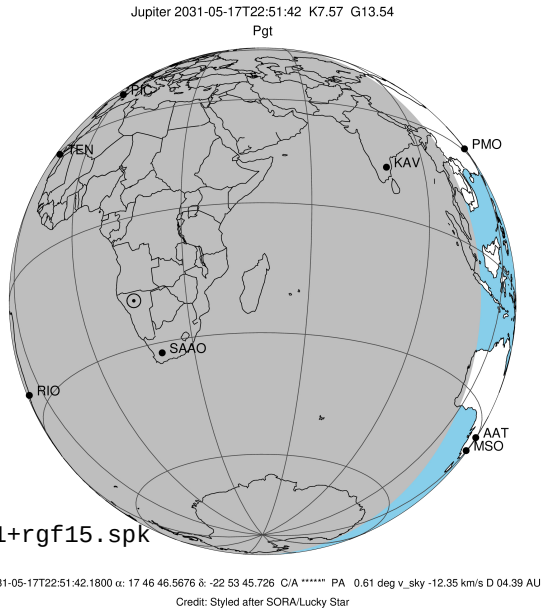
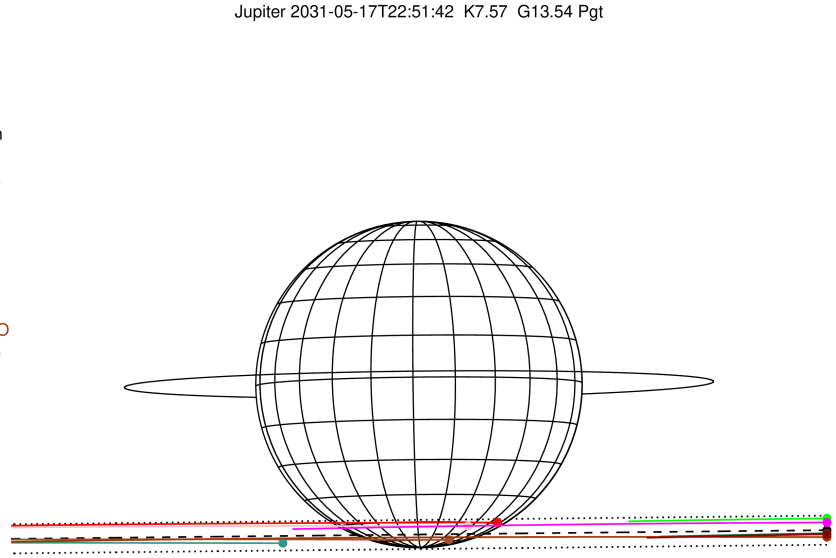
Stellar occultation prediction by rfrench@wellesley.edu Sun Jun 25 09:07:07 2023

target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-05-17T22:51:42.180
Event type : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Gaia source ID : 4068842769828094848
2Mass ID (if available) : 17464656-2253455

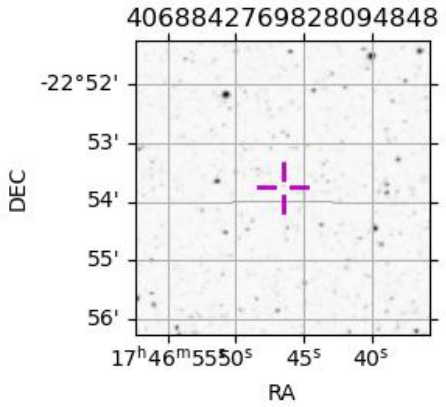
ICRS Star Coord at Epoch: 17h 46m 46.56763s -22:53:45.72581s
RUWE (>1.4 is poor) : 0.77
K magnitude : 7.574
G magnitude : 13.538
RP magnitude : 12.056
BP magnitude : 16.626
DUPflag : 0
Distance (au) : 4.394
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : -12.35
Sun-Target sep (deg) : 149.45
Sun-Moon sep (deg) : 110.86
B (ring opening deg) : -2.60
PA of pole (deg) : 0.59
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 20.617
C/A sky separation (km) : 65705.5
NAIF SPICE kernels : RAJobs_U111+rgf15.spk
URKALLv1.spk
naif0012.tls
nep097.bsp
nep101.bsp
sat440l.bsp



