
[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-HW Hydrology & Water Environment

[A-HW20]Materials transport and nutrient cycles in watersheds; Human and climate impacts

convener:Mitsuyo Saito(Graduate School of Environmental and Life Science, Okayama University), Shin-ichi Onodera(Graduate School of Integrated and Arts Sciences, Hiroshima University), Takahiro Hosono(熊本大学大学院先導機構, 共同), Adina Paytan(University of California Santa Cruz)

Mon. May 21, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

This session aims to synthesize watershed sciences in order to understand dynamical processes of materials transport and nutrient cycles in watersheds from headwaters to coastal seas focusing on human and climate impacts. The session will be integrating a variety of research disciplines including limnology, ground water hydrology, coastal oceanography, meteorology, pedology, sedimentology, forestry, agriculture, fishery, social science and more. The watershed sciences also challenge us to solve environmental issues emerged in the watersheds through our profound understanding of relations between humanity and nature. For instance, on one hand, human land uses alter water resources, dynamics of sediments, nutrients and pollutants in waters and soils on watershed scales, while changing climates may alter water cycle, the frequency and intensity of materials transport and natural disaster, sometimes having catastrophic effects on the watershed systems. This session also calls for ideas on new methods for the watershed sciences, such as tracer and molecular technique, hydrological modeling, paleontological approaches, laboratory and field experiments, social-scientific evaluation of ecosystem services and social-ecological systems, and so on, in order to elucidate physical, chemical and biological mechanisms for shedding light on natural phenomena and their changes over time in complex and dynamic watershed systems. Through this session, we would like to facilitate interdisciplinary collaboration among participants to create new knowledge on watershed sciences.

[AHW20-P11]Hydrogen and oxygen stable isotopic ratio altitude effect and water quality features on the east coast of Lake Biwa

*Yusuke Tomozawa¹, Shin-ichi Onodera¹, Mitsuyo Saito² (1.Graduate School of Integrated Arts and Sciences Hiroshima University, 2.Graduate School of Environmental and Life Science, Okayama University)

Keywords:stable isotopes of oxygen, stable isotopes of hydrogen, altitude effect

Hydrogen and oxygen stable isotope ratios during precipitation show altitude effect. On the other hand, it is said that it has seasonal variation and area difference.

In grasping the flow of water in the basin, the isotopic ratio is useful as a tracer, but grasping the more definite isotopic altitude effect in that area is important in estimating the recharge zone.

In this study, we confirmed the high effect of stable isotope ratio when grasping the flow of groundwater and nutrient salt on the east coast of Lake Biwa.

As a result of carrying out the sampling of the waterside in the Serikawa river basin in July and December 2017, the altitude effect was 0.15 - 0.13 ‰ / 100 m.

At the same time, water out of the correlation line of high efficiency was also confirmed.

The water quality of these water tended to be similar, suggesting the existence of different hydrological processes.