

Graphics Display of Rise and Set Conditions

This *Numerit* program (`griseset`) graphically displays rise and set conditions of an Earth satellite relative to a ground site on an oblate Earth. This software uses Kozai's orbit propagation method.

After the simulation is complete the software will display the following items:

- topocentric azimuth
- topocentric elevation
- topocentric slant range
- topocentric azimuth rate
- topocentric elevation rate
- topocentric range rate

In this application the topocentric elevation angle is corrected for atmospheric refraction.

The software will request the classical orbital elements of a satellite and the geographic coordinates of a ground site. It will also ask you to input the simulation duration in days.

The following are typical graphic displays created with this software. The data points are plotted at the step size input by the user.

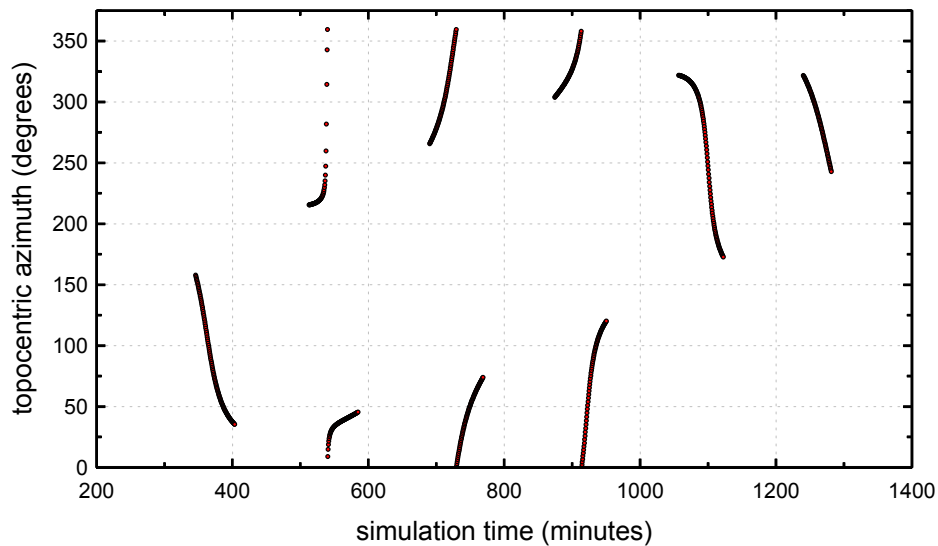


Figure 1. Topocentric Azimuth

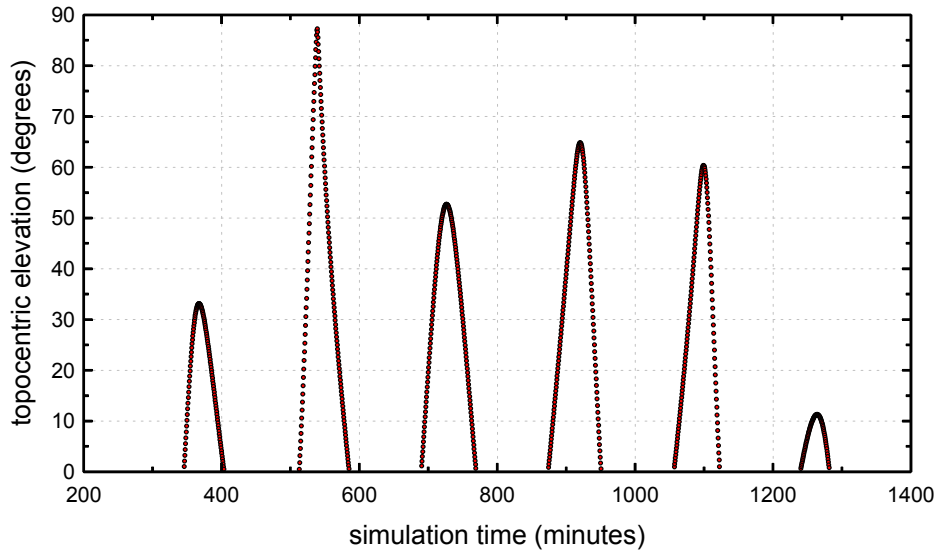


Figure 2. Topocentric Elevation

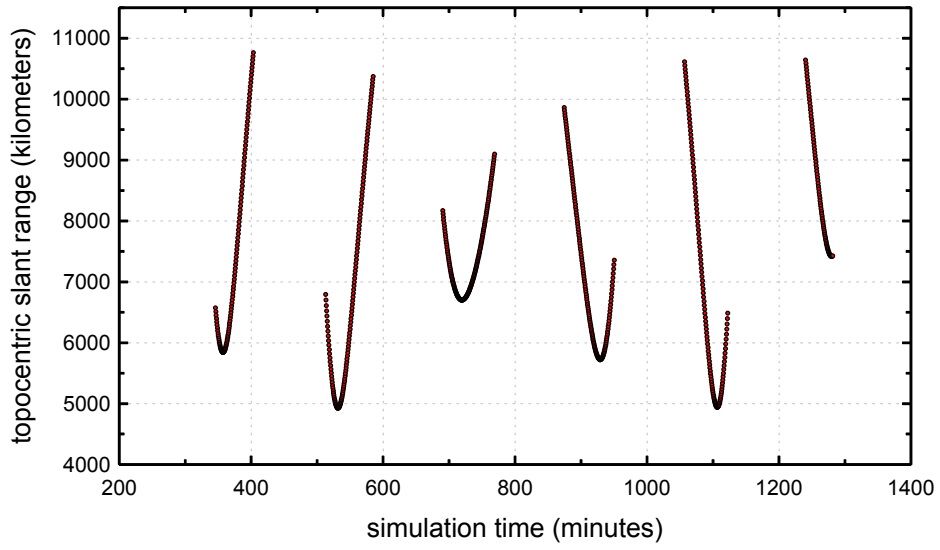


Figure 3. Topocentric Slant Range

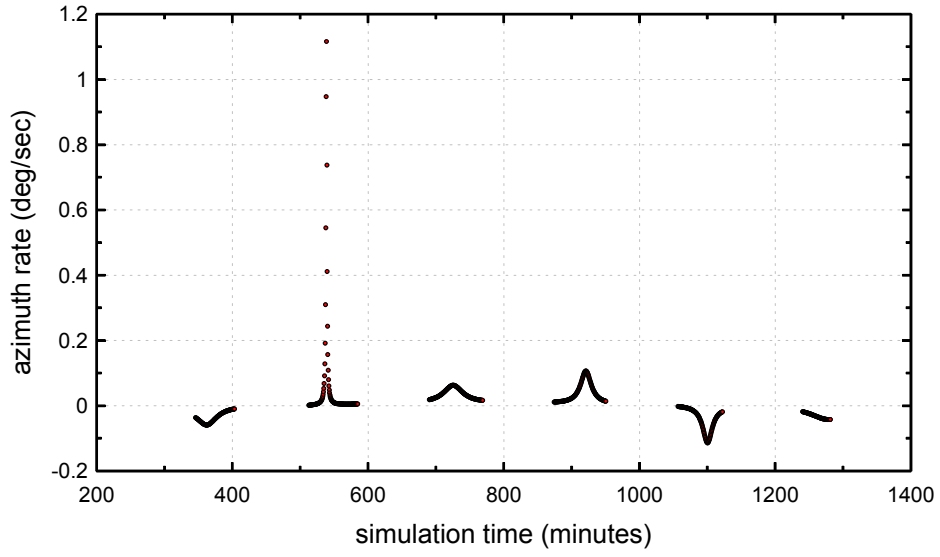


Figure 4. Topocentric Azimuth Rate

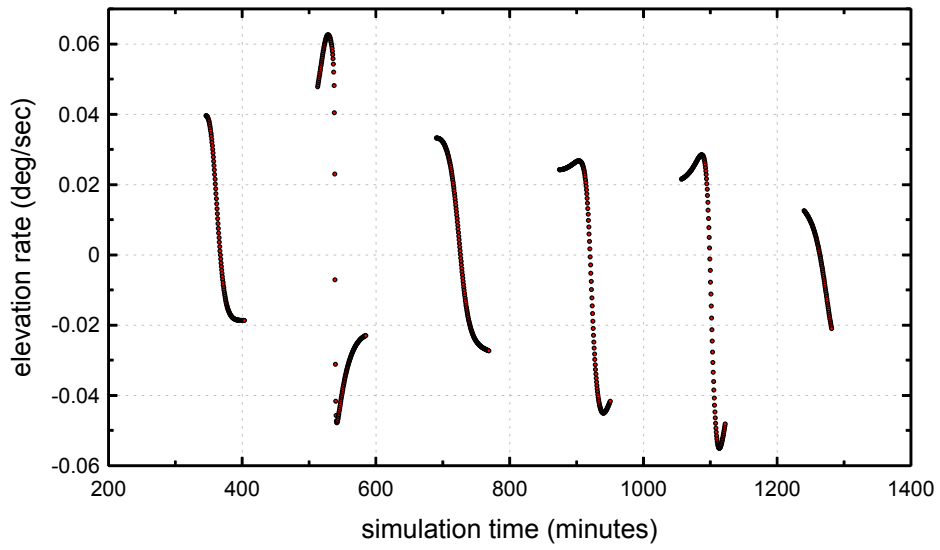


Figure 5. Topocentric Elevation Rate

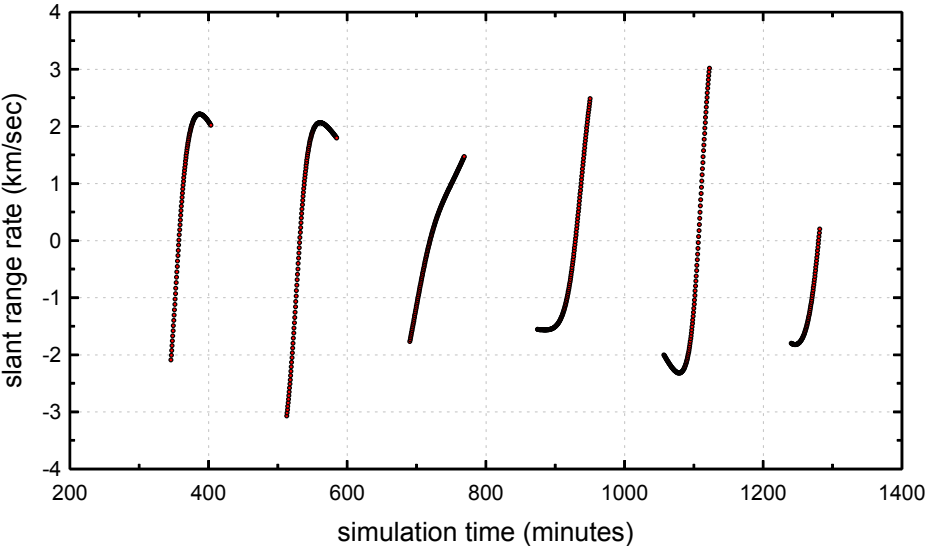


Figure 6. Topocentric Slant Range Rate