

target : Jupiter  
 target radius (km) : 71492.00  
 C/A epoch : 2031-09-26T21:38:10.110  
 Event type : Pgt  
 : Jupiter occs: geocentric, topocentric  
 : Not a ringed target  
 Gaia source ID : 4114636428291079040  
 2Mass ID (if available) : 17220499-2257561

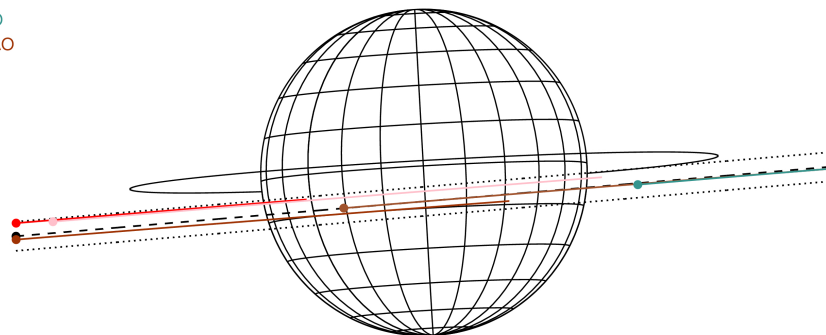
Jupiter 2031-09-26T21:38:10 K7.74 G13.83 Pgt

ICRS Star Coord at Epoch: 17h 22m 04.99491s -22:57:56.37088s  
 RUWE (>1.4 is poor) : 1.06  
 K magnitude : 7.739  
 G magnitude : 13.834  
 RP magnitude : 12.310  
 BP magnitude : 17.161  
 DUPflag : 0  
 Distance (au) : 5.358  
 f0 (km) : 0.00  
 g0 (km) : 0.00  
 skyplane vel. (km/s) : 19.21  
 Sun-Target sep (deg) : 78.11  
 Sun-Moon sep (deg) : 49.99  
 B (ring opening deg) : -2.34  
 PA of pole (deg) : 3.24  
 Pole direction: RA (deg): 268.05683  
 Dec (deg): 64.49652  
 C/A sky separation (") : 3.249  
 C/A sky separation (km) : 12624.9  
 NAIF SPICE kernels : RAJobs\_U111+rgf15.spk



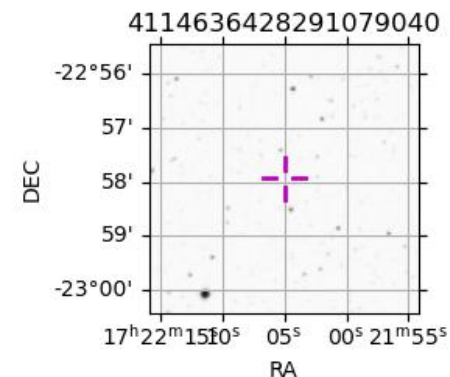
2031-09-26T21:38:10.1100 α: 17 22 04.9949 δ: -22 57 56.371 C/A 3.258" PA 4.88 deg v\_sky +19.21 km/s D 05.36 AU  
 Credit: Styled after SORA/Lucky Star

