2003 Proposal Form – Internal-only Projects

Project Number: 200109

Project START: Jan 1, _____ **Project Duration (in years):** _____ **Ongoing**

Project Manager/PI: Brian Schlining

Project Title: Core Mooring Data - MDUC

2003 Proposal Form – Internal-only Projects

1) Abstract (new and continuing projects)

This MDUC project provides for the institutional support of "core" data from MBARI moorings. A subset of mooring data (surface CTD, T-string, meteorological, GPS, ADCP and pCO_2 data) have been designated as core data streams, which means that support for the collection, processing and archiving of the data is provided on an institutional basis rather than through individual projects or divisional budgets.

The primary elements of this project are:

- Maintenance and minor development of software used for processing and archiving of mooring data.
- Data processing and validation by Fred Bahr of the Naval Postgraduate School.
- Data archiving and dissemination through the mooring data-store.
- Data validation through a Science data "champion".

For 2003, we propose improvements to the data access interface. These improvements include:

- Creating standard products of daily and hourly averaged data.
- Providing quick-look plots for archived data sets.
- Provide facility for querying the data. In order to better locate relevant data sets.

In addition, the New Mooring Controller (NMC) may be deployed on M1 as part of operations for 2003. Although the requirements for NMC state that NMC will maintain the current style and format of the currently deployed OASIS mooring controllers, we are including some time to handle any discontinuities in data formats that may occur during the transition.

2) Proposal

b) Approach

1. Approach to Archiving Mooring Data

One ideal central to archiving data is to store the data in a manner that will allow the data to remain useful years from now. The requirements for the data archive format include:

- Operating-system independent.
- Platform independent
- Stable, non-evolving format
- Self-describing
- Allow for efficient access

The format of choice is netCDF (network Common Data Format), which is currently supported by the University Corporation for Atmospheric Research (UCAR). Accessing data stored in netCDF can be accomplished through the use of a data-analysis package the supports this format or through a netCDF software API. Software packages used at MBARI that allow a user to access netCDF files directly include DODS, IDL, GMT, Matlab, and Ferret. NetCDF API's are also available for a variety of programming languages, such as C, FORTRAN, Perl, and Java.

In order to allow exchange of our data with other institutions and for compatibility with existing data analysis and viewing software, this project stores data following the COARDS conventions for netCDF.

2. Approach to disseminating mooring data

In order to provide simple and convenient access to the core mooring data, a web interface to the archives is accessible at http://dods.shore.mbari.org:8080/mbariMoos/jsp/ncarchive.jsp. The web interface is written using Java servlet and JSP technology (Figure 1). IAG time for maintenance, development, and upgrades to the web interface are included as part of this proposal.

During 2002, we have received requests for the following enhancements for accessing the archived data:

a. Provide the ability to view 'quick-look' plots of selected data.
These plots are not intended to provide publication-quality plots. Instead they are intended to enable scientists to explore and preview data of interest. The plotting modules will be designed to work with Core Mooring Data as well as SSDS data. The modules will also be designed so that they may be integrated into other projects such as EARTH (Figure 2).

b. Provide daily and hourly averages of archived data.
Many of the instruments are sampling at very high frequencies in order to answer specific science questions. However, working with this high frequency data can be cumbersome and time-consuming. In order to better facilitate data exploration and use by scientists and educators, hourly and daily averaged data sets would be produced and archived.

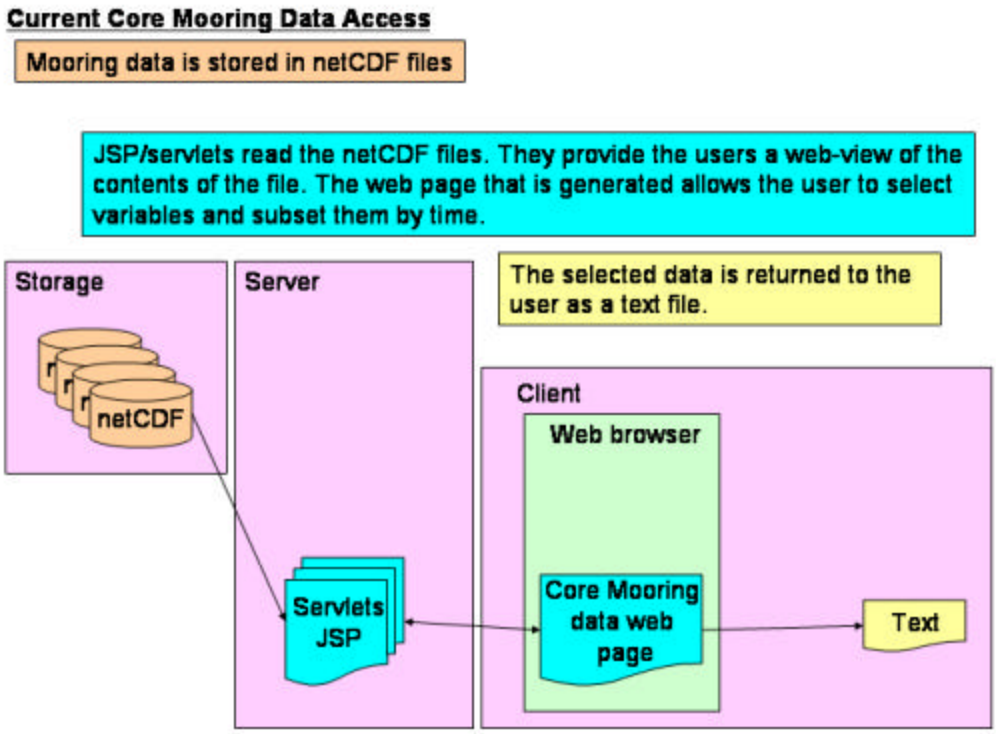

Figure 1: Current Core Mooring Data Access Configuration.

