

## Orthographic Display of Satellite Ground Tracks

This *Numerit* computer program (`satplot1`) can be used to create a graphic display of satellite ground tracks on an orthographic view of the Earth. An orthographic view assumes that the user is looking at the Earth from a distant point in space. The user can specify the latitude and longitude viewpoint of the picture. The software reads an ASCII data file named `xyzmap.dat` to create geographic features on the display.

The software will prompt you for the initial calendar date, universal time and classical orbital elements of the satellite. It will also ask you to input a simulation duration in days and the graphics step size for plotting in minutes.

The following is a typical display created with this software. The meridians (lines of constant longitude) are plotted at  $45^\circ$  increments and the parallels (lines of constant latitude) are labeled at  $30^\circ$  increments. Each ground track data point is plotted at the graphics step size input by the user. The separation of the data points is an indication of the speed of the satellite in its orbit.



Figure 1. Orthographic View of Satellite Ground Track