Enabling discovery of ocean science data in the modern era using geospatial and information science

Rasser Michael[1], Blythe Jonathan[1] and Stein David[2]

[1]   Bureau of Ocean Energy Management, U.S. Department of the Interior, 45600 Woodland Rd, Sterling VA, 20166, USA
      E-mail: michael.rasser@boem.gov
[2]   NOAA Office for Coastal Management, U.S. Department of Commerce, Charleston, South Carolina 29405, USA

Applying science to decision making in the modern era depends on the ability to readily discover relevant scientific information and data. In recent years, the U.S. government has made significant efforts to improve the discovery and access of ocean science information. One example of such efforts is Bureau of Ocean Energy Management's (BOEM's) Environmental Studies Program Information system (ESPIS). For more than 40 years the U.S. Department of the Interior's Environmental Studies Program (ESP) has conducted ocean research specifically to inform offshore ocean energy and mineral resources management decisions. Historically, the results of this research have been communicated and preserved through study reports. Other sources of scientific data and information included archival repositories such as the National Centers for Environmental Information (NCEI), and a variety of peer reviewed scientific publications. The distributed nature of this information made it challenging to locate, access and discern how it was related to ESP research. In an effort the streamline the search, discovery and retrieval of BOEM ocean science data and information, the agency has re-invented its information management system utilizing the latest geospatial and database technology. A comprehensive database of studies research metadata was built along with a web based user interface. The new system utilizes Angular JS technology to support a sophisticated front-end user interface, Leaflet – an open source JavaScript library - to support a mapping interface that allows users to search for information by geography, and Microsoft SQL Server to enable in-depth searches of thousands of documents and publications. This architecture allows unprecedented discoverability of archived and current research using keyword searches, full text search, and map and geographic name index based spatial queries. Relevant research results are linked to sources across the Internet, such as conference proceedings, online datasets, and scientific journals articles. The result is a text and map based geospatial interface that is robust and user friendly way for scientists and the public to access results of BOEM's ocean research results.

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