 (km) : 0.00
 g0 (km) : 0.00
 skyplane vel. (km/s) : 10.73
 Sun-Target sep (deg) : 94.74
 Sun-Moon sep (deg) : 55.58
 B (ring opening deg) : -2.46
 PA of pole (deg) : -1.86
 Pole direction: RA (deg): 268.05664
 Dec (deg): 64.49732
 C/A sky separation (") : 4.867
 C/A sky separation (km) : 18067.9
 NAIF SPICE kernels : RAJobs_U111+rgf15.spk
 URKALLv1.spk
 naif0012.tls
 nep097.bsp
 nep101.bsp
 sat4401.bsp



2043-03-28T07:31:19.1400 ex: 18 09 28.0762 s: -22 58 33.325 C/A 4.8677 PA 179.41 deg v_sky +10.73 km/s D 05.12 AU
 Credit: Styled after SORA/Lucky Star

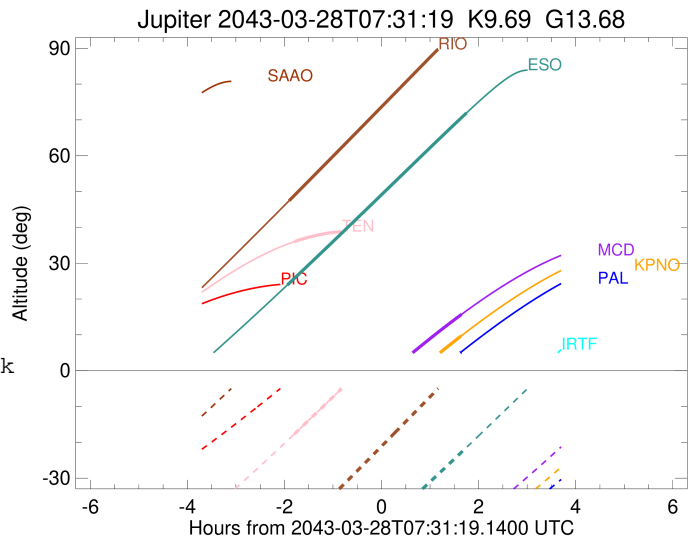
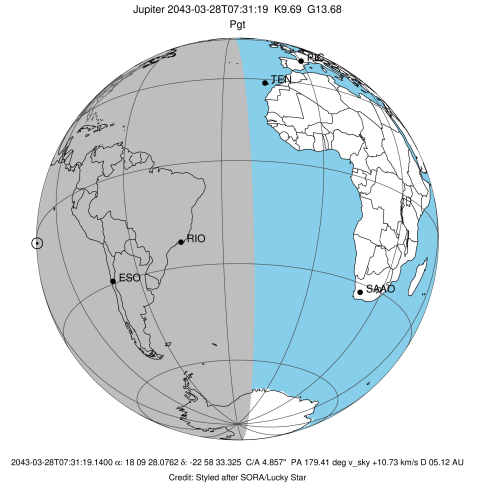
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1	+	MAR 28 09:09 - MAR 28 09:09	Pne
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4	+	MAR 28 09:09 - MAR 28 09:09	Pne
MCD	McDonald Obs. 2.7m	30.7	256.0	+	MAR 28 09:10 - MAR 28 09:10	Pne
TEN	Teide Obs./Tenerife	28.3	343.5	+	MAR 28 05:43 - MAR 28 05:43	Pin
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	+	MAR 28 05:37 - MAR 28 05:37	Pin
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+	MAR 28 05:34 - MAR 28 09:16	Pie
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             : 2043-03-28T07:22:39.520
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        : 4066587254759184256
2Mass ID (if available) : 18092806-2258333
ICRS Star Coord at Epoch: 18h 09m 28.07623s -22:58:33.32468s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.687
G magnitude           : 13.676
RP magnitude          : 12.606
BP magnitude          : 14.851
DUPflag              : 0
Distance (au)         : 5.118
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.73
Sun-Target sep (deg) : 94.74
Sun-Moon sep (deg)   : 55.00
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.86
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation ("): 5.719
C/A sky separation (km): 21229.7
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
    
