Abstract

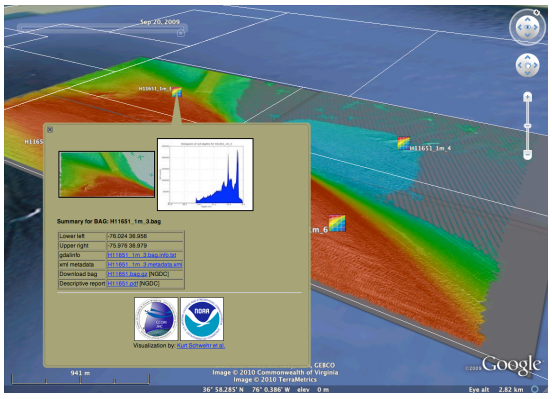
Bathymtric Attibuted Grids (BAGs): Discovery of Marine Datasets and Geospatial Metadata Visualization

Kurt Schwehr - CCOM/JHC, UNH, Durham, NH, USA
Andy Armstrong - CCOM/JHC, UNH, Durham, NH, USA
Richard T. Brennan - Atlantic Hydrographic Branch, NOAA, Norfolk, VA, USA
David Fischman – National Geophysical Data Center, NOAA, Bolder, CO, USA
Jon Sellars - National Geodetic Survey, NOAA, Silver Spring, MD, USA
Shep Smith - NOAA Ship Thomas Jefferson, NOAA, Norfolk, VA, USA

NOAA's National Geophysical Data Center (NGDC) provides the deep archive of US multibeam sonar hydrographic surveys. NOAA stores the data as Bathymetric Attributed Grids (BAG; http://www.opennavsurf.org/) that are HDF5 formatted files containing gridded bathymetry, gridded uncertainty, and XML metadata. While NGDC provides the deep store and a basic ERSI ArcIMS interface to the data, additional tools need to be created to increase the frequency with which researchers discover hydrographic surveys that might be beneficial for their research. Using both Open Source tools and IVS3D Fledermaus, we have created a draft of a Google Earth visualization of NOAA's complete collection of BAG files as of March 2009. Each survey is represented as a bounding box, an optional preview image of the survey data, and a pop up placemark. The placemark contains a brief summary of the metadata and links to directly download of the BAG survey files and the complete metadata file. When viewed from a distance, multiple BAG icons are merged into a super-icon to declutter the regional view. Each survey is time tagged so that users can search both in space and time for surveys that meet their needs.

By creating these visualizations, we aim to make the entire process of data discovery, validation of relevance, and download much more efficient for research scientists who may not be familiar with NOAA's hydrographic survey efforts or the BAG format. In the process of creating this demonstration, we have identified a number of improvements that can be made to the hydrographic survey process in order to make the results easier to use especially with respect to metadata generation. The ability to use multiple tools to inspect and view all aspects of BAGs will allow Hydrographic Offices to insure better Quality Assurance (QC) of their hydrographic grid products.

With the combination of the NGDC deep archiving infrastructure, a Google Earth virtual globe visualization, and GeoRSS feeds of updates, we hope to increase the utilization of these high-quality gridded bathymetry. This workflow applies equally well to LIDAR topography and bathymetry. Additionally, with proper referencing and geotagging in journal publications, we hope to close the loop and help the community create a true "Geospatial Scholar" infrastructure.



http://vislab-ccom.unh.edu/~schwehr/papers/2010chc/