both the L1 (1.57542-GHz) and L2 (1.2276-GHz) GPS signals.

*This program was written by Sung Byun, George Hajj, and Lawrence Young of Caltech for NASA’s Jet Propulsion Laboratory. Further information is contained in a TSP (see page 1).*

This software is available for commercial licensing. Please contact Don Hart of the California Institute of Technology at (818) 393-3425. Refer to NPO-40463.

**Parallel Adaptive Mesh Refinement Library**

Parallel Adaptive Mesh Refinement Library (PARAMESH) is a package of Fortran 90 subroutines designed to provide a computer programmer with an easy route to extension of (1) a previously written serial code that uses a logically Cartesian structured mesh into (2) a parallel code with adaptive mesh refinement (AMR). Alternatively, in its simplest use, and with minimal effort, PARAMESH can operate as a domain-decomposition tool for users who want to parallelize their serial codes but who do not wish to utilize adaptivity. The package builds a hierarchy of sub-grids to cover the computational domain of a given application program, with spatial resolution varying to satisfy the demands of the application. The sub-grid blocks form the nodes of a tree data structure (a quad-tree in two or an oct-tree in three dimensions). Each grid block has a logically Cartesian mesh. The package supports one-, two- and three-dimensional models.

*This program was written by Peter MacNeice of Raytheon/STX and Kevin Olson of George Mason University for Raytheon/STX and Kevin Olson of George Mason University for the U.S. Air Force. Further information can be found in a TSP (see page 1).*

**Generating Animated Displays of Spacecraft Orbits**

Tool for Interactive Plotting, Sonification, and 3D Orbit Display (TIPSOD) is a computer program for generating interactive, animated, four-dimensional (space and time) displays of spacecraft orbits. TIPSOD utilizes the programming interface of the Satellite Situation Center Web (SSCWeb) services to communicate with the SSC logic and database by use of the open protocols of the Internet. TIPSOD is implemented in Java 3D and effects an extension of the pre-existing SSCWeb two-dimensional static graphical displays of orbits. Orbits can be displayed in any or all of the following seven reference systems: true-of-date (an inertial system), J2000 (another inertial system), geographic, geomagnetic, geocentric solar ecliptic, geocentric solar magnetospheric, and solar magnetic. In addition to orbits, TIPSOD computes and displays Sibeck’s magnetopause and Fairfield’s bow-shock surfaces. TIPSOD can be used by the scientific community as a means of projection or interpretation. It also has potential as an educational tool. Documentation and links for downloading the software can be found at http://sscweb.gsfc.nasa.gov/tipsod/.

*This program was written by Robert M. Candeey, Reine A. Chimiaik, and Bernard T. Harris of the Goddard Space Flight Center. For more information contact the Goddard Commercial Technology Office at (301) 286-5810. GSC-14732-I*