Japan Geoscience Union Meeting 2011
(May 22-27 2011 at Makuhari, Chiba, Japan)

U001-06 Room:304 Time:May 22 11:00-11:15

Observation of Nitrous Oxide concentration in the water in the Yodo River estuary

Mitsuru Hayashi[1*]

[1]Kobe University

Nitrous Oxide (N_2O) is one of the greenhouse effect gases. N_2O is generated by nitrification and denitrification processes. Therefore its concentration in drinking water is high, and it of the waste water after the sewerage is considered also to be high. In this research, N_2O concentration in the water was observed in the Yodo River estuary to estimate N_2O flux from the ocean to the air. The Yodo River flows to the inner part of Osaka Bay, and has much water volume. A red tide happens frequently and there is much sediment in the inner part of Osaka Bay due to the nutrient supplying from rivers and so on. And the sewerage plant is in the Yodo River estuary. It was observed at 6 sites in the distance of 15 km between the headwater of the sewerage plant and the estuary. N_2O concentration in the surface water were highest in the middle part of the site which is near the river mouth. It was about 2 ppm and was about two times of the river and sea water. It is considered that generated N_2O by denirtificate in sediment was released and spread to the surface, because near the river mouth is shallow. And it was suggested that N_2O was generated by nirtificate in the surface seawater, too. Nitrification and denitrification in sediment and the water contributed to N_2O generation more than the waste water in the Yodo River estuary. And this high concentration N_2O was released to the air.

Keywords: Nitrous Oxide, Concentration in the water, Greenhouse effect gas, Yodo River, Estuary, Observation