Earth  
 PIC  
 TEN  
 RIO  
 ESO  
 SAAO



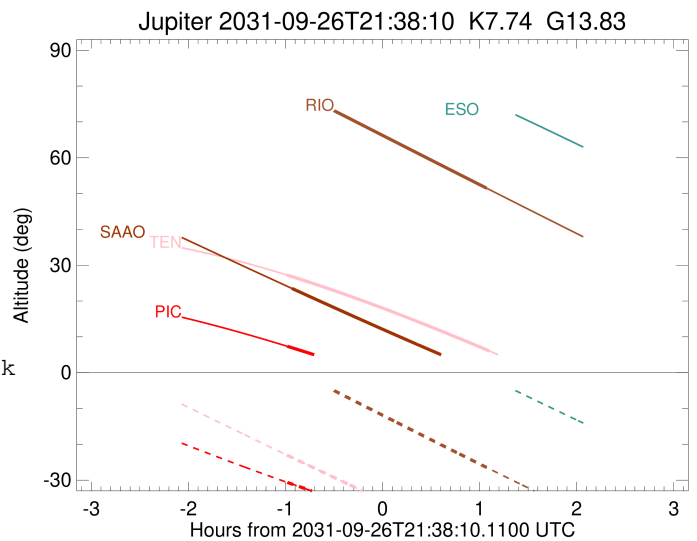
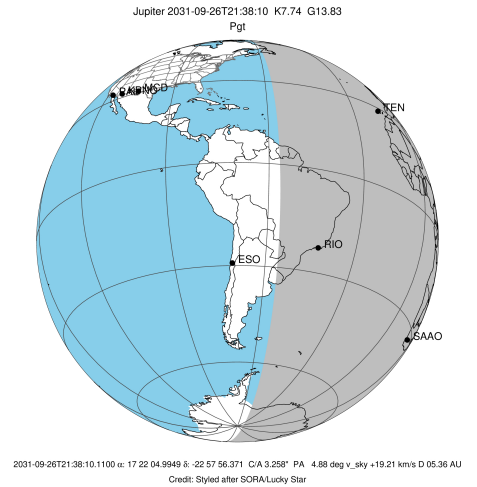
Observable events with sun below -5 deg and altitude above 5 deg

Obs	Location	lat	Elon	Target	Observed Events Interval	OCode
PIC	Pic du Midi	42.9	0.1	+	SEP 26 20:39 - SEP 26 20:39	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			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+ +	SEP 26 20:39 - SEP 26 22:44	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	+	SEP 26 22:42 - SEP 26 22:42	Pne
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1			Pnn
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+	SEP 26 20:42 - SEP 26 20:42	Pin
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-26T21:41:36.310
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        : 4114636428291079040
2Mass ID (if available) : 17220499-2257561
ICRS Star Coord at Epoch: 17h 22m 04.99491s -22:57:56.37088s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 7.739
G magnitude           : 13.834
RP magnitude          : 12.310
BP magnitude          : 17.161
DUPflag              : 0
Distance (au)         : 5.358
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 19.21
Sun-Target sep (deg)  : 78.11
Sun-Moon sep (deg)    : 49.51
B (ring opening deg) : -2.34
PA of pole (deg)      : 3.24
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation (" ) : 1.975
C/A sky separation (km) : 7676.7
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
    
```

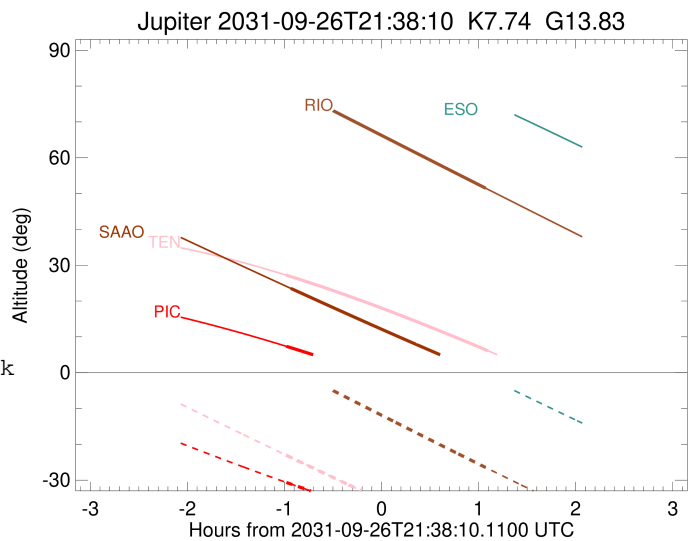
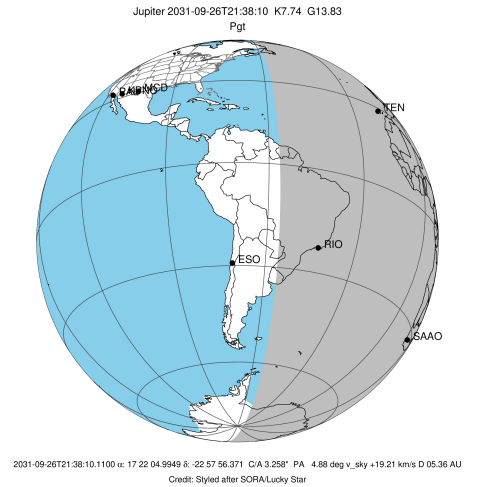


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-26T20:39:21.538	7.35	-30.64	71491.9	-7.48	-8.54
Jupiter	E	2031-09-26T22:43:30.335	-12.28x	-46.06	71491.9	-4.89	-5.59

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-26T21:41:44.680
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       : 4114636428291079040
2Mass ID (if available) : 17220499-2257561
ICRS Star Coord at Epoch: 17h 22m 04.99491s -22:57:56.37088s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 7.739
G magnitude           : 13.834
RP magnitude          : 12.310
BP magnitude          : 17.161
DUPflag              : 0
Distance (au)         : 5.358
f0 (km)               : 0.00
g0 (km)               : 0.00
skyplane vel. (km/s) : 19.21
Sun-Target sep (deg) : 78.11
Sun-Moon sep (deg)   : 49.76
B (ring opening deg) : -2.34
PA of pole (deg)     : 3.24
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation (") : 2.108
C/A sky separation (km) : 8194.2
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
    
```