```

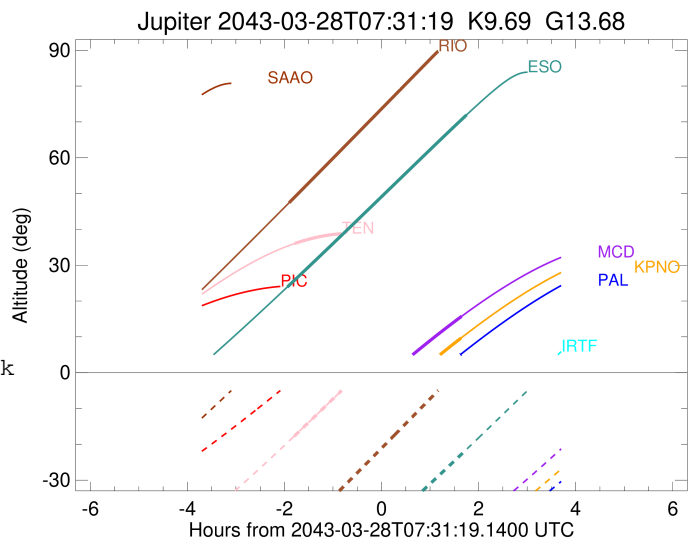
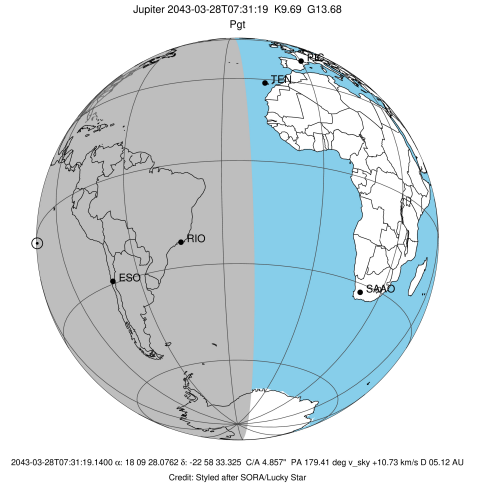


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-28T05:37:56.493	-36.65x	-41.88	71491.4	15.22	17.27
Jupiter	E	2043-03-28T09:09:30.666	5.16	-49.49	71491.1	19.32	21.82

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-28T07:22:30.470
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       : 4066587254759184256
2Mass ID (if available) : 18092806-2258333
ICRS Star Coord at Epoch: 18h 09m 28.07623s -22:58:33.32468s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.687
G magnitude           : 13.676
RP magnitude          : 12.606
BP magnitude          : 14.851
DUPflag              : 0
Distance (au)         : 5.118
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.73
Sun-Target sep (deg) : 94.74
Sun-Moon sep (deg)   : 55.05
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.86
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 5.739
C/A sky separation (km) : 21302.3
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
    
```

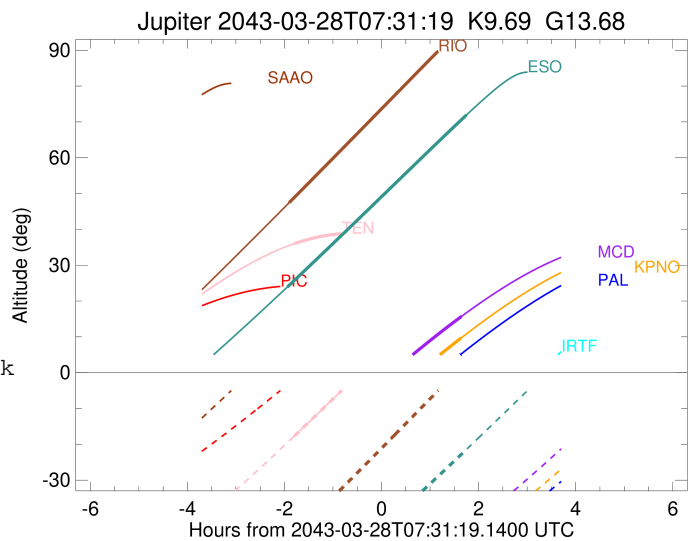
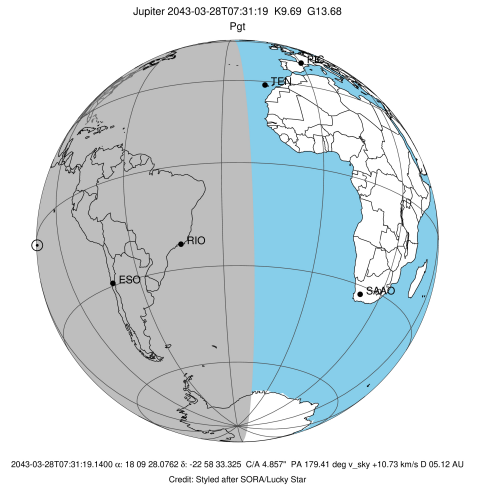


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-28T05:37:30.116	-32.16x	-45.96	71491.4	15.25	17.31
Jupiter	E	2043-03-28T09:09:41.971	9.67	-48.10	71491.1	19.37	21.89