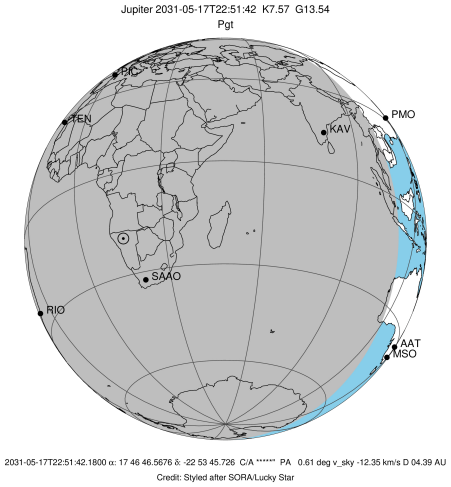


Observable events with sun below -5 deg and altitude above 5 deg

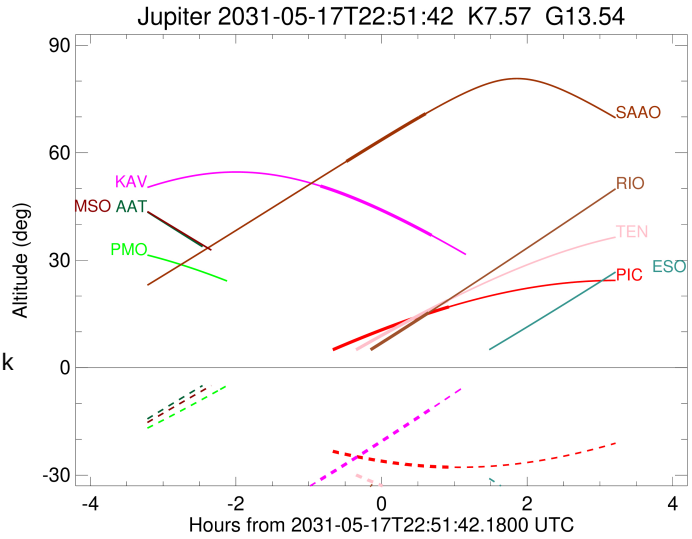
Obs	Location	lat	Elon	Target	Observed Events Interval	OEcode
PIC	Pic du Midi	42.9	0.1	+	MAY 17 23:47 - MAY 17 23:47	Pne
PAL	Palomar Mt (200")	33.4	243.1			Pnn
PMO	Purple Mtn Obs. Nanking	32.1	118.8			Pnn
KPNO	Kitt Peak Natl Obs	32.0	248.4			Pnn
MCD	McDonald Obs. 2.7m	30.7	256.0			Pnn
TEN	Teide Obs./Tenerife	28.3	343.5	+	MAY 17 23:46 - MAY 17 23:46	Pne
IRTF	Mauna Kea/IRTF	19.8	204.5			Pnn
KAV	Kavalur Observatory	12.6	78.8	+ +	MAY 17 22:01 - MAY 17 23:32	Pie
RIO	Rio de Janeiro	-22.9	316.8	+	MAY 17 23:30 - MAY 17 23:30	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	+ +	MAY 17 22:22 - MAY 17 23:28	Pie
MSO	Mt. Stromlo Observatory	-35.3	149.0			Pnn



Jupiter_2031-05-17T22_51_42.1800_PIC.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:13:49 2023



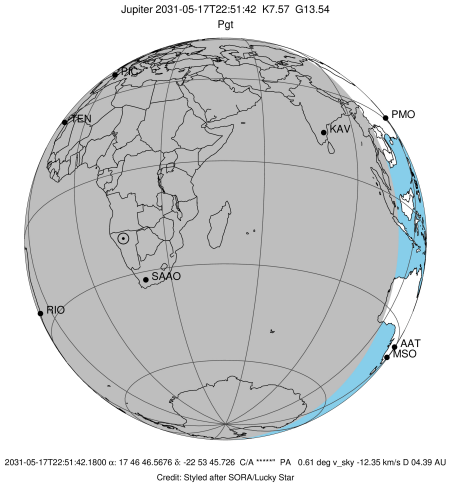

```
target                  : Jupiter
target radius (km)      :  71492.00
C/A epoch               : 2031-05-17T22:57:02.310
Event type              : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code           : PIC
Location                : Pic du Midi
Latitude (deg)          :  42.93656
E. Longitude (deg)      :   0.14231
Altitude (km)           :   2.890
Gaia source ID          : 4068842769828094848
2Mass ID (if available) : 17464656-2253455
ICRS Star Coord at Epoch: 17h 46m 46.56763s -22:53:45.72581s
RUWE (>1.4 is poor)     :   0.77
K magnitude             :  7.574
G magnitude             : 13.538
RP magnitude            : 12.056
BP magnitude            : 16.626
DUPflag                 : 0
Distance (au)           :  4.394
f0 (km)                 :       0.00
g0 (km)                 :       0.00
skyplane vel. (km/s)    : -12.35
Sun-Target sep (deg)    :  149.45
Sun-Moon sep (deg)      :  110.85
B (ring opening deg)    :   -2.60
PA of pole (deg)        :    0.59
Pole direction: RA (deg): 268.05694
Dec (deg):  64.49651
C/A sky separation (")  :  18.989
C/A sky separation (km) :  60514.8
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
```



