[EJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-OS Ocean Sciences & Ocean Environment

[A-OS14]Freshwater discharge from rivers and estuaries to the ocean

convener:Shinichiro Kida(Research Institute for Applied Mechanics, Kyushu University), Dai Yamazaki(Institute of Industrial Sciences, The University of Tokyo), Humio Mitsudera(北海道大学低温科学研究所, 共同), Yosuke Alexandre Yamashiki(Earth &Planetary Water Resources Assessment Laboratory Graduate School of Advanced Integrated Studies in Human Survivability Kyoto University)
Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
The water cycle from land to the ocean involves complex dynamics of rivers and buoyancy driven flows in estuaries and the ocean. Recent progress in satellite observations and numerical models are beginning to illuminate how this water cycle occurs on various time scales globally and regionally. This session welcomes various process studies that investigate the dynamics and material circulation related to the freshwater cycle from land to the ocean such as surface runoff, river transport, estuarine circulation, and coastal river plumes based on numerical, observational, or theoretical studies.

[AOS14-P01]River-ocean interaction at the Ganges-Brahmaputra river mouth

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The Ganges-Brahmaputra river discharges a significant amount of freshwater to the Bay of Bengal through the Ganges-Brahmaputra river delta. This freshwater discharge occurs with a prominent seasonal cycle, a minimum from late winter to early spring and a maximum from late summer to early fall. The oceanic circulation within the Bay of Bengal also changes seasonally, through the Monsoonal winds and the Kelvin waves that propagate from the equatorial Indian Ocean. River-ocean interaction has primarily progressed based on a single channel and so the impact of multiple-channels, such as that through a delta, is still an open question. To examine how the interaction between the river flow and the oceanic circulation may occur near the river mouth, numerical experiments were carried out with a spatial resolution high enough to resolve the narrow channels of the river delta. The model shows a classical river plume that flows along the coast, which propagates southwestward when the oceanic currents are quiescent. Preliminary results also suggest that some of the flow in narrow channels may reverse due to river-ocean interaction and that the oceanic circulation can, at times, reverse the direction of the river plume.