Data Tools and Services at Physical Oceanography DAAC

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PO.DAAC Overview

The Physical Oceanographic Distributed Active Archive Center (PO.DAAC) archives and distributes NASA's satellite data and associated information pertaining to the state of Earth's oceans.   PO.DAAC supports a diverse community of over 12,000 users that includes ocean and climate researchers, operational agencies, ocean resource managers, educators and the general public.   PO.DAAC has developed a set of tools and services for searching and acquiring data from its holdings, which exceeds 50 TB. Moreover, these tools and services are continually evolving to stay apace with technological advancements, especially as they relate to web services.

Existing Tools & Services

POET (http://poet.jpl.nasa.gov)

The PO.DAAC Ocean ESIP Tool (POET) provides interactive, on-line subsetting and visualization for many of PO.DAAC's gridded (Level-3) data products. Viewing options include latitude-longitude maps, animations, time series plots, and space-time profiles. In addition, this tool can handle WMS/WCS requests.
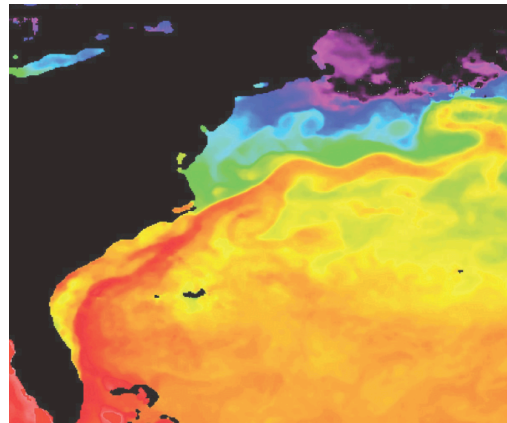
Daily sea surface temperature map available via POET

SCCOOS Portal (http://sccoos.jpl.nasa.gov)

As part of the Southern California Coastal Ocean Observing System, this portal serves out high-resolution, near real-time images and data that support several coastal resource management applications.

FTP/HEFT (ftp://podaac.jpl.nasa.gov)

All PO.DAAC data are freely available via the PO.DAAC FTP site. The site is laid out in a standardized and logical directory structure, which helps users to quickly navigate to the data of interest.   Coupled with each data set is a README file, links to documentation and sample software to read the data. The High Efficiency File Transfer (HEFT) requires users to download a client to achieve downloads on the order of 1000x standard FTP.

Datacasting (http://podaac.jpl.nasa.gov/datacasting)

Uses RSS feeds to create a notification when a new data granule (data file) is made available. With the Datacasting Feed Reader, users are able to subscribe to feeds and download granules immediately to their computer. Moreover, they can create

filters based on metadata tags in the feed to limit what files get downloaded. For example, only download granules that pass through a specified region or contain data related to a specific event.

Hurricane/Typhoon Tracker (http://podaac.jpl.nasa.gov/hurricanes)

This tool tracks the location of historical and on-going hurricanes and provides overlays of ultra high-resolution wind images (from QuikSCAT) and optimally interpolated 5 km sea surface temperature.

Tools and Service under Development
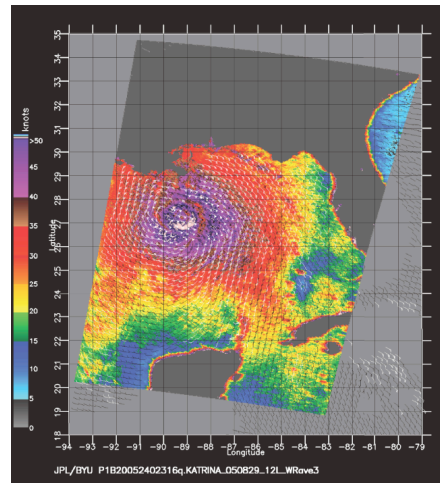
Granule-based Searches

Using the OpenSearch protocol, this search feature will provide a free-text or machine-machine query interface to quickly identify granules based on the full set of metadata maintained in the PO.DAAC inventory.

QuikSCAT wind overlays available from the Hurricane Tracker

Level-2 (Swath-based) Subsetter

This capability will give users the ability to subset swath-based data granules by (time, space and parameter) and output the data in a standardized NetCDF file format, as well as other common image formats ands standards, such as GeoTIFF and KML.

Cutting Edge Technologies

PO.DAAC is partnering with several research and development teams funded under the NASA ACCESS program to infuse cutting-edge technologies into an operational setting. The Virtual Oceanographic Data Center (Mattmann et al.) will utilize modern search technologies from Apache's software foundation including Lucene and Solr to create web services and a common portal allowing free-text and facet-based searching of oceans data and metadata from NASA ocean missions (OSTM, GHRSST), NOAA, and the National Virtual Ocean Data System (NVODS). The Web-Based Altimetry Service (Callahan et al.) uses the SciFlow technology to give users the capability to select different altimeter processing algorithms and create altimeter products tailor to a localized region.