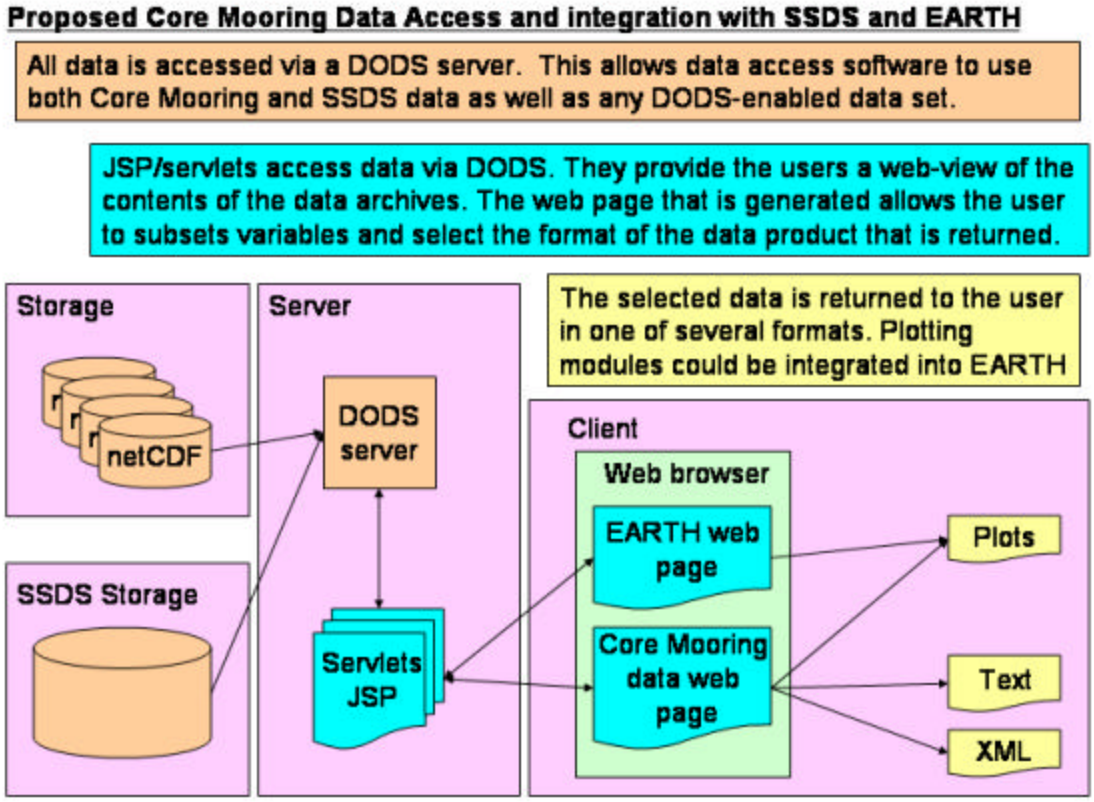

Figure 2: Proposed Core Mooring Data Access and integration with SSDS and EARTH.

3. Integration of New-Mooring Controller data.

The New Mooring Controller (NMC) may be deployed on M1 as part of operations for 2003. Although the requirements for NMC state that NMC will maintain the current style and format of the currently deployed OASIS mooring controllers, we are including some time to handle any discontinuities in data formats that may occur during the transition.

c) Specific deliverables (new and continuing projects)

- Data archives containing quality controlled data for each of the core instruments. The archives will be completed within one month after the mooring is recovered.
- Improvements to the server-side application (Servlets and JSP) that provides web-access to the Core Mooring Data archives. This application will return the data as text and plots. This application will also be able to access SSDS archives. For 2003, this application should be at Beta quality stage. The finished application will be completed after user testing and feedback as part of the 2004 Core Mooring Data and SSDS projects.
- Data archives containing hourly and daily averages of data from the core instruments.

d) Project team (new and continuing projects)

Brian Schlining (IAG)
Fred Bahr (NPS)

Francisco Chavez (Data Champion, Science)
David Caress (MDUC, Science)

e) Project Lab Space (new and continuing projects)

No Lab space is required.

3) Budget Justification (new and continuing projects)

The 2002 budget includes the following:

1) 5 days for data validation by Francisco Chavez.
2) 30 days for pCO_2 data processing, project management, web interface support and development, and software support by Brian Schlining.
3) 2 days IS support for maintenance of storage disk space and a java application server.
4) $12,000 for a subcontract to NPS for Fred Bahr's time to perform quality control on the surface CTD, t-string, meteorological, GPS, and ADCP data sets.

4) Milestones (new and continuing projects)

	Milestone 1	Milestone 2	Milestone 3	Milestone 4	Milestone 5	**Total Resources** [1] for each resource category for all milestones listed here
Milestone date	End of each month	July 2003	July 2003	Dec 2003	Within 1 month of a mooring recovery	
Milestone description	Review of data quality by Data Champion	Review of data quality by MDUC. Recommenda - tions on budgeting for 2004	Finish prototyping and testing of plotting libraries. Web UI design completed.	Completed Web access interface delivered. (Beta-quality)	Quality control of core mooring data streams and submission to archive	
EE						
SE						
ME						
IAG		3	10	10	5	28
Machine Shop						

[1] This number should be same as the number you entered on the resource requests for this particular resource