

Modeling of Extreme Freshwater Discharge from the Kyushu-Region First-Class River Basins

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We investigated the effects of extreme fluvial outflow events on river months to salinity distribution in the coastal zone of the Kyushu-district Japanese coast. We created a set of hourly simulated river outflow data from first-class Japanese river basins flowing to the Pacific Ocean for targeted a event of typhoons from 16/09/2011 to 22/09/2011, and used it with a coupled hydrological-oceanographic model for estimation of the circulation and salinity distribution in coastal zones. The coastal ocean circulation was simulated by using a coupled hydrological oceanographic model JCOPE-T by inputting freshwater from our model "Cell Distributed Runoff Model Version 3.1.1 (CDRMV3.1.1)", which simulated discharges for the case of the typhoon passage of real time freshwater input from the rivers. By using Shuffled Complex Evolution method developed by University of Arizona (SCE-UA method), that is one of the optimization method for hydrologic model, we could success to optimize 5 parameters, soil roughness coefficient, river roughness coefficient, effective porosity, saturated hydraulic conductivity, and effective rainfall, and successfully reproduced peak discharge prediction of extreme typhoon events on river months.

Keywords: SCE-UA method