

Scientific Data Visualization Interface

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Introduction

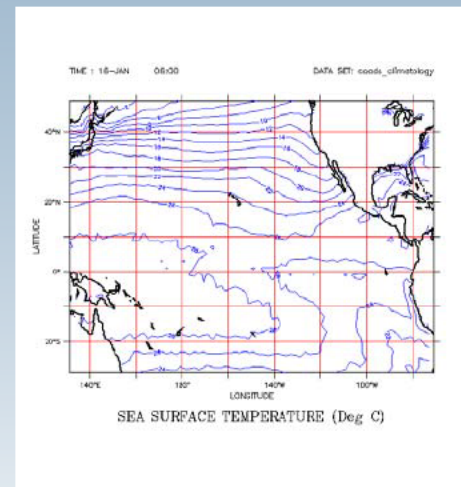
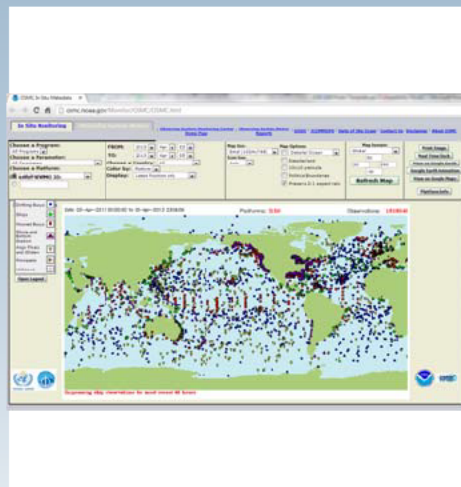
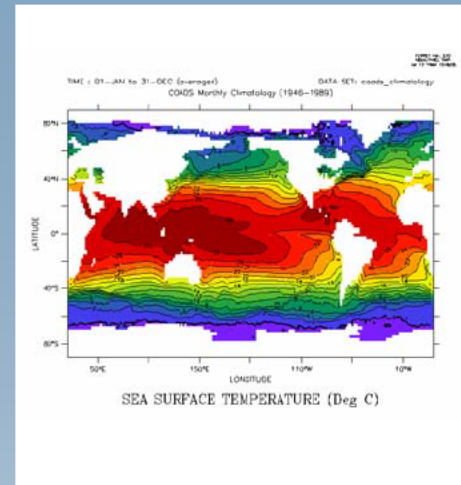
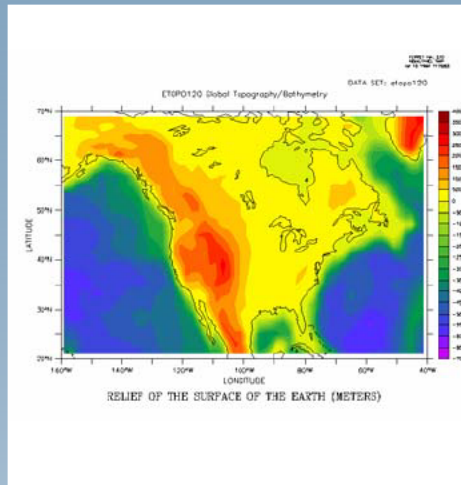
Southeast National Marine Renewable Energy (SNMREC) center is focused on working to help accelerate the implementation of marine renewables for a more sustainable energy future. Over the past several years, they have been working on compiling offshore data to help the advancement this emerging alternative energy. With sample data of ocean temperatures and currents already compiled, there needs to be a way to visualize and present this data in a human readable format to decimate the scientific data and to guide the program to success full outcome. Successful implantation of a data visualization interface via the web helps provide tangle deliverables and to share this data among peers for scientists, engineers, prospective scientists in grade school and members of the community. These deliverables will help present the efforts made by SNMREC, guide future research projections, as well as a viable tool for the aid of research facilities who are also working on a similar goal.

Proposed Solution

- Web service**
The web service will be able to transfer data collected from the SNMREC to other institutions in an organized and easily read format
- Data Visualization Web Portal**
Create a web accessible portal for Visualization of the data gathered by SNMREC. This will allow and less technical data presentation as well as a dynamic and user configurable view of the data over time.

References

- Images generated and owned by the National Oceanic and Atmospheric Administration
<http://www.ferret.noaa.gov/Ferret/>



Software Tools of Choice

- OpeNDAP (Open-source Project for a Network Data Access Protocol)**
OpeNDAP is a freely available framework that simplifies all aspects of scientific data networking. It provides software which makes local data accessible to remote locations regardless of local storage format. It also provides tools for transforming existing applications into OpeNDAP clients. It is used widely by earth scientist and is used by government agencies such as NASA and NOAA
- Hyrax**
Hyrax is the next generation server from OpeNDAP. It utilizes a modular design that employs a light weight Java servlet (aka OLFS) to provide the public accessible client interface, and a back end daemon, the BES, to handle the heavy lifting. The BES uses the same handlers that are used with Server3 (also known as the CGI Server) but loads those at run time.
- Ferret Data Visualization and Analysis**
Ferret is an interactive computer visualization and analysis environment designed to meet the needs of oceanographers and meteorologists analyzing large and complex gridded data sets.

Current Results

- Development so far has been the Setup of OPeNDAP, Hyrax and Ferret software. We have set up the development in on one of the servers located at FAU. Each System can communicate Data to each other as well create data visualizations of sample data provided by NOAA.

Future Results

- There are still several steps to take in order for this project to reach a deployable stage. There are the next steps for future milestones
- Connect OPeNDAP and Hyrax to existing Data sources Compiled by SNMREC
- Create a web page with a set of controls to display the data visualization images generated by Ferret.