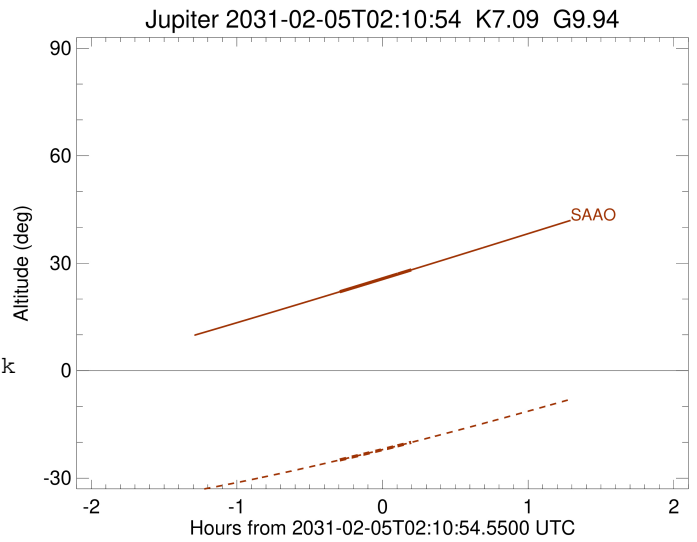
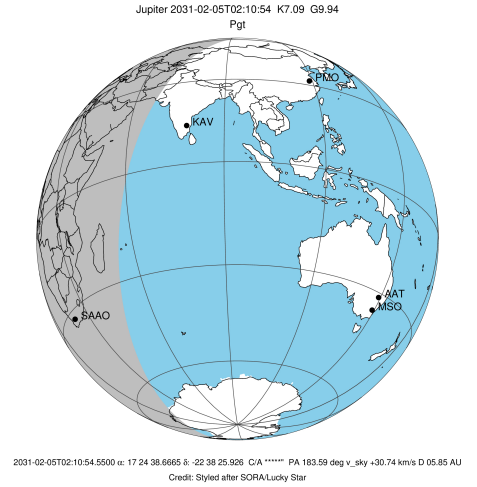



```

target                : Jupiter
target radius (km)   : 71492.00
C/A epoch            : 2031-02-05T02:08:00.680
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      : 4111736951751948544
2Mass ID (if available) : 17243869-2238249
ICRS Star Coord at Epoch: 17h 24m 38.66649s -22:38:25.92602s
RUWE (>1.4 is poor) : 1.04
K magnitude          : 7.090
G magnitude          : 9.938
RP magnitude         : 9.089
BP magnitude         : 10.683
DUPflag             : 0
Distance (au)       : 5.846
f0 (km)             : 0.00
g0 (km)             : 0.00
skyplane vel. (km/s) : 30.74
Sun-Target sep (deg) : 53.79
Sun-Moon sep (deg)  : 154.24
B (ring opening deg) : -2.70
PA of pole (deg)    : 2.97
Pole direction: RA (deg): 268.05703
Dec (deg): 64.49651
C/A sky separation (" ) : 15.615
C/A sky separation (km) : 66205.7
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	2031-02-05T01:53:21.320	22.03	-24.91	71483.6	66.79	69.31
Jupiter	E	2031-02-05T02:22:40.847	28.11	-20.03	71483.4	68.59	70.95