

Observation of surface water properties from river mouth to the ocean using drones

*Shin Ishimoto¹, Shinichiro Kida², Humio Mitsudera³, Kiyoshi Tanaka⁴

1. Interdisciplinary Graduate School of Engineering Sciences, Kyushu University, 2. Research Institute for Applied Mechanics, Kyushu University, 3. Institute of Low Temperature Science, Hokkaido University, 4. Atmosphere and Ocean Research Institute, The University of Tokyo

Water mass properties are known to significantly vary from the river mouth to the ocean, which can result in changes in ocean color. A photo-imaging drone was used to examine how much we can observe this feature at Akkeshi, Hokkaido, Japan. We observed the water surface from the river mouth of Bekkanbeushi river, through the Akkeshi lake, to the Akkeshi Bay. Past observations show ocean color in this region changing dramatically within a short distance. We merged the photo-images based on the GPS positions that the images were taken and the merged images indeed show dramatic changes in ocean color from region to region, suggesting a difference in the magnitude of mixing. Some images also contained changes due to bathymetric features which need to be excluded for further detailed analysis. Preliminary results show ocean color variations on a few-meter spatial scale.

Keywords: Drones, River mouth, Ocean color

