[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)

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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-P04]Characteristics of water quality and Sr isotopic composition ($^{87}Sr/^{86}Sr$) in 27 rivers of Sado Island, Niigata Prefecture

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Keywords:Sado Island, 27 rivers, Water quality, Sr isotopic composition (87Sr/86Sr)

The interactions between water and rocks during chemical weathering processes release water-soluble substances and form secondary minerals (e.g., clay minerals) with consumption of atmospheric CO_2. The determination of dissolved chemical substances in rivers gives us important information regarding chemical weathering processes such as the weathering rate and amount of CO_2 consumption. Because the weathering processes is strongly associated with sediment disaster such as landslide and debris flow, it is important to investigate river water quality for better understanding the weathering processes in detail. On the other hand, the Sado Island of Niigata Prefecture has been developed with a gold mine during the Edo Period. Recently, Japanese crested ibis, a protected species, is steadily increasing by extensive breeding programs. The conservation of water environment in the island is most necessary to preserve natural animals and resources. As a result, we characterized the water quality and Sr isotopic composition ($^{87}Sr/^{86}Sr$) in 27 rivers of the Sado Island. The water quality showed Ca-HCO_3, Na-HCO_3, and Na-Cl types, suggesting the contamination by airborne sea salt from Japan Sea surrounding the island.

The value of Sr isotopic composition ($^{87}Sr/^{86}Sr$) ranged from 0.70686 to 0.70852, and most of the element might be derived from rocks in rivers of the Sado island.