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2043-03-28T07:22:29.920
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       : 4066587254759184256
2Mass ID (if available) : 18092806-2258333
ICRS Star Coord at Epoch: 18h 09m 28.07623s -22:58:33.32468s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.687
G magnitude           : 13.676
RP magnitude         : 12.606
BP magnitude         : 14.851
DUPflag              : 0
Distance (au)        : 5.118
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 10.73
Sun-Target sep (deg) : 94.74
Sun-Moon sep (deg)   : 55.14
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.86
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation ("): 5.784
C/A sky separation (km): 21472.4
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
    
```

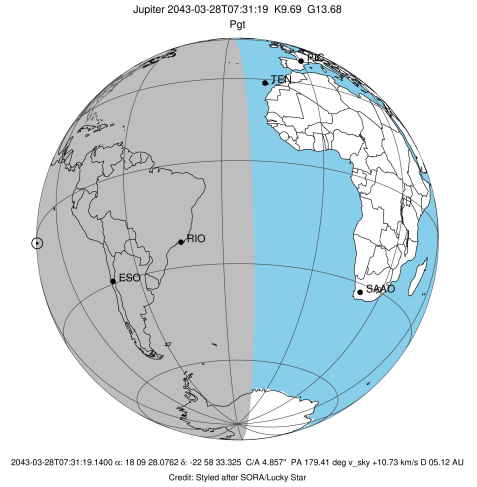


x: target alt < 5.0 deg or sun > -5.0 deg

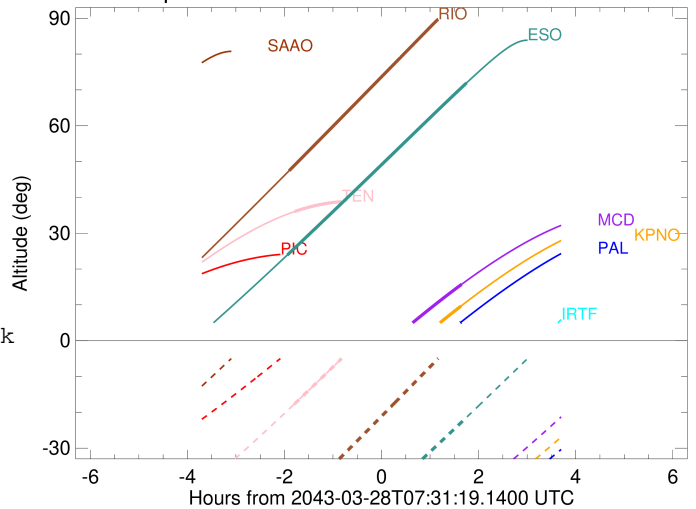
Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-28T05:37:04.170	-25.64x	-50.99	71491.4	15.37	17.44
Jupiter	E	2043-03-28T09:10:08.635	15.69	-44.51	71491.1	19.49	22.01

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-28T07:32:57.820
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        : 4066587254759184256
2Mass ID (if available) : 18092806-2258333
ICRS Star Coord at Epoch: 18h 09m 28.07623s -22:58:33.32468s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.687
G magnitude           : 13.676
RP magnitude          : 12.606
BP magnitude          : 14.851
DUPflag              : 0
Distance (au)         : 5.118
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.73
Sun-Target sep (deg)  : 94.74
Sun-Moon sep (deg)    : 56.14
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.86
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 6.192
C/A sky separation (km) : 22986.5
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
    
```



Jupiter 2043-03-28T07:31:19 K9.69 G13.68

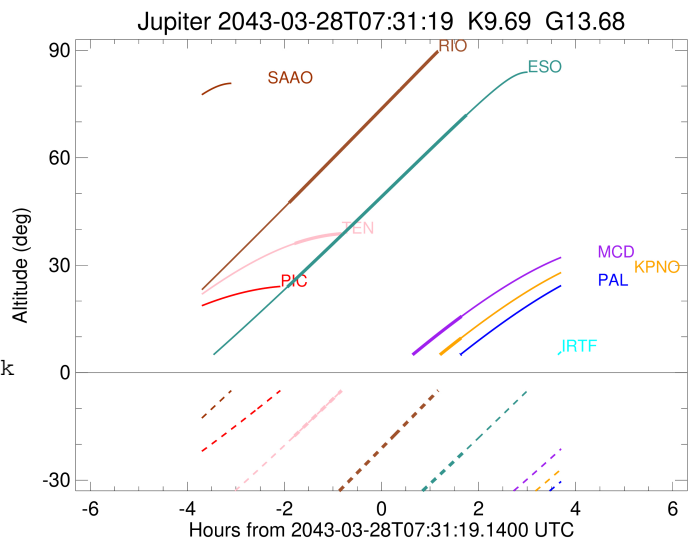
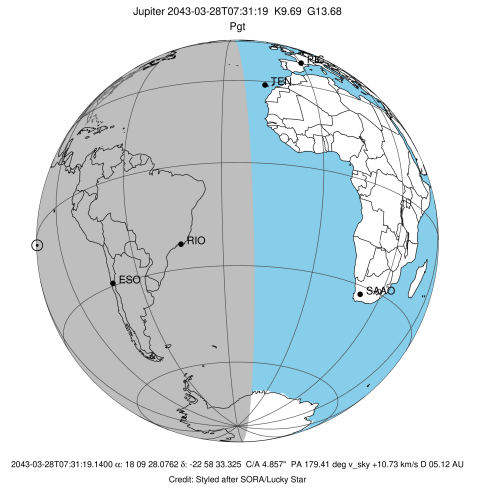


