

Development of an eddy-resolving quasi-global ocean reanalysis product-JCOPE-FGO-

*Shoichiro Kido¹, Masami Nonaka¹, Yasumasa Miyazawa¹

1. JAMSTEC Application Lab

We provide a brief description and assessment of the oceanic fields analyzed in the newly-developed eddy-resolving quasi-global ocean reanalysis product, named JCOPE-FGO. This product covers the quasi-global ocean with a horizontal resolution of $0.1^\circ \times 0.1^\circ$.

Validations of analyzed oceanic fields by JCOPE-FGO against in-situ observations revealed that our product can realistically capture various aspects of hydrographic structures in the world ocean, including frontal structures near the surface, thermohaline properties of water masses, and the upper ocean circulation. A notable feature of JCOPE-FGO is the inclusion of an updated global river runoff, and impacts of river forcing have been assessed by an additional reanalysis experiment without river forcing. We found that the removal of continental river discharge leads to dramatic changes in the near-surface salinity and related fields around river mouths of large rivers, but large changes are mostly confined to narrow regions near the coast. As an example of the substantial impact of river runoff, we discuss the dispersion of low salinity water from the Mississippi river to the Gulf of Mexico: a comparison between the analyzed salinity fields from both reanalysis products with those from satellite observations demonstrated that the inclusion of river runoff is essential for an accurate representation of its seasonal variability.