Reconstruction of heavy element emission histroy from a peat-rich pond in the western Pacific region

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After the Industrial Revolution, various heavy metal elements have been emitted to the environment via atmosphere. Our group has been investigated to reconstruct temporal and special emission profiles of heavy elements in the Western Pacific region (e.g. [1]). There are many developing countries in this region, but the environmental impact of heavy metal emission has not been quantitatively evaluated. Here, we estimate historical heavy element emission recorded in the Western Pacific from a peat-rich pond in Hokkaido, Japan. The pond is located in a very remote area (the most northwest part of Japan). Therefore from natural source dominant background information to anthropogenic input increase can be evaluated.

Core samples were collected from Otadomari, Rishiri-Island in Hokkaido. Sliced and dried samples were powdered and then heavy element concentrations and their isotope ratios were determined by ICP-MS after appropriate chemical purification.

From ^{210}Pb dating, the core sample records several hundred years' historical input of heavy metals, from well before the Industrial Revolution. Their Pb isotopic data shows anthropogenic Pb input increases after the middle of 18th century. Their Pb isotopic trend was shifted from the Pb isotopic value of background volcanic ash from the active volcano in the island, to the recent Japanese anthropogenic Pb isotope ratios. In the presentation, we will show the concentration and isotopic trend of other heavy elements, and their mutual trend will be compared.

[1] M. Inoue and M. Tanimizu, *Sci. Total Environ.*, **406**, 123-130 (2008).