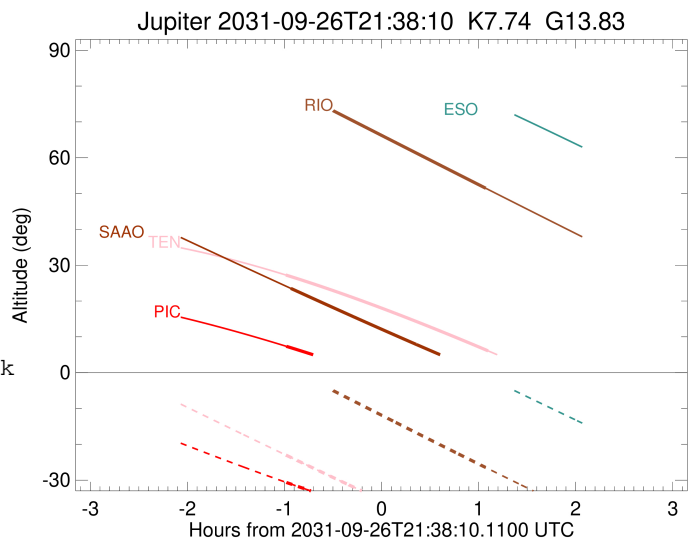
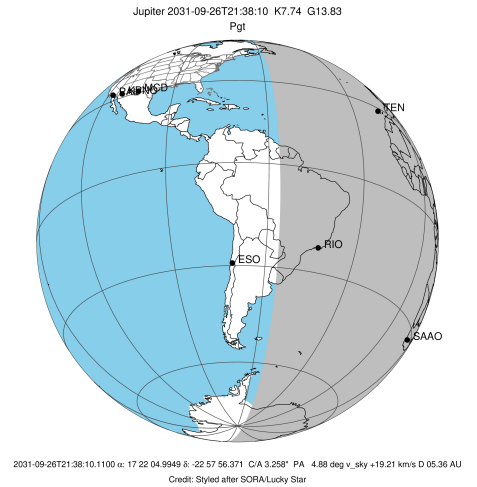


