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Distributed Oceanographic Data System [1]

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Archives are eager to make data available and researchers are eager to use them, but sometimes details -- format peculiarities or users' lack of familiarity with a particular data set -- can frustrate both data providers and users.

Intelligent data interfaces in the service of science. • About PO.DAAC [2]

"We manage a heterogeneous data base for a variety of users," said Peter Fox, chief computational scientist at the National Center for Atmospheric Research's High Altitude Observatory. "When people request data they might be sent anywhere from 10 megabytes up to several gigabytes worth of data, and then we won't hear from them again for a year. When we do hear from them, they ask if we have a program to read the data we sent them," Fox said.

The Distributed Oceanographic Data System (DODS) works around these problems by using the internet to find and obtain data. DODS then delivers selected data directly into the researchers' software analysis package. The system's flexibility led a team at the Physical Oceanography Distributed Active Archive Center (PO.DAAC) to adapt DODS in 1995 so researchers could select it as an alternate access tool to stores of NASA's Earth Observing System (EOS) data at JPL. They created a DODS server and interfaces to address data in Heierarchichal Data Format, (HDF-EOS), the standard format for EOS data.
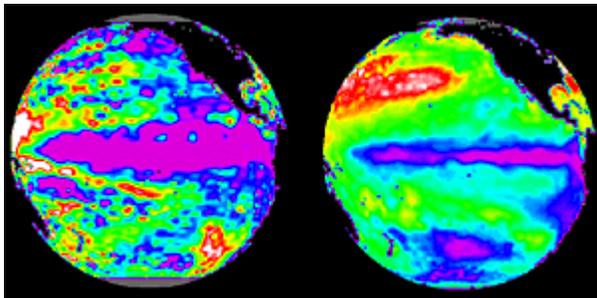
TOPEX/Poseidon and AVHRR Pathfinder views of La Niña, January 10-17, 1999 (Image courtesy of Jet Propulsion Laboratory)

Creating more DODS clients and servers that operate with widely-used software packages is an ongoing challenge. In the case of the High Altitude Observatory, the majority of their science community uses Interactive Data Language (IDL) for data analysis.

Fox and his team helped develop IDL client code for accessing the DODS system. Research Systems Inc., IDL's creators, developed software classes to interface to the DODS core software. The IDL client and user interface has been tested and improved accordingly.

"Our IDL application is not necessarily a comprehensive display and analysis package. Primarily, it gets data, however it complements IDL's existing software analysis routines and display features," Fox said.

Like JPL's HDF graphical interface, the IDL interface will allow users to browse a catalog containing information on the spatial and temporal coverage of a given data set. Scientists can look at the variety of data, and specify the type of parameters required. The interface will then build a set of requests resulting in direct data delivery to their analysis programs.

"DODS is advancing rapidly, and we are excited to play a role in its development," said Fox. "DODS provides users with intelligent data interfaces allowing them to access data without knowing the details of the data format or organization. And that means that you can get a lot more science done without worrying about the mundane details of the data."

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