by use of the OGC Style Layer Descriptor (SLD) protocol. Full-precision spectral arithmetic processing is also available, by use of a custom SLD extension. This server can dynamically add shaded relief based on the Lunar elevation to any image layer. This server also implements tiled WMS protocol and super-overlay KML for high-performance client application programs.

This program was written by Lucian Plesea of Caltech and Trent Hare of the United States Geological Survey for NASA’s Jet Propulsion Laboratory.

This software is available for commercial licensing. Please contact Karina Edmonds of the California Institute of Technology at (626) 395-2322. Refer to NPO-45951.

Virtual Satellite

Virtual Satellite (VirtualSat) is a computer program that creates an environment that facilitates the development, verification, and validation of flight software for a single spacecraft or for multiple spacecraft flying in formation. In this environment, enhanced functionality and autonomy of navigation, guidance, and control systems of a spacecraft are provided by a virtual satellite — that is, a computational model that simulates the dynamic behavior of the spacecraft.

Within this environment, it is possible to execute any associated software, the development of which could benefit from knowledge of, and possible interaction (typically, exchange of data) with, the virtual satellite. Examples of associated software include programs for simulating spacecraft power and thermal-management systems. This environment is independent of the flight hardware that will eventually host the flight software, making it possible to develop the software simultaneously with, or even before, the hardware is delivered. Optionally, by use of interfaces included in VirtualSat, hardware can be used instead of simulated. The flight software, coded in the C or C++ programming language, is compilable and loadable into VirtualSat without any special modifications. Thus, VirtualSat can serve as a relatively inexpensive software test-bed for development test, integration, and post-launch maintenance of spacecraft flight software.

This program was written by Stephen R. Hammers of the Hammers Co., Inc. for Goddard Space Flight Center. Further information is contained in a TSP (see page 1), GSC-14824-1

Small-Body Extensions for the Satellite Orbit Analysis Program (SOAP)

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