



The measured channel frequency response from the 8192-channel Spectrometer.

quency resolution, dynamic range, and accumulation length when compared to previous versions. An alternate, dual-polarization, 1.5-GHz, 4096-channel spec-

trometer is available as well. Both designs are capable of accumulating for hours, several orders of magnitude over what is required.

In addition, a further improved spectrometer with double the frequency resolution, a polyphase-FIR filter front end, and substantially reduced noise has been successfully simulated and is presently in the final stages of development. When finished, it will offer a spectrometer developed on Virtex-5 hardware with bandwidth and spectral resolution an order of magnitude greater than the analog spectrometers presently in use.

Plans to make an 8-GHz spectrometer taking advantage of the same technology used for this device are already being made. Finally, efforts are presently being made to interface this design to a compact Nallatech board, which consumes less power and can be more readily used in remote locations and demanding environments.

*This work was done by Robert F. Jarnot of Caltech and Ryan M. Monroe of Georgia Tech for NASA's Jet Propulsion Laboratory. Further information is contained in a TSP (see page 1). NPO-48352*

## Small Aircraft Data Distribution System

NASA's Jet Propulsion Laboratory, Pasadena, California

The CARVE Small Aircraft Data Distribution System acquires the aircraft location and attitude data that is required by the various programs running on a distributed network. This system distributes the data it acquires to the data acquisition programs for inclusion in their data files.

It uses UDP (User Datagram Protocol) to broadcast data over a LAN (Local Area Network) to any programs that might have a use for the data. The program is easily adaptable to acquire additional data and log that data to disk.

The current version also drives displays using precision pitch and roll information to aid the pilot in maintaining a level-level attitude for radar/radiometer mapping beyond the degree available by flying visually or using a standard gyro-driven attitude indicator.

The software is designed to acquire an array of data to help the mission manager make real-time decisions as to the effectiveness of the flight. This data is displayed for the mission manager and broadcast to the other experiments on the aircraft for inclusion in their data

files. The program also drives real-time precision pitch and roll displays for the pilot and copilot to aid them in maintaining the desired attitude, when required, during data acquisition on mapping lines.

*This work was done by Seth L. Chazanoff and Steven J. Dinardo of Caltech for NASA's Jet Propulsion Laboratory. For more information, contact iaoffice@jpl.nasa.gov.*

*This software is available for commercial licensing. Please contact Daniel Broderick of the California Institute of Technology at danielb@caltech.edu. Refer to NPO-48384.*

## Earth Science Datacasting v2.0

NASA's Jet Propulsion Laboratory, Pasadena, California

The Datacasting software, which consists of a server and a client, has been developed as part of the Earth Science (ES) Datacasting project. The goal of ES Datacasting is to provide scientists the ability to automatically and continuously download Earth science data that meets a precise, predefined need, and then to instantaneously visualize it on a local computer. This is achieved by applying

the concept of podcasting to deliver science data over the Internet using RSS (Really Simple Syndication) XML feeds. By extending the RSS specification, scientists can filter a feed and only download the files that are required for a particular application (for example, only files that contain information about a particular event, such as a hurricane or flood). The extension also provides the

ability for the client to understand the format of the data and visualize the information locally.

The server part enables a data provider to create and serve basic Datacasting (RSS-based) feeds. The user can subscribe to any number of feeds, view the information related to each item contained within a feed (including browse pre-made images),