Oral | Symbol A (Atmospheric, Ocean, and Environmental Sciences) | A-HW Hydrology & Water Environment

[A-HW28_30PM2] Water and material transport and cycle in watersheds: from headwater to coastal area

Convener:*Kazuhisa Chikita