

## 北太平洋中層水による外来性腐植様溶存有機物の輸送

## Basin-scale transport of allochthonous humic-like fluorescent dissolved organic matter by the North Pacific Intermediate water

\*山下 洋平<sup>1</sup>、西岡 純<sup>2</sup>、小畑 元<sup>3</sup>、小川 浩史<sup>3</sup>\*Youhei Yamashita<sup>1</sup>, Jun Nishioka<sup>2</sup>, Hajime Obata<sup>3</sup>, Hiroshi Ogawa<sup>3</sup>

1. 北海道大学 大学院地球環境科学研究所、2. 北海道大学 低温科学研究所、3. 東京大学 大気海洋研究所

1. Faculty of Environmental and Earth Science, 2. Institute of Low Temperature Science, Hokkaido University, 3. Atmosphere and Ocean Research Institute, The University of Tokyo

The levels of humic-like fluorescent dissolved organic matter (FDOM) in the open ocean generally showed nutrient-type vertical profile. In the surface water, low levels of humic-like FDOM is due to degradation by sunlight. In the dark ocean, linear relationships between levels of humic-like FDOM and apparent oxygen utilization (AOU) have been observed throughout the global ocean, indicating that humic-like FDOM is produced in situ in the ocean interior as organic matter is oxidized by microbes and is resistant to microbial degradation with time scales of thermohaline circulation.

While, it has also been observed that some plots of humic-like FDOM vs AOU in the specific water masses, namely, the North Pacific Intermediate Water (NPIW) and the North Atlantic Deep Water (NADW), seemed to deviate from the general relationship between humic-like FDOM and AOU. The previous studies showed that concentrations of lignin phenols, a unique biomarker of vascular plants, were found to be higher in the NPIW and the NADW compared with other water masses. Thus, the deviations of plots between humic-like FDOM and AOU in the NPIW and the NADW can be considered to be derived from terrestrial (allochthonous) humic-like FDOM.

In this study, we determined a basin-scale distribution of humic-like FDOM from the Sea of Okhotsk to the western subtropical North Pacific. We found the linear relationship between levels of humic-like FDOM and AOU in the deep layer (>1000 m) of the western North Pacific. While, we also found plots in the mesopelagic layer, corresponding to the NPIW, were significantly deviated from the relationship observed in the deep layer. Such distributional pattern implies that allochthonous humic-like FDOM derived from the Sea of Okhotsk is transported widely to the intermediate layer of the North Pacific by the NPIW.

キーワード：北太平洋中層水、溶存有機物、外来性

Keywords: North Pacific Intermediate Water, dissolved organic matter, allochthonous