

Sources of atmospheric lead inferred from isotope ratios of HCl-soluble Pb and the residual Sr-Nd of aerosol particles

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Lead is one of the major pollutants of atmospheric environment. Around the East Asia, China is known as the major emission source of atmospheric lead. It is obvious that the influence reaches Japan across the sea. However, it is not clear which part of China is the major pollutant source of Japanese air and if there is seasonal change of sources. In order to reveal these, we conducted Pb isotope analysis of HCl-soluble component of aerosol particles sampled with high temporal resolution from August 2011 to August 2012 at the Omura City, north Kyushu. In association with Sr-Nd isotope ratios of HCl-insoluble component and air-mass back trajectory analysis, the four regions, the north, inland, south China, and Korea, were recognized as the discrete sources of atmospheric lead. Among the four areas, the north China is important in amount of lead. Atmospheric lead in the Omura City is mainly derived from the north and inland China during fall and winter. On the other hand, it is transported from Korea during a few days in fall, and from the south China during a few days in summer.

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