

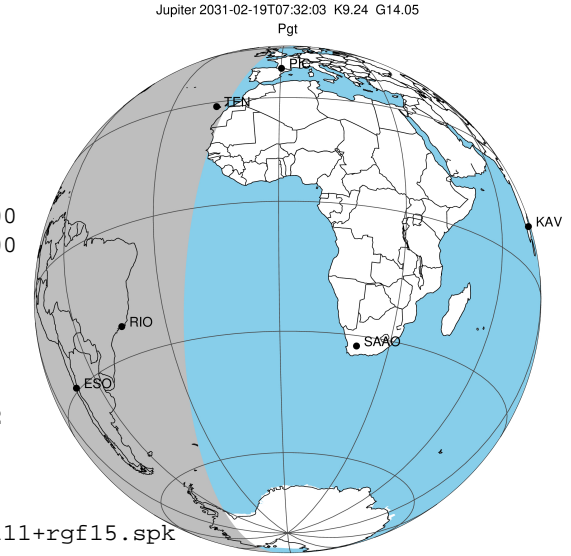
```

target          : Jupiter
target radius (km) : 71492.00
C/A epoch       : 2031-02-19T07:32:03.000
Event type      : Pgt
                : Jupiter occs: geocentric, topocentric
                : Not a ringed target
Gaia source ID  : 4116710553902587264
2Mass ID (if available) : 17343624-2246116
    
```

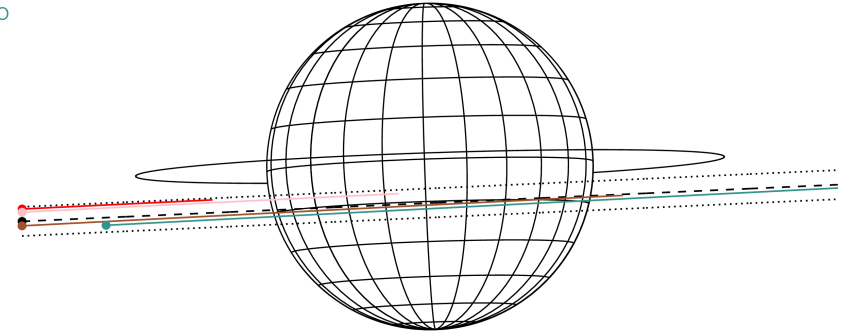
Jupiter 2031-02-19T07:32:03 K9.24 G14.05 Pgt

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ICRS Star Coord at Epoch: 17h 34m 36.23868s -22:46:11.86120s
RUWE (>1.4 is poor)   :   0.92
K magnitude             :   9.244
G magnitude             :  14.048
RP magnitude           :  12.816
BP magnitude           :  15.731
DUPflag                :   0
Distance (au)          :   5.646
f0 (km)                :   0.00
g0 (km)                :   0.00
skyplane vel. (km/s)   :  25.33
Sun-Target sep (deg)   :  65.87
Sun-Moon sep (deg)     :  34.22
B (ring opening deg)   :  -2.67
PA of pole (deg)       :   1.90
Pole direction: RA (deg): 268.05702
Dec (deg):  64.49651
C/A sky separation (") :   3.904
C/A sky separation (km): 15985.0
NAIF SPICE kernels     : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat4401.bsp
    
