

## **Seasonal variations in atmospheric platinum group elements at Ieodo Ocean Research Station in the East China Sea**

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The introduction of the exhaust system in automobile equipped with catalytic converters has substantially reduced emissions of hydrocarbons, NO<sub>x</sub> and CO since 1976. Because automobile catalysts use Pt, Pd, and Rh of platinum group elements (PGEs) as main active component, however, emission of these elements from automobile catalysts has led to their occurrence at elevated concentrations in the urban air and soil (Rauch et al., 2004). Recently, atmospheric dispersion of PGEs has been reported to result in large-scale atmospheric pollution for PGEs as evidenced by increasing their fluxes in the remote Antarctic snow (Soyol-Erdene et al., 2011).

Atmospheric pollution over East Asia, especially China, has received a great concern, because of the drastic economic growth and urbanization in the past decades, which induced a large increase in emissions of anthropogenic elements. Despite that, there is very little studies aimed at determining PGE concentrations in the atmosphere in East Asia. It is therefore important to investigate the concentration levels of PGEs and to assess their wide-spread dispersion in the atmosphere in East Asia. In this work, we present the first results of PGEs determined in aerosols (PM<sub>10-2.5</sub>), which were collected for a long-term period (1 year) at Ieodo Ocean Research Station (IORS), an unmanned research platform installed on the submerged rock, in the East China Sea (32°07' N, 125°10' E, 36 m a.s.l). Because of its location, IORS is considered to be the most suitable site to monitor PGEs in aerosols and to characterize seasonal changes in the distribution of PGEs over East Asia. The samples were analyzed using inductively coupled plasma sector field mass spectrometry (ICP-SFMS) with a desolvation nebulization system.