

OCEAN OPTICS XXIV

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Thursday, October 11

Poster Session 4

10:30–12:00

Poster 92

WATER MASS STRUCTURE IN THE NORTHERN BERING SEA RELATED TO LIGHT ABSORPTION OF CDOM

The northern Bering Sea (NBS) is one of the most productive regions in the world. Several currents with different water characteristics pass through the NBS and high productivity is sustained in a boundary of those currents. However, these currents have similar temperature and salinity (T-S) seasonally and it is difficult to classify of water masses using T-S diagram. Here we attempted to use light absorption coefficient by colored dissolved organic matter (CDOM) to distinguish the water mass in the NBS. Water samples were taken at 23 stations during the cruise of T/S Oshoro-maru in July 2017. CDOM absorption coefficient between 250-750 nm was measured and spectral slopes in the two ranges of 275-295 and 350-400 nm (S275-295 and S350-400) were calculated. Mean values of CDOM absorption at 350 nm, $a(350)$, and spectral slopes of Alaskan coastal water (ACW), Bering summer water (BSW) and Bering winter water (BWW) are significantly different each other. While the ACW, which distributed at the surface of NBS widely in this season, was hard to separate using CDOM characteristics, the BSW was successfully divided two waters using relationship between $a(350)$ and S275-295. The two waters had similar CDOM characteristics to the ACW and BSW. These results suggested that mixing process of the water masses to create productive water in the NBS might be speculated using CDOM absorption spectra.

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