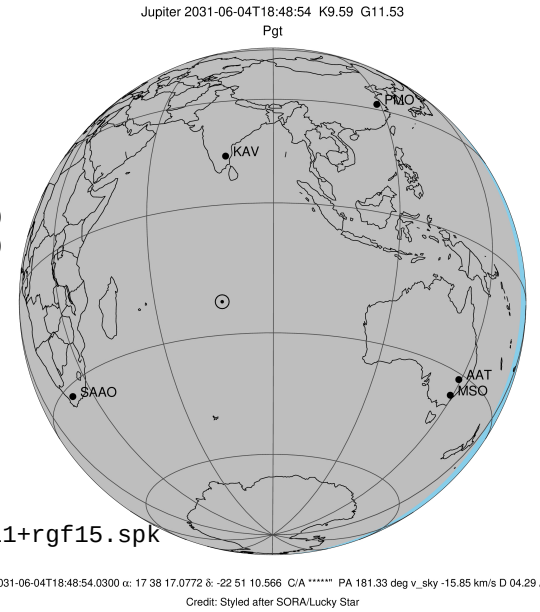
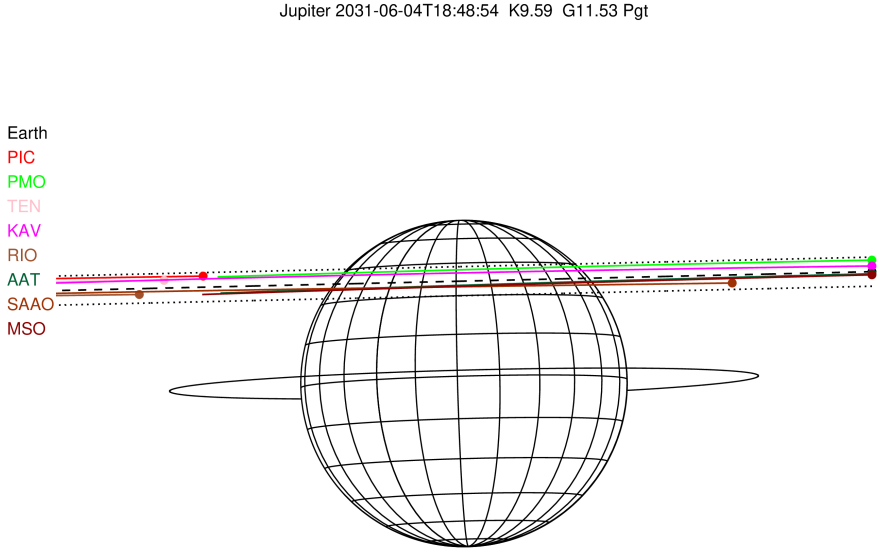
Stellar occultation prediction by rfrench@wellesley.edu Sun Jun 25 09:25:34 2023

target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-06-04T18:48:54.030
Event type : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Gaia source ID : 4116729760988640512
2Mass ID (if available) : 17381706-2251104

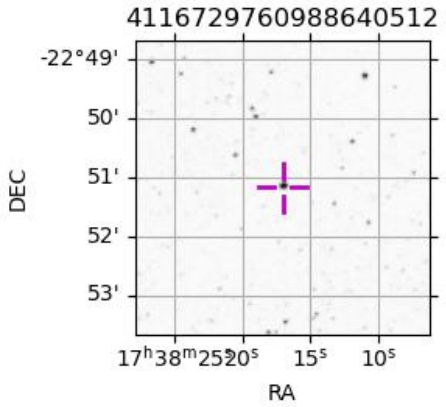
ICRS Star Coord at Epoch: 17h 38m 17.07722s -22:51:10.56581s
RUWE (>1.4 is poor) : 1.07
K magnitude : 9.588
G magnitude : 11.535
RP magnitude : 10.873
BP magnitude : 12.021
DUPflag : 0
Distance (au) : 4.286
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : -15.85
Sun-Target sep (deg) : 168.53
Sun-Moon sep (deg) : 21.47
B (ring opening deg) : -2.61
PA of pole (deg) : 1.50
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 14.424
C/A sky separation (km) : 44836.5
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp





