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 [JJ] Evening Poster | H (Human Geosciences) | H-TT Technology & Techniques

## [H-TT18]Development and applications of environmental traceability methods

convener:Ichiro Tayasu(Research Institute for Humanity and Nature), Takanori Nakano(Research Institute for Humanity and Nature, Inter-University Research Institute Corporation National Institutes for the Humanities), Keisuke Koba(京都大学生態学研究センター)

Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Modern society uses almost all the elements present in the natural world. Although there have long been calls for the sustainable use of the resources that provide these elements and the building of human societies that are in harmony with the environment, the survival of the human race is increasingly at risk as a result of qualitative changes to the environment as a whole. Implementation by the society of methodologies for diagnosing and tracking these various elements of the natural environment and their relationships with humans are now required.

Elements transport in the spheres on the surface earth and the human society and human body. Information on the concentrations and stable isotopes of elements is powerful in tracing the transportation of materials and have been applied in studies on the atmosphere-hydrosphere circulation, ecological service, and the life, health and history of humans. We propose a session to discuss development and applications of environmental traceability methods to achieve traceable system.

Especially, we encourage to present a research based on Environmental Isotope Study, which integrates isotopic studies in various disciplines, such as geochemistry, hydrology, ecology, geology, mineralogy, anthropology, food science (identification of origins), and forensics.

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## [HTT18-P11]Magnesium isotope analysis of environmental samples(II)

\*Ki-Cheol Shin<sup>1</sup> (1.Research Institute for Humanity and Nature)

Keywords:magnesium isotope, environmental samples, RIHN-Mg

In this presentation, I discuss an updated result of magnesium isotopes analysis for various environmental samples. In the previous discussion (JpGU 2017 HTT23-P15), I explained the effective column separation method of magnesium from the diverse environmental samples. The tested one-step separation methods using different reagent solution successfully separated magnesium with a high recovery rate at least 98% or more. But the separated solution has still several matrix elements, such as Co, Ni, Cu, Zn, Rb, Ag, Cs. During isotopic analysis of the purified solution with MC-ICP-MS, the presence of these matrix elements more than a certain amount obviously caused a change in their isotope value. Those samples containing abundant specific element is necessary to pay attention to isotopic analysis. In the measurement by MC-ICP-MS (ThermoScientific Neptune plus, Bremen, Germany), the magnesium isotope values are determined standard-sample-standard bracketing method. All data are presented as delta value deviation from DSM3 which is a standard international material for magnesium isotope, and the average of three measurements was summarized as a result. Since the DSM3 has depleted, a new working standard solution RIHN-Mg tested. The RIHN-Mg value has close to the DSM3 value, it could be replaced after run out of DSM3. To evaluate the confidence of the analysis several reference samples are tested and show good agreement of reported values.