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-28T05:43:46.043	36.03	-17.65	71491.3	17.44	19.74
Jupiter	E	2043-03-28T09:22:12.820	27.81	30.12x	71491.1	19.63	22.17

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-28T07:28:17.240
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        : 4066587254759184256
2Mass ID (if available) : 18092806-2258333
ICRS Star Coord at Epoch: 18h 09m 28.07623s -22:58:33.32468s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.687
G magnitude           : 13.676
RP magnitude          : 12.606
BP magnitude          : 14.851
DUPflag              : 0
Distance (au)         : 5.118
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.73
Sun-Target sep (deg)  : 94.74
Sun-Moon sep (deg)   : 56.15
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.86
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 4.849
C/A sky separation (km) : 18000.1
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
    
```

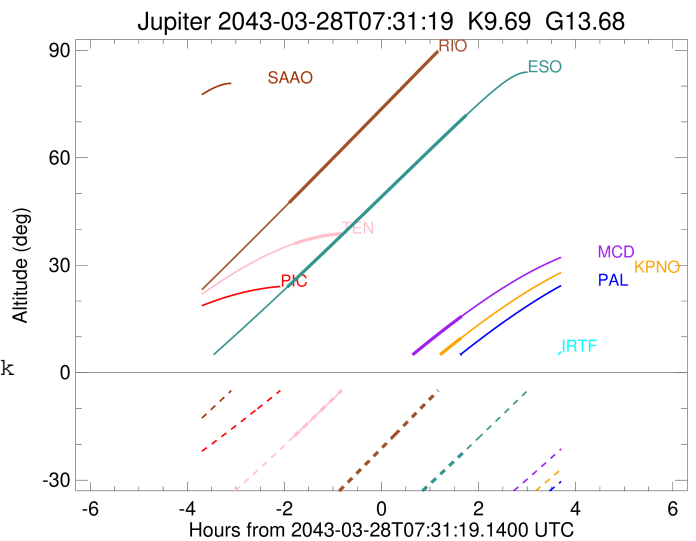
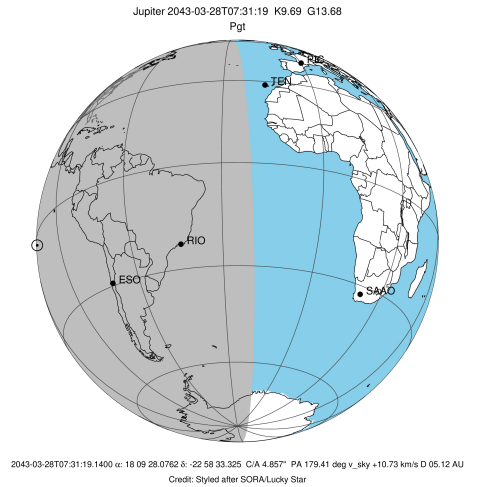


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2043-03-28T05:37:14.121	47.46	-46.67	71491.6	12.84	14.60
Jupiter	E	2043-03-28T09:20:28.161	81.17	4.01x	71491.4	15.87	18.00

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2043-03-28T07:24:41.330
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        : 4066587254759184256
2Mass ID (if available) : 18092806-2258333
ICRS Star Coord at Epoch: 18h 09m 28.07623s -22:58:33.32468s
RUWE (>1.4 is poor) : 0.93
K magnitude           : 9.687
G magnitude           : 13.676
RP magnitude          : 12.606
BP magnitude          : 14.851
DUPflag              : 0
Distance (au)         : 5.118
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 10.73
Sun-Target sep (deg)  : 94.74
Sun-Moon sep (deg)   : 55.82
B (ring opening deg) : -2.46
PA of pole (deg)     : -1.86
Pole direction: RA (deg): 268.05664
Dec (deg): 64.49732
C/A sky separation (") : 4.515
C/A sky separation (km) : 16758.7
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	2043-03-28T05:34:53.830	23.91	-61.58	71491.7	11.55	13.15
Jupiter	E	2043-03-28T09:16:24.309	71.94	-21.41	71491.4	15.26	17.31