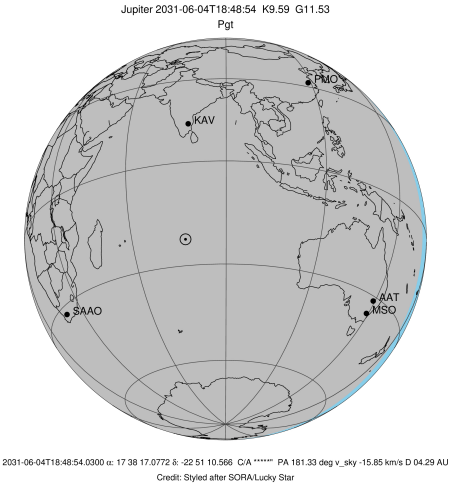
Observable events with sun below -5 deg and altitude above 5 deg

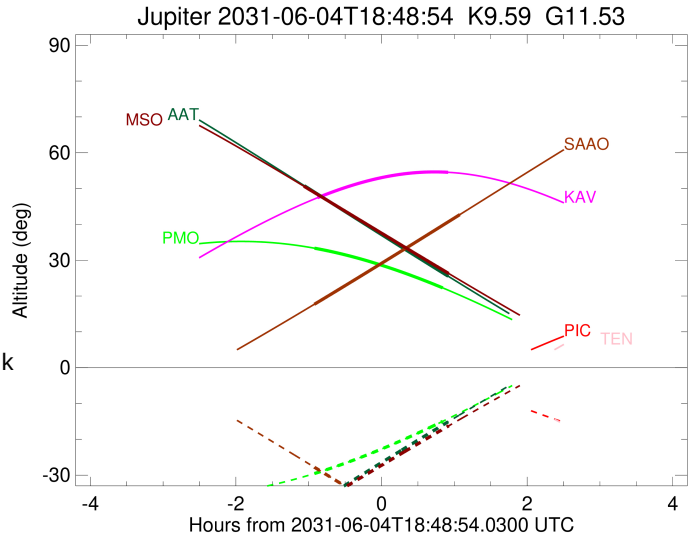
Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1			Pnn
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8	+ +	JUN 04 17:53 - JUN 04 19:39	Pie
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5			Pnn
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	JUN 04 17:56 - JUN 04 19:43	Pie
RIO	Rio de Janeiro	-22.9	316.8			Pnn
ESO	European Southern Obs. (3.6m)	-29.3	289.3			Pnn
AAT	Siding Spring (AAT)	-31.3	149.1	+ +	JUN 04 17:45 - JUN 04 19:43	Pie
SAAO	So. Afr. Astro. Obs. (Sutherland)	-32.4	20.8	+ +	JUN 04 17:53 - JUN 04 19:53	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0	+ +	JUN 04 17:45 - JUN 04 19:44	Pie



Jupiter_2031-06-04T18_48_54.0300_PMO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:18:00 2023

target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-06-04T18:46:30.670
Event type : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code : PMO
Location : Purple Mtn Obs. Nanking
Latitude (deg) : 32.06667
E. Longitude (deg) : 118.82089
Altitude (km) : 0.364
Gaia source ID : 4116729760988640512
2Mass ID (if available) : 17381706-2251104
ICRS Star Coord at Epoch: 17h 38m 17.07722s -22:51:10.56581s
RUWE (>1.4 is poor) : 1.07
K magnitude : 9.588
G magnitude : 11.535
RP magnitude : 10.873
BP magnitude : 12.021
DUPflag : 0
Distance (au) : 4.286
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : -15.85
Sun-Target sep (deg) : 168.53
Sun-Moon sep (deg) : 22.02
B (ring opening deg) : -2.61
PA of pole (deg) : 1.50
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 16.033
C/A sky separation (km) : 49838.6
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.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	2031-06-04T17:53:47.366	33.34	-29.53	71487.5	44.14	47.86
Jupiter	E	2031-06-04T19:39:21.353	22.27	-14.98	71487.5	44.03	47.74

