Japan Geoscience Union Meeting 2015
(May 24th - 28th at Makuhari, Chiba, Japan)

ACG07-03 会場:201B 時間:5 月 27 日 09:45-10:00

Oceanic response to river outflows
Oceanic response to river outflows

KIDA, Shinichiro[1*] ; YAMASHIKI, Yosuke[2]
KIDA, Shinichiro[1*] ; YAMASHIKI, Yosuke[2]

[1]Application Laboratory, Japan Agency for Marine-Earth Science and Technology, [2]Graduate School of Advanced Integrated Studies in Human Survivability, Kyoto University
[1]Application Laboratory, Japan Agency for Marine-Earth Science and Technology, [2]Graduate School of Advanced Integrated Studies in Human Survivability, Kyoto University

The oceanic response to river outflows is investigated using a new seamless hydrological-ocean coupled model, with a focus on high water discharge events. High frequency and vigorous events are often not well reproduced in climatological river-transport datasets that are used in ocean circulation models. When the model is forced with observed precipitation data, river discharges occur on land and a freshwater plume begins to form near the river mouth. This freshwater plume remains attached to the coastline with the land toward its right (northern hemisphere). The model shows the movement of the freshwater/seawater interface as the discharge rate change. As the discharge rate increases, the interface moves toward the sea as it thickens near the river mouth. With high water discharge rates, the Froude number of the river outflow also becomes over one near the river mouth and forces localized shear-driven diapycnal mixing. This mixing results in abrupt increase in the volume transport of the freshwater plume near the river mouth. We find the ocean to quickly respond to this mixing as well and establish a circulation to support the water mass lost to the freshwater plume.

キーワード: River outflows, High discharge event, Freshwater plumes
Keywords: River outflows, High discharge event, Freshwater plumes