

# SaVi satellite constellation visualization

## Scope:

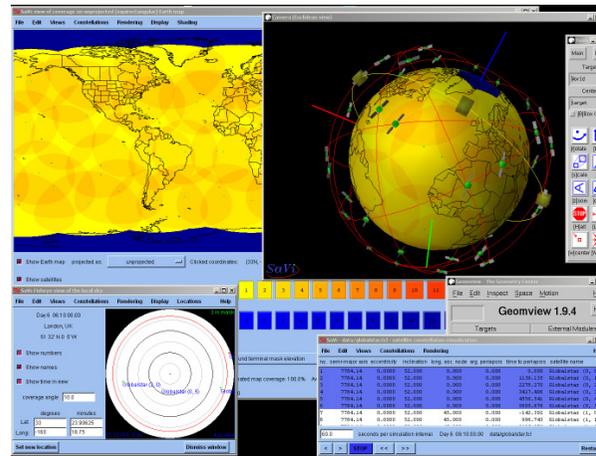
*SaVi* is an open source, cross-platform, software package for visualizing and explaining orbital geometry. *SaVi* simulates and animates satellite motion, and shows the coordinated movement and coverage that results from multiple satellites orbiting to form a particular satellite constellation.

## Introduction:

After development was begun at the Geometry Center at the University of Minnesota, *SaVi* is now maintained and enhanced at the University of Surrey for the international community.

## Objectives:

To provide useful simulations of satellites and constellations for research and teaching purposes.



*SaVi* user interface showing *Globalstar*

## System Model:

*SaVi* relies on the J2 orbital model, which is useful for simulating and explaining basic satellite motion. More detailed perturbation is simulated by other tools.

## Main Ideas:

- Show and animate satellite movement and coverage in various constellations.
- Use these to explain, teach and research satellite constellations and orbits.

## Results:

Simulation output from *SaVi* has now appeared in over twenty conference and journal papers, and has also been used by companies planning commercial communication systems using satellite constellations.

## Summary:

*SaVi* provides a useful tool for satellite constellation and orbit simulation, for both research and teaching purposes. Being freely available, with an open codebase that can be easily customised, eases maintenance and portability, and makes *SaVi* attractive to its users and to educators and researchers.

*SaVi* is available from:  
<http://savi.sf.net/>