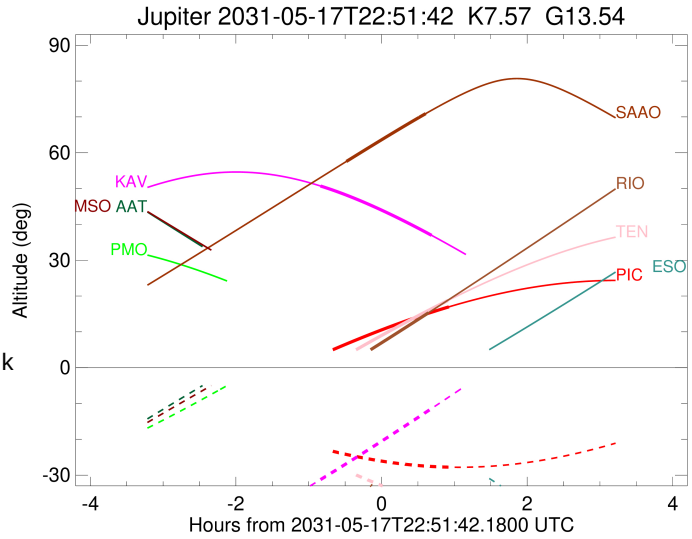
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-17T22:06:34.173	4.27x	-22.92	71485.3	-58.21	-61.40
Jupiter	E	2031-05-17T23:47:14.520	16.97	-27.77	71485.4	-57.36	-60.60

Jupiter_2031-05-17T22_51_42.1800_TEN.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:24:08 2023



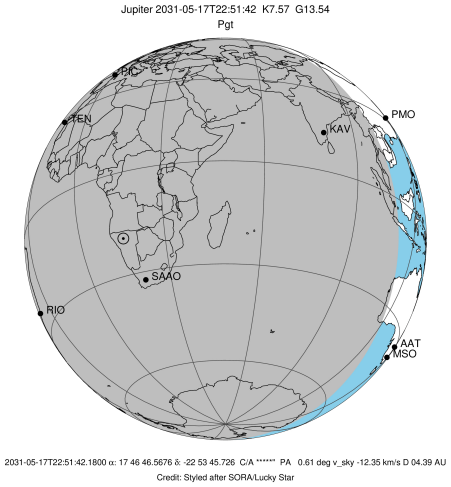
target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-05-17T22:59:28.720
Event type : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code : TEN
Location : Teide Obs./Tenerife
Latitude (deg) : 28.30050
E. Longitude (deg) : 343.48909
Altitude (km) : 2.395
Gaia source ID : 4068842769828094848
2Mass ID (if available) : 17464656-2253455
ICRS Star Coord at Epoch: 17h 46m 46.56763s -22:53:45.72581s
RUWE (>1.4 is poor) : 0.77
K magnitude : 7.574
G magnitude : 13.538
RP magnitude : 12.056
BP magnitude : 16.626
DUPflag : 0
Distance (au) : 4.394
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : -12.35
Sun-Target sep (deg) : 149.45
Sun-Moon sep (deg) : 110.74
B (ring opening deg) : -2.60
PA of pole (deg) : 0.59
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 19.453
C/A sky separation (km) : 61995.5
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



