9.14 STATUS OF LIVE ACCESS SERVER (LAS) DEVELOPMENTS

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1. INTRODUCTION

The Live Access Server (LAS) is emerging as one of a handful of packages being widely adopted in the climate data community to provide web browser access to data visualization and subsetting. Much of the success of LAS results from its emphasis on configurability -- the ability to present many different types of data through a single user interface. Recent LAS developments have focused on providing analysis capabilities for gridded datasets and on handling ungridded, in-situ data stored in relational databases. This talk will review the current status of LAS and describe our future development plans.

2. GRIDDED DATA FEATURES

LAS was initially designed to work with large gridded datasets such as those produced through modeling and reanalysis. Although LAS may be configured to use a variety of analysis and visualization packages at the 'back end' it is typically set up to use Ferret. LAS harnesses various Ferret capabilities including: 1) support for multi-Gigabyte datasets; 2) customizable output graphics; 3) access to remote datasets through OPeNDAP; and 4) regridding algorithms for data comparison.

In the last year we have modified the LAS user interface to allow access to Ferret's ability to define new variables which are functions of existing variables within a dataset. For example, one may now use LAS to perform simple analyses (average, minimum, maximum, sum, variance) on data variables by applying these 'transformations' along one or more of the data variable's axes. A user interested in the variance of SST over a particular region of space or time can answer their question without ever leaving their web browser. This puts even more power in the hands of users who wish to interrogate the data within LAS before moving their investigations to the desktop.

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3. IN-SITU CAPABILITIES

In the past two years we have worked with increasing numbers of in-situ data providers. Delivering in-situ data presents special challenges as there are few widely adopted data formatting or access standards. We are relying heavily on the configurability of LAS to hide this heterogeneity and present end users with a familiar user interface and consistent data products.

2. 1 *User Interface*

We have taken the approach that the end user of in-situ data should be able to request in-situ data in much the same manner that they request gridded data: primarily by specifying a variable or variables of interest and a region of space and time. In deference to the needs of in-situ data providers, the interface now supports the specification of custom 'constraints' that allow a data provider to create an interface where the end user can select additional 'query' parameters (cruise ID, station ID, etc.) that may help refine a data request. We are currently working on interfaces that will allow end users to select cruises or stations with a clickable map.

2. 1 *Data Access*

To handle the wide variety of in-situ data access systems we have written code within LAS that implements an SQL style API. Each in-situ data system is accessed with a 'driver' module that executes a query on that system and returns data values to LAS. These data are then written to a file in a uniform format which is then accessed by Ferret for processing and visualization. This

strategy of having a separate driver for each in-situ data access system allows us to present multiple in-situ data sources in a single LAS. The end user is unaware of the details of data access associated with each of the separate data sources. The burden on the data provider is fairly minimal as they only need to modify one of the existing drivers and write code to formulate a data query appropriate to their data access system and interpret the response. To date, drivers have been written for a generic SQL database, the JGOFS database, a custom ARGOS database in MySQL and a custom WODB database constructed with NetCDF files.

4. FUTURE DIRECTIONS

Two areas of development are each the topic of a separate talk:

i) integrating the Ferret-DODS-Server into LAS to provide robust data comparison between collaborating LAS sites. (IIPS-9.6)

ii) implementing LAS functionality as web services to allow more useful collaboration between LAS and other software developments. (IIPS-9.2)

W are also currently working to provide better user interface and visualization support for various in-situ data types including section plots and moored buoys. In addition, have identified real-time-updates as an area where we need to focus more attention.

4. REFERENCES

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