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-26T20:39:08.052	27.24	-23.01	71491.9	-7.94	-9.06
Jupiter	E	2031-09-26T22:43:59.921	6.10	-48.49	71491.9	-5.31	-6.07

```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch             : 2031-09-26T21:40:25.050
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       : 4114636428291079040
2Mass ID (if available) : 17220499-2257561
ICRS Star Coord at Epoch: 17h 22m 04.99491s -22:57:56.37088s
RUWE (>1.4 is poor) : 1.06
K magnitude           : 7.739
G magnitude           : 13.834
RP magnitude          : 12.310
BP magnitude          : 17.161
DUPflag              : 0
Distance (au)        : 5.358
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 19.21
Sun-Target sep (deg) : 78.11
Sun-Moon sep (deg)   : 50.44
B (ring opening deg) : -2.34
PA of pole (deg)     : 3.24
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation (") : 3.248
C/A sky separation (km) : 12623.8
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
    
```

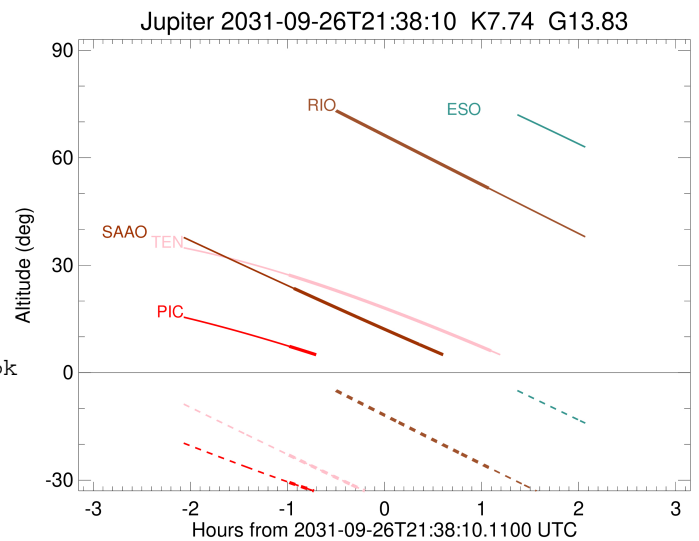
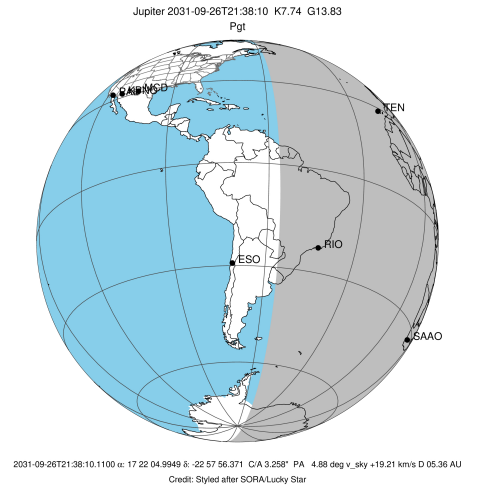


x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-09-26T20:38:00.699	80.10	1.96x	71491.7	-11.74	-13.36
Jupiter	E	2031-09-26T22:42:35.648	51.47	-26.48	71491.8	-8.72	-9.95

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target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-09-26T21:42:56.970
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      : 4114636428291079040
2Mass ID (if available) : 17220499-2257561
ICRS Star Coord at Epoch: 17h 22m 04.99491s -22:57:56.37088s
RUWE (>1.4 is poor) : 1.06
K magnitude          : 7.739
G magnitude          : 13.834
RP magnitude         : 12.310
BP magnitude         : 17.161
DUPflag             : 0
Distance (au)       : 5.358
f0 (km)              : 0.00
g0 (km)              : 0.00
skyplane vel. (km/s) : 19.21
Sun-Target sep (deg) : 78.11
Sun-Moon sep (deg)  : 49.62
B (ring opening deg) : -2.34
PA of pole (deg)    : 3.24
Pole direction: RA (deg): 268.05683
Dec (deg): 64.49652
C/A sky separation ("): 3.947
C/A sky separation (km): 15340.1
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	2031-09-26T20:42:09.331	23.52	-48.08	71491.6	-13.57	-15.43
Jupiter	E	2031-09-26T22:43:21.247	-0.51x	-56.15	71491.7	-11.21	-12.76