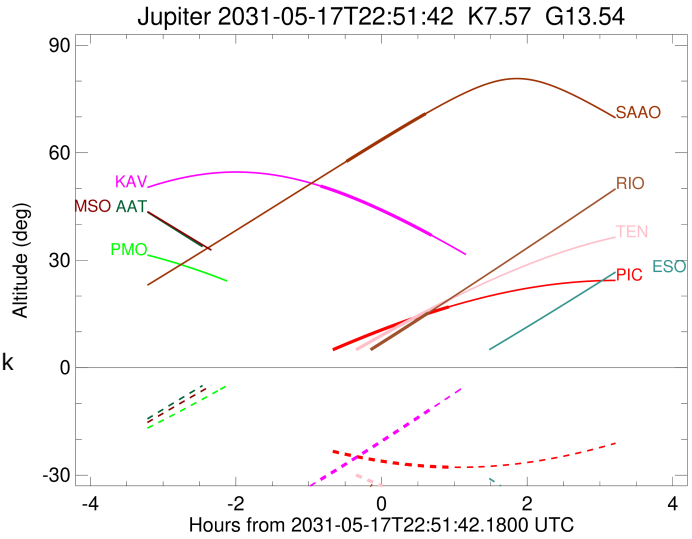
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-17T22:12:03.221	1.35x	-27.09	71484.9	-60.70	-63.72
Jupiter	E	2031-05-17T23:46:34.510	18.77	-39.00	71485.1	-59.44	-62.54

Jupiter_2031-05-17T22_51_42.1800_KAV.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:28:12 2023



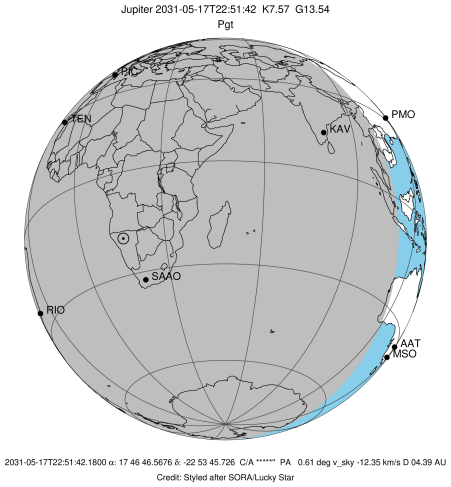
target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-05-17T22:47:08.090
Event type : Pgt
: Jupiter occs: geocentric, topocentric
: Not a ringed target
Observer code : KAV
Location : Kavalur Observatory
Latitude (deg) : 12.57556
E. Longitude (deg) : 78.83167
Altitude (km) : 0.722
Gaia source ID : 4068842769828094848
2Mass ID (if available) : 17464656-2253455
ICRS Star Coord at Epoch: 17h 46m 46.56763s -22:53:45.72581s
RUWE (>1.4 is poor) : 0.77
K magnitude : 7.574
G magnitude : 13.538
RP magnitude : 12.056
BP magnitude : 16.626
DUPflag : 0
Distance (au) : 4.394
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : -12.35
Sun-Target sep (deg) : 149.45
Sun-Moon sep (deg) : 111.64
B (ring opening deg) : -2.60
PA of pole (deg) : 0.59
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 19.546
C/A sky separation (km) : 62292.2
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



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	2031-05-17T22:01:27.449	50.70	-31.25	71485.0	-60.20	-63.25
Jupiter	E	2031-05-17T23:32:56.648	36.94	-11.40	71484.9	-60.98	-63.97

