

Development of near-realtime data exchange system and production of initial condition of an ocean prediction model

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In this decade, more than half of research vessels (R/Vs) have equipped intranet within the R/Vs in FRA. On the other hand, the internet system have overwhelmed around the world. However, the connection between R/Vs and shore-based analysts have been limited because of low speed and high cost lines between them. A system to enable near-realtime and inexpensive data exchange between R/Vs and shore-based laboratories were developed. Laptop type PC servers on R/Vs 1) product TESAC/BATHY message from CTD (conductivity, temperature, depth sensor) data and send them to Japan Meteorological Agency, 2) archive CTD data to the database (IBM-DB2), 3) synchronize the database with one in on-land server. The database synchronism is controlled by http protocol and only the updated data is exchanged through high data compression. The data transfer is performed by IMMARSAT-B with HSD (High Speed Data Service), 64 kbps, communication. There are automated and manual mode for the database synchronism. For the automated mode with 8 hours interval synchronism, the cost for communication is held down than 80 thousands yen pre month. From the synchronized database, both the on-R/V and on-land server are able to provide temperature, temperature gradient, temperature front maps on several depths through web. This system will enable the common data share, not only between R/V and land, but also between R/Vs.

Now the R/Vs communications between two ships are tested, however, a broadband communication system via satellite is developing under i-space project (JAXA) and it will enable realtime data exchange between multi-R/Vs. The realtime data exchange between multi-R/Vs helps efficient surveys of them. Also this system will provide effective data to product initial conditions for ocean prediction models.