

## 日本海における大気窒素化合物の沈着が海洋表層生態系に与える影響 Influence of deposition of atmospheric nitrogen compounds on the surface marine ecosystem at the Japan Sea

\*竹谷 文一<sup>1</sup>、相田 真希<sup>1</sup>、関谷 高志<sup>1</sup>、山地 一代<sup>1,2</sup>、池田 恒平<sup>3</sup>、本多 牧生<sup>1</sup>、松本 和彦<sup>1</sup>、笹岡 晃征<sup>1</sup>、金谷 有剛<sup>1</sup>

\*Fumikazu Taketani<sup>1</sup>, Maki Noguchi Aita<sup>1</sup>, Takashi Sekiya<sup>1</sup>, Kazuyo Yamaji<sup>1,2</sup>, Kohei Ikeda<sup>3</sup>, Makio Honda<sup>1</sup>, Kazuhiko Matsumoto<sup>1</sup>, Kosei Sasaoka<sup>1</sup>, Yugo Kanaya<sup>1</sup>

1. 海洋研究開発機構、2. 神戸大学、3. 国立環境研究所

1. Japan Agency for Marine-Earth Science and Technology, 2. Kobe University, 3. National Institute for Environmental Studies

The sensitivity of the atmospheric deposition of inorganic nitrogen compounds to the surface chlorophyll-a mass concentration at the Japan Sea was investigated using a 3-D lower trophic-marine ecosystem model (NEMURO) combined with an atmospheric regional chemical transport model (WRF-CMAQ). The monthly mean values for the wet and dry deposition of nitrogen compounds including gases (HNO<sub>3</sub> and NH<sub>3</sub>) and aerosol particles (NO<sub>3</sub><sup>-</sup> and NH<sub>4</sub><sup>+</sup>) over the Japan Sea were determined using the WRF-CMAQ, indicating that wet deposition was dominant in all seasons. These values were input into the surface of ocean of NEMURO as a new nitrogen source. The annual average of surface chlorophyll-a mass concentration at the Japan Sea was increased from 0.26 to 0.35 mg/m<sup>3</sup>. The growth ratios of chlorophyll-a mass concentration in summer was factor of ~2.1, while that in wintertime was factor of ~1.1, indicating that the atmospheric deposition of inorganic nitrogen compounds highly influence to the surface chlorophyll-a mass concentration in summer.

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