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

[A-HW22]Hydrological Cycle and Water Environment

convener:Seiya Nagao(Institute of Nature and Environmental Technology, Kanazawa University), Isao Machida(Geological Survey of Japan), Shin'ichi Iida(国立研究開発法人森林研究・整備機構森林総合研究所森林研究部門森林防災研究領域水保全研究室, 共同), Takeshi Hayashi(Faculty of Education and Human Studies, Akita University)

Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

We focus on various issues of water cycle and environment and aim to answer questions of hydrological and earth system sciences including 1) surface, subsurface and evapotranspiration processes of water cycle; 2) natural and anthropogenic hydrothermal systems, 3) environments issues and studies on a watershed or global scale, 4) water-related issues with ecological, environmental, and geochemical aspects, and 5) other issues in hydrological sciences. This session welcomes presentations regarding various kinds of approaches and techniques such as field survey, remote sensing, isotope tracers, numerical simulation, and theoretical analysis.

[AHW22-P10]The solubility of heavy metals in mine tailings and soils from Kamegai mine, Toyama prefecture in Japan

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Mining extraction and processing generate large volumes of metal- rich waste tailings. This waste is considered be a principal cause of soil contamination in mining areas (Rashed, 2010; Pe-Leve Santos et al., 2014). Once these toxic metals are introduced into soils, they can be transported deeply into the soil and into groundwater, threatening environmental health. The objectives of this research were to analyze the concentration of several heavy metals (Zn, Pb, As and Cd) in soils from a Kamegai mining waste area, determining the chemical partitioning of those heavy metals using the sequential extraction procedure. It can help to understand the mobility of heavy metals and predict their effect.

The chemical associations of Cd, Cu, Pb, and Zn in thirty-four soil samples (<63mm) from the Kamegai mine waste site have been investigated by a five- step sequential extraction procedure. Sequential extraction showed that most of the As and Cu was associated with the poorly crystalized iron oxide and residual fractions, while Zn, Cd, and Pb was mainly associated with the exchangeable and carbonate fraction.

 The in-field magnetic susceptibility of top soils was clearly correlated with Fe, Zn, Pb and As concentrations.