```



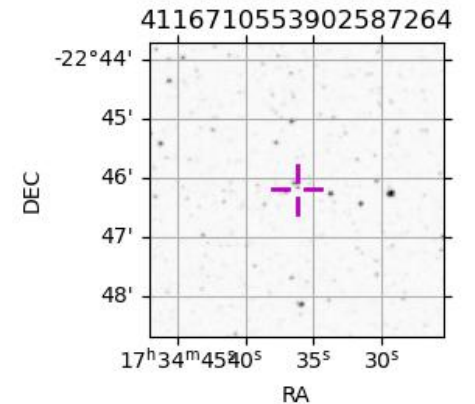
Earth
PIC
TEN
RIO
ESO



2031-02-19T07:32:03.0000 az: 17.34 36.2387 & -22.46 11.861 C/A 3.914" PA 2.58 deg v_sky +25.33 km/s D 05.65 AU
Credit: Styled after SORA/Lucky Star

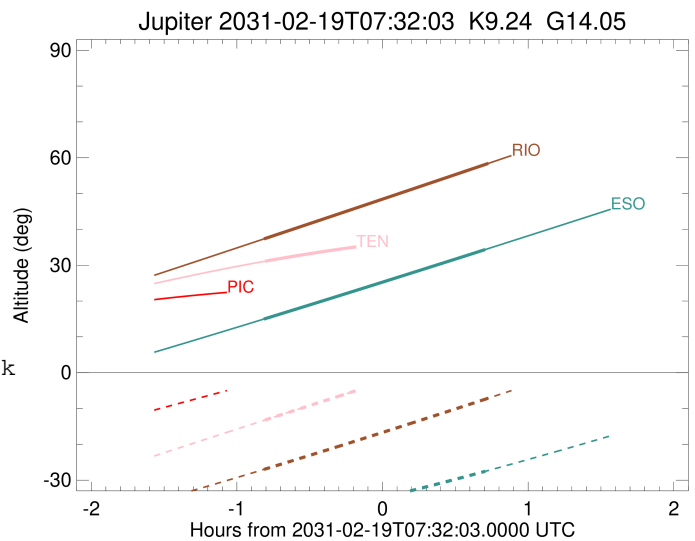
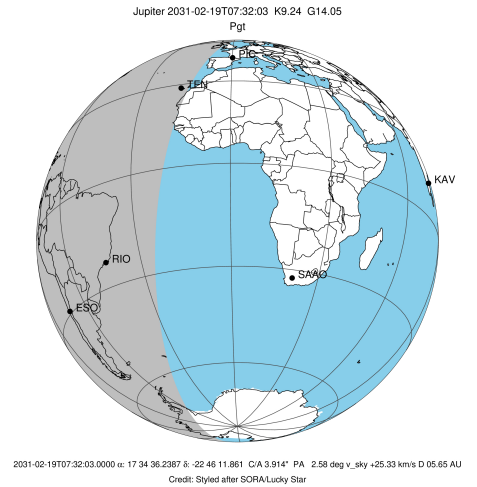
Observable events with sun below -5 deg and altitude above 5 deg

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			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	+	FEB 19 06:43 - FEB 19 06:43	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	+ +	FEB 19 06:43 - FEB 19 08:15	Pie
ESO	European Southern Obs. (3.6m)	-29.3	289.3	+ +	FEB 19 06:43 - FEB 19 08:14	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



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-02-19T07:30:44.520
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       : 4116710553902587264
2Mass ID (if available) : 17343624-2246116
ICRS Star Coord at Epoch: 17h 34m 36.23868s -22:46:11.86120s
RUWE (>1.4 is poor) : 0.92
K magnitude           : 9.244
G magnitude           : 14.048
RP magnitude          : 12.816
BP magnitude          : 15.731
DUPflag              : 0
Distance (au)        : 5.646
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 25.33
Sun-Target sep (deg) : 65.87
Sun-Moon sep (deg)   : 34.75
B (ring opening deg) : -2.67
PA of pole (deg)     : 1.90
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 2.743
C/A sky separation (km) : 11232.9
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
    
```

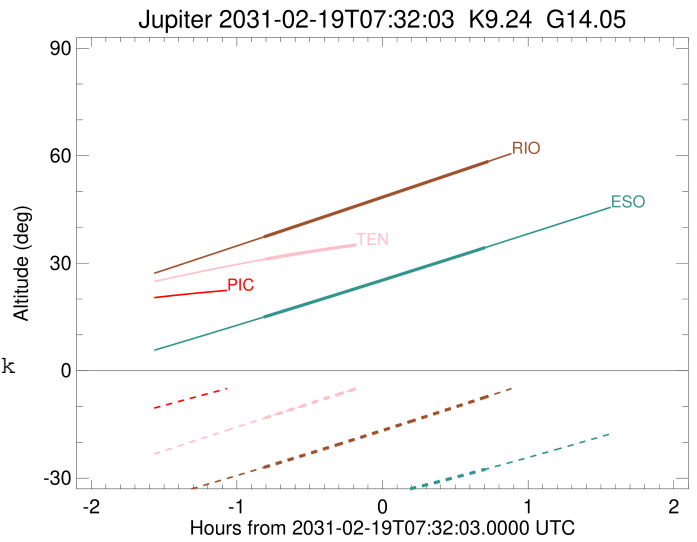
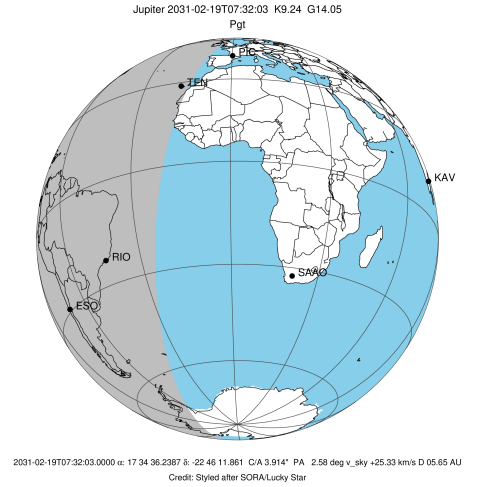


