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Web-based visualization system connected with online database system for observation data obtained in JAMSTEC research

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Japan Agency for Marine-Earth Science and Technology (JAMSTEC) has been accumulating observation data obtained in several research vessels belonging JAMSTEC. Various equipments are mounted on the research vessels, so various research data, e.g., geomagnetic data and gravity data, are obtained and accumulated. We take on responsibility for proving the observation data for scientists both in Japan and foreign countries. Database system for the observation data has been constructed and web GUI of it has been customized. Preview system of the data on Web directly connected with the database will help user to find the requirement data. For constructing the preview system, our project firstly started to develop the visualization system of the observation data, which will be stored into the database, on web platform. We successfully visualize the data on web browser by using Google Earth API. To visualize geographic data in Google Earth, the data should be written in Keyhole Markup Language (KML). We made the converter system from the observation data into KML as Java Servlet and web GUI for the system. Here, we have improved the web-based visualization system of the observation data. Search system of the data, kernel of the database system, is joined into the visualization system. Visualization has two steps of High and Low resolution. At first, user obtain low-resolution image of the selected data to obtain a certain amount of perspective of the observation results. Because some observation data are very large, it is difficult to smoothly visualize all of such data on Web. Next the data can be visualized at high resolution to understand the detailed observation results in selected area. These visual presentations will be very useful for users to select and acquire the observation data from the database system. By using this preview system, user can search and visualize the observation data on the same platform, so the preview system will improve the usability of the database system.

Keywords: visualization, database, observation data, research vessel, Google Earth API, web technology