

High resolution downscaled modeling of coastal ocean processes

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System of nested ocean circulation models is used for analysis of coastal oceanic processes including river discharges to the ocean along the Pacific coast of Japan. An accent is made on the coastal waters east off Tohoku area and on Abukuma river fresh waters propagation and diffusion in Pacific Ocean.

All nested models have same vertical resolution with 46 generalized sigma levels. The low spatial resolution (about 10 km) ocean model is an assimilative non-tidal JCOPE model, when intermediate (about 3 km) and high resolution (about 0.5 km) models are both tide-resolving models.

Results of modeling with these models are compared and high resolution dynamics of ocean variability is demonstrated and discusses.

Keywords: ocean modeling, downscaled simulation, coastal processes