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-19T06:43:37.293	31.11	-13.21	71491.7	-9.90	-11.28
Jupiter	E	2031-02-19T08:17:56.732	38.63	7.16x	71491.8	-8.23	-9.39

```

target           : Jupiter
target radius (km) : 71492.00
C/A epoch       : 2031-02-19T07:29:20.980
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 : 4116710553902587264
2Mass ID (if available) : 17343624-2246116
ICRS Star Coord at Epoch: 17h 34m 36.23868s -22:46:11.86120s
RUWE (>1.4 is poor) : 0.92
K magnitude     : 9.244
G magnitude     : 14.048
RP magnitude    : 12.816
BP magnitude    : 15.731
DUPflag        : 0
Distance (au)  : 5.646
f0 (km)        : 0.00
g0 (km)        : 0.00
skyplane vel. (km/s) : 25.33
Sun-Target sep (deg) : 65.87
Sun-Moon sep (deg) : 35.20
B (ring opening deg) : -2.67
PA of pole (deg) : 1.90
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 4.115
C/A sky separation (km) : 16851.1
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
    
```

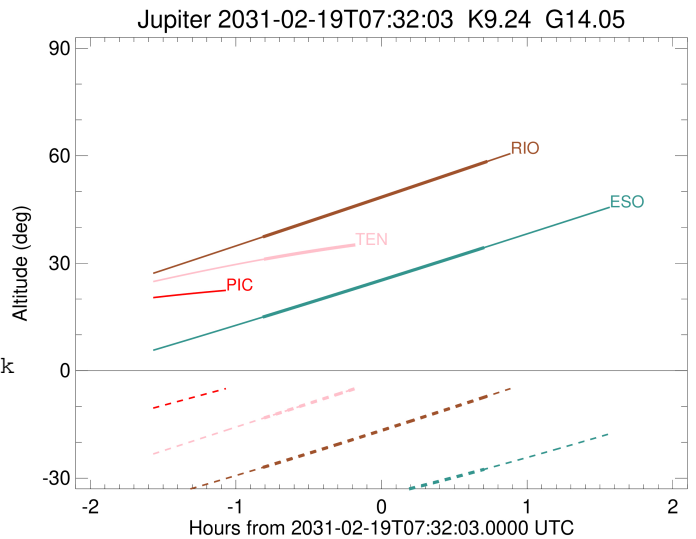
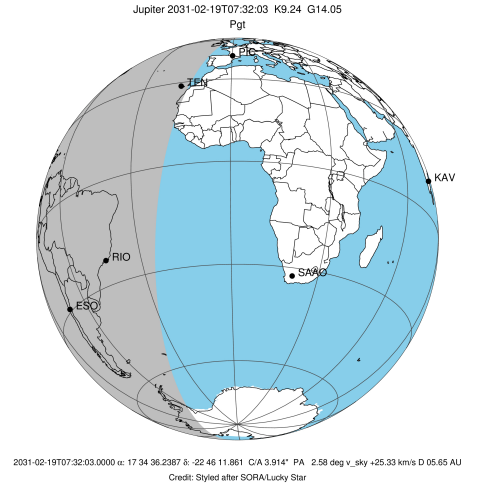


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-02-19T06:43:11.043	37.33	-27.00	71491.4	-14.62	-16.60
Jupiter	E	2031-02-19T08:15:39.562	58.41	-7.12	71491.5	-12.66	-14.40

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-19T07:28:40.380
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     : 4116710553902587264
2Mass ID (if available) : 17343624-2246116
ICRS Star Coord at Epoch: 17h 34m 36.23868s -22:46:11.86120s
RUWE (>1.4 is poor) : 0.92
K magnitude         : 9.244
G magnitude         : 14.048
RP magnitude        : 12.816
BP magnitude        : 15.731
DUPflag            : 0
Distance (au)      : 5.646
f0 (km)            : 0.00
g0 (km)            : 0.00
skyplane vel. (km/s) : 25.33
Sun-Target sep (deg) : 65.87
Sun-Moon sep (deg)  : 35.17
B (ring opening deg) : -2.67
PA of pole (deg)    : 1.90
Pole direction: RA (deg): 268.05702
Dec (deg): 64.49651
C/A sky separation (") : 4.507
C/A sky separation (km) : 18456.2
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	2031-02-19T06:43:07.366	14.95	-42.12	71491.3	-15.98	-18.12
Jupiter	E	2031-02-19T08:14:23.421	34.36	-27.53	71491.4	-13.92	-15.82