Jupiter_2031-06-04T18_48_54.0300_KAV.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:28:17 2023

```
target                   : Jupiter
target radius (km)       :  71492.00
C/A epoch                : 2031-06-04T18:50:03.600
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           : 4116729760988640512
2Mass ID (if available) : 17381706-2251104
ICRS Star Coord at Epoch: 17h 38m 17.07722s -22:51:10.56581s
RUWE (>1.4 is poor)      :   1.07
K magnitude              :  9.588
G magnitude              : 11.535
RP magnitude             : 10.873
BP magnitude             : 12.021
DUPflag                  : 0
Distance (au)            :  4.286
f0 (km)                  :       0.00
g0 (km)                  :       0.00
skyplane vel. (km/s)     : -15.85
Sun-Target sep (deg)     :  168.53
Sun-Moon sep (deg)       :   21.58
B (ring opening deg)     :   -2.61
PA of pole (deg)         :    1.50
Pole direction: RA (deg): 268.05693
Dec (deg):  64.49651
C/A sky separation (")   :  15.590
C/A sky separation (km)  :  48462.2
NAIF SPICE kernels       : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.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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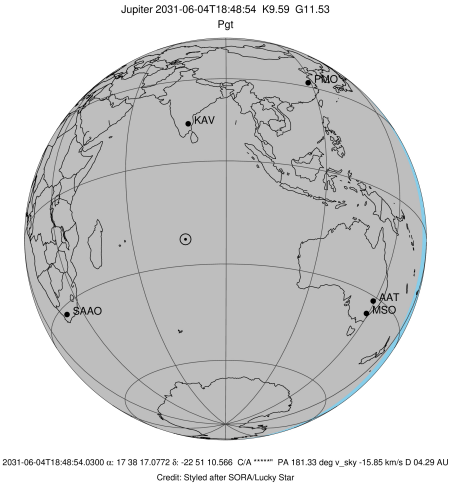
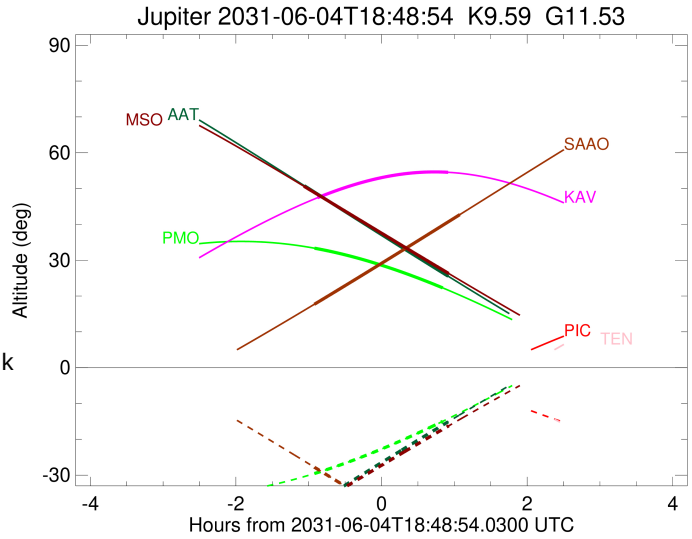
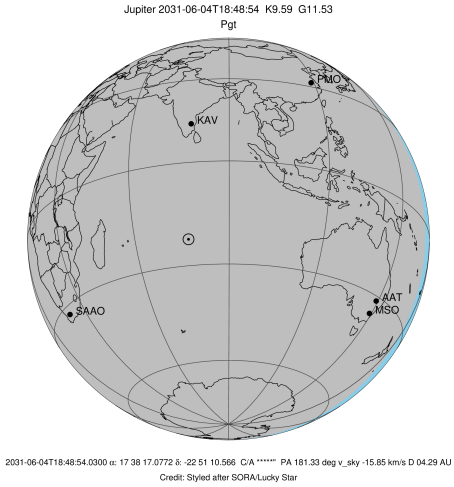




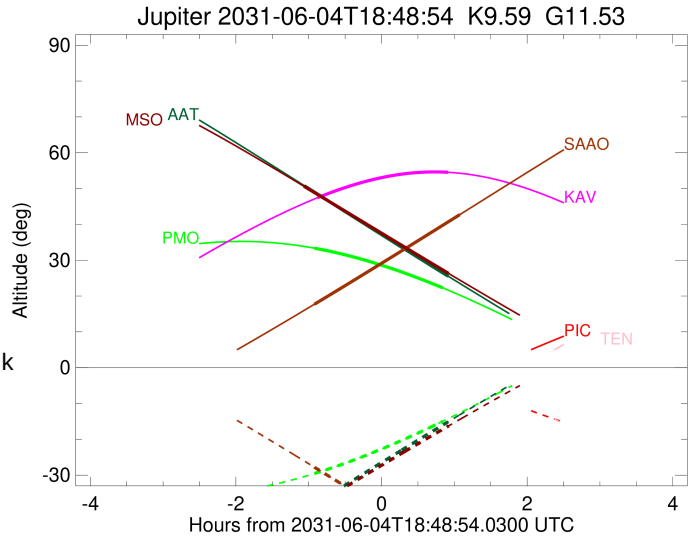
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-04T17:56:12.315	47.44	-53.20	71487.8	42.24	45.96
Jupiter	E	2031-06-04T19:43:50.212	54.53	-51.99	71487.7	42.87	46.59

Jupiter_2031-06-04T18_48_54.0300_AAT.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:34:22 2023



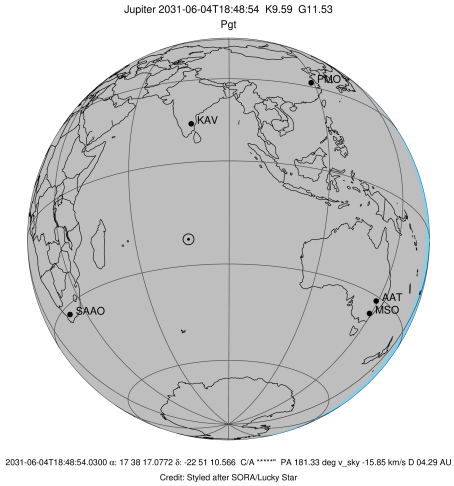

```
target                  : Jupiter
target radius (km)      :  71492.00
C/A epoch               : 2031-06-04T18:44:20.860
Event type              : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code           : AAT
Location                : Siding Spring (AAT)
Latitude (deg)          : -31.27703
E. Longitude (deg)      : 149.06608
Altitude (km)           :   1.164
Gaia source ID          : 4116729760988640512
2Mass ID (if available) : 17381706-2251104
ICRS Star Coord at Epoch: 17h 38m 17.07722s -22:51:10.56581s
RUWE (>1.4 is poor)     :   1.07
K magnitude             :  9.588
G magnitude             : 11.535
RP magnitude            : 10.873
BP magnitude            : 12.021
DUPflag                 : 0
Distance (au)           :  4.286
f0 (km)                 :       0.00
g0 (km)                 :       0.00
skyplane vel. (km/s)    : -15.85
Sun-Target sep (deg)    :  168.53
Sun-Moon sep (deg)      :   22.40
B (ring opening deg)    :   -2.61
PA of pole (deg)        :    1.50
Pole direction: RA (deg): 268.05693
Dec (deg):  64.49651
C/A sky separation (")  :  13.838
C/A sky separation (km) :  43016.3
NAIF SPICE kernels      : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.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
```



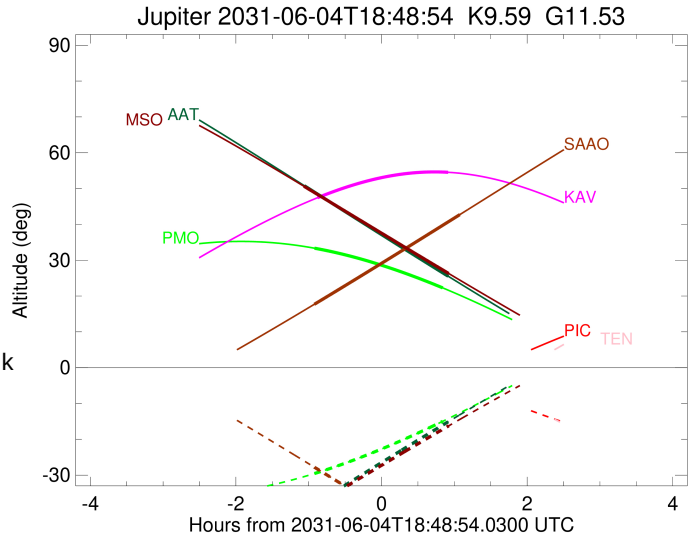
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-04T17:45:13.221	50.80	-39.97	71488.6	37.18	40.84
Jupiter	E	2031-06-04T19:43:46.300	25.54	-15.12	71488.7	36.63	40.28

Jupiter_2031-06-04T18_48_54.0300_SAAO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:36:25 2023




```
target                  : Jupiter
target radius (km)      :  71492.00
C/A epoch               : 2031-06-04T18:53:41.850
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          : 4116729760988640512
2Mass ID (if available) : 17381706-2251104
ICRS Star Coord at Epoch: 17h 38m 17.07722s -22:51:10.56581s
RUWE (>1.4 is poor)     :   1.07
K magnitude             :  9.588
G magnitude             : 11.535
RP magnitude            : 10.873
BP magnitude            : 12.021
DUPflag                 : 0
Distance (au)           :  4.286
f0 (km)                 :       0.00
g0 (km)                 :       0.00
skyplane vel. (km/s)    : -15.85
Sun-Target sep (deg)    :  168.53
Sun-Moon sep (deg)      :   20.92
B (ring opening deg)    :   -2.61
PA of pole (deg)        :    1.50
Pole direction: RA (deg): 268.05693
Dec (deg):  64.49651
C/A sky separation (")  :  13.640
C/A sky separation (km) :  42401.7
NAIF SPICE kernels      : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.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
```

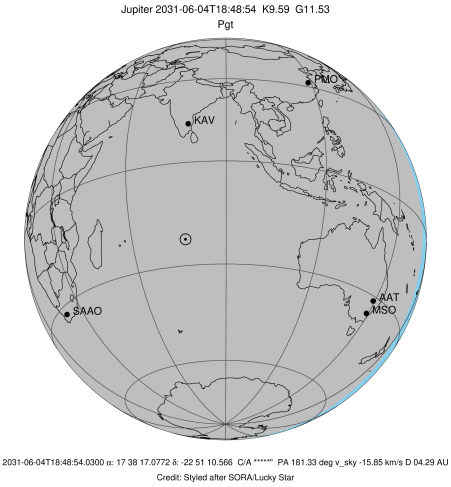


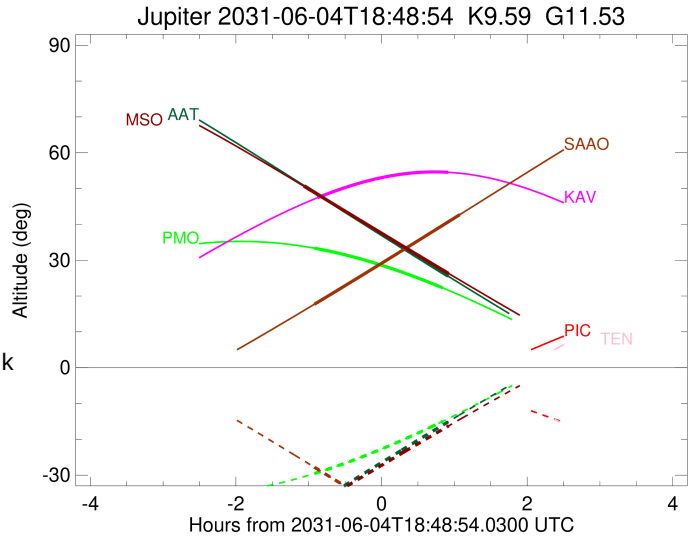
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-06-04T17:53:31.999	17.69	-27.78	71488.8	35.63	39.25
Jupiter	E	2031-06-04T19:53:29.866	42.73	-53.04	71488.6	36.99	40.65

Jupiter_2031-06-04T18_48_54.0300_MSO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:38:30 2023

target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-06-04T18:44:32.440
Event type : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code : MSO
Location : Mt. Stromlo Observatory
Latitude (deg) : -35.32000
E. Longitude (deg) : 149.00833
Altitude (km) : 0.770
Gaia source ID : 4116729760988640512
2Mass ID (if available) : 17381706-2251104
ICRS Star Coord at Epoch: 17h 38m 17.07722s -22:51:10.56581s
RUWE (>1.4 is poor) : 1.07
K magnitude : 9.588
G magnitude : 11.535
RP magnitude : 10.873
BP magnitude : 12.021
DUPflag : 0
Distance (au) : 4.286
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : -15.85
Sun-Target sep (deg) : 168.53
Sun-Moon sep (deg) : 22.38
B (ring opening deg) : -2.61
PA of pole (deg) : 1.50
Pole direction: RA (deg): 268.05693
Dec (deg): 64.49651
C/A sky separation (") : 13.709
C/A sky separation (km) : 42616.6
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp
de440.bsp
earth_720101_070426.bpc
jup365.bsp
ura116.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	2031-06-04T17:45:03.856	50.62	-40.24	71488.7	36.76	40.41
Jupiter	E	2031-06-04T19:44:18.194	26.28	-16.23	71488.8	36.25	39.89