

## Seasonal and yearly variations of isotope compositions of the aeolian dust in rainwater

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Observation and analyses of aeolian dust coming to Japan are useful for understanding of seasonal and yearly variations of air circulation and mechanism of particle transportation above the Asian continent and the Sea of Japan. Analytical findings are expected to consider with ancient climatic change recorded in sediments. Accordingly, we have made observation of dust in rainwater collected on the peak of Mt. Sefuri (1055 m) in North Kyushu, Japan, and analysis of their components and chemical compositions. Aeolian dust in rainwater is accompanied with much organic materials which are originated from natural plants and artificial soot (Hamamoto et al., 2003). After removing these organic materials, chemical composition of inorganic matter in aeolian dust was analyzed.

Strontium isotope compositions of silicate in aeolian dust collected during a period of much aeolian-dust falling (almost March to May) are higher than those from any other seasons in a year. Their Rb-Sr isotope ratios arranged linearly on an isochron diagram. The linear array shows an apparent age of  $250 \pm 50$  Ma. Their Sr-Nd isotope compositions are equivalent to those of loess from the Gobi and Takla Makan deserts (Nakano et al., 2004).

In summer, Sr isotope ratios of aeolian dust become lower. This difference is remarkable by a comparison of their compositions on isochron diagram. Wind blowing from the south (SSE-S direction) is observed on the ground in summer. Mt. Sakurajima, which is one of active volcanos on Kyushu, is the most plausible candidate for the source of aeolian dust with low Sr isotope ratios. It is concluded that both of loess from Asian continent and volcanic ash from Mt. Sakurajima fall on Mt. Sefuri from early summer to mid autumn in a year, and make variations on their chemical compositions.

The aeolian dust collected at September, 2004, shows  $Rb/Sr = 0.198$  and  $87Sr/86Sr = 0.7098$ . On isochron diagram, this composition lies on the array defined from those of aeolian dust collected during the aeolian-dust fall season. Three typhoons (No.15, 16 and 18) hit or passed near Kyushu, and made gales blown from the north (NNW-N direction) on the ground, during a period of rainwater collecting in this summer. The composition of aeolian dust collected at September, 2004, probably reflects supply of loess from Asian continent by the typhoons and associated air turbulence.

Yearly variation is not clear for isotope compositions of the aeolian dust in rainwater. One thing, however, is certain that aeolian dust with high  $87Sr/86Sr$  ratio is poor in 2004 in comparison with other years. This finding may relate to transportation mechanism of aeolian dust as force of wind power or outline of aeolian dust.