
[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

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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-P04] Potential impacts of the freshwater flux from the Kamchatka Peninsula on the dense shelf water formation in the Sea of Okhotsk

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Dense Shelf Water (DSW) in the Sea of Okhotsk forms over the northern continental shelf. DSW entrains a lot of materials, such as dissolved oxygen, CO₂ and iron, from the continental shelf region and carries them to the North Pacific through the intermediate layer. The overturning circulation associated with DSW is controlled by salinity. One of primary controlling factors of salinity is brine rejection when sea ice forms. Another controlling factor is salinity of the surface inflow to the continental shelf region from the North Pacific Ocean. In this project, we focus on the latter, with a special attention to the effects of freshwater flux from the Kamchatka Peninsula. We found in a previous study that the precipitation over the Kamchatka Peninsula is significantly correlated with the DSW salinity, where the precipitation can explain one-third of the variability of DSW salinity. We aim to quantify the effects of this freshwater process throughout atmosphere, land and ocean. In this poster presentation, results of a numerical experiment on the DSW overturn in the presence or absence of the riverine freshwater flux from the Kamchatka Peninsula are discussed.