Jupiter_2031-05-17T22_51_42.1800_RIO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:30:12 2023




```
target                  : Jupiter
target radius (km)      :  71492.00
C/A epoch               : 2031-05-17T23:00:50.980
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          : 4068842769828094848
2Mass ID (if available) : 17464656-2253455
ICRS Star Coord at Epoch: 17h 46m 46.56763s -22:53:45.72581s
RUWE (>1.4 is poor)     :   0.77
K magnitude             :  7.574
G magnitude             : 13.538
RP magnitude            : 12.056
BP magnitude            : 16.626
DUPflag                 : 0
Distance (au)           :  4.394
f0 (km)                 :       0.00
g0 (km)                 :       0.00
skyplane vel. (km/s)    : -12.35
Sun-Target sep (deg)    :  149.45
Sun-Moon sep (deg)      :  110.65
B (ring opening deg)    :   -2.60
PA of pole (deg)        :    0.59
Pole direction: RA (deg): 268.05694
Dec (deg):  64.49651
C/A sky separation (")  :  21.342
C/A sky separation (km) :  68015.2
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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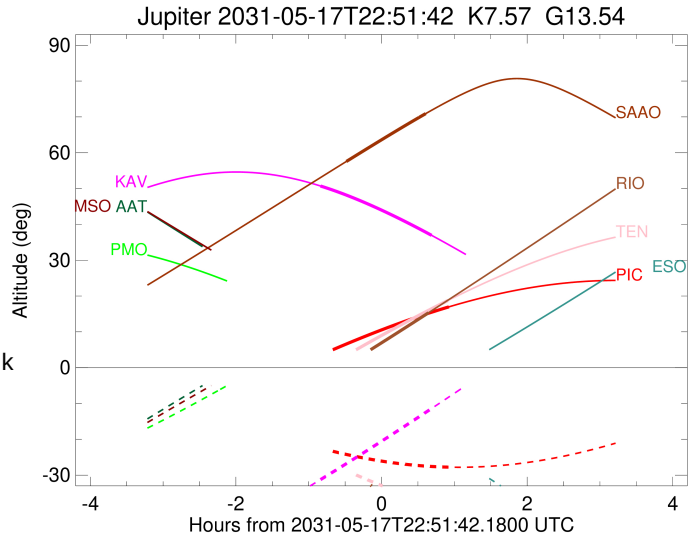
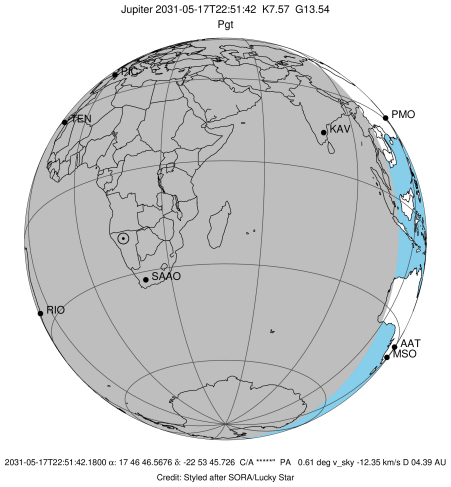


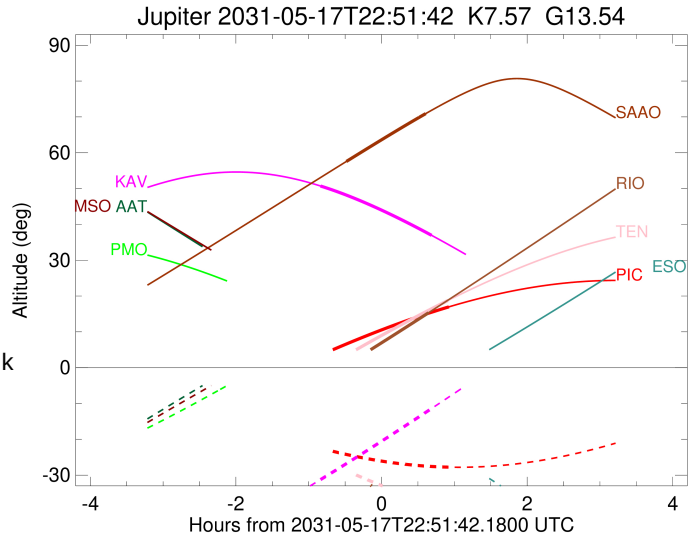
x: target alt < 5.0 deg or sun > -5.0 deg

Target	I/E	UTC	alt	alt-sun	radius	lat-geo	lat-geodetic
Jupiter	I	2031-05-17T22:31:06.570	2.54x	-30.16	71483.5	-72.64	-74.60
Jupiter	E	2031-05-17T23:30:26.240	15.32	-43.71	71483.7	-71.16	-73.26

Jupiter_2031-05-17T22_51_42.1800_SAAO.txt
Occultation predictions computed by rfrench@wellesley.edu Sun Jun 11 11:36:19 2023



target : Jupiter
target radius (km) : 71492.00
C/A epoch : 2031-05-17T22:55:30.640
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 : 4068842769828094848
2Mass ID (if available) : 17464656-2253455
ICRS Star Coord at Epoch: 17h 46m 46.56763s -22:53:45.72581s
RUWE (>1.4 is poor) : 0.77
K magnitude : 7.574
G magnitude : 13.538
RP magnitude : 12.056
BP magnitude : 16.626
DUPflag : 0
Distance (au) : 4.394
f0 (km) : 0.00
g0 (km) : 0.00
skyplane vel. (km/s) : -12.35
Sun-Target sep (deg) : 149.45
Sun-Moon sep (deg) : 111.50
B (ring opening deg) : -2.60
PA of pole (deg) : 0.59
Pole direction: RA (deg): 268.05694
Dec (deg): 64.49651
C/A sky separation (") : 21.019
C/A sky separation (km) : 66984.0
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	2031-05-17T22:22:47.263	57.56	-77.03	71483.8	-69.75	-71.99
Jupiter	E	2031-05-17T23:28:09.006	70.91	-72.27	71483.9	-69.15	-71.45