[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.

[HTT18-P09]Geochemical characteristics of hydrothermal fluids observed along Median Tectonic Line in Mie-Prefecture, Japan.

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Keywords:Groundwater, Geofluid, Median Tectonic Line, Mass spectrometry, Hot spring

Island arc magmatism is considered to be triggered by the addition of fluids dehydrated from subducting slab. The relationship among volcanism, hydrothermal ore forming, and hot spring in island arc is therefore important to understand distribution of geofluid in the area. We investigated hot spring in Mie-prefecture to estimate their origin. Various types of hot spring are observed in that area, and their origin and characteristics are estimated from dissolved trace element concentrations and their isotope systematics.

We investigated the ratios of $^{11}B/^{10}B$ and $^{7}Li/^{6}Li$ of hot spring water samples as well as $^{18}O/^{16}O$ and D/H isotope ratios of water. Resultant $^{18}O/^{16}O$-D/H ratios of water were mainly plotted along the fractionation trend of meteoric water and a mixing trend with seawater, but some samples have isotopic shifts toward heavy $^{18}O/^{16}O$ ratios, which indicate interactions with rocks under high temperature. Their $^{11}B/^{10}B$ and $^{7}Li/^{6}Li$ ratios showed very low values for some samples, which suggest that the fluids are

originated from deeper part of the earth crust. In addition, a decoupling between the two isotope systems is observed.