



Development of the Japan/East Sea forecasting system

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We have been developing an integrated system to predict environmental variables in the Japan/East Sea. The nowcast and forecast of the water properties are expected to contribute to the ocean science and societal applications such as fish resource and pollutant control or and marine weather forecast in the region.

The main engine is given by an original OGCM, RIAM Ocean Model, with 1/12 degree horizontal resolution allowing rich mesoscale variabilities. There are currently two versions of the model aiming at short- and long-term forecasts: The short-term version driven by the atmospheric predictions of JMA and NOGAPS and the tidal forcing, and enables accurate forecasts for up to five days. The short-term output will be used for material drift simulations such as oil spills. The long-term version of the model excluding tidal components is sequentially corrected by assimilating SST, SSH, and in-situ measurements by near-optimal schemes, and returns realistic nowcast and forecasts for a few months with climatological forcings (Hirose et al., 2004 submitted to Deep Sea Res.). The major inflow of the Tsushima Warm Current has been monitored by several sensors of ADCP, temperature, conductivity, and fluorescence on a regular ferryboat between Japan and Korea. The data observed at the Tsushima/Korea Straits are transferred to our institute through a wireless phone line and give inflow boundary conditions to the system near real time.

An oil spill simulation using the physical output is ready against any tanker accidents in the region (Varlamov et al., 1999 in J. Mar. Sci. and Tech.). Marine ecosystem and fishery models will be attached to the system following to the preliminary works by Onitsuka et al. (2001 in J. Oceanogr.) and Fujii et al. (2004 in Sea and Sky). The nowcast and forecast trials are displayed at a web site of <http://jes.riam.kyushu-u.ac.jp/>. The interactive interface allows users to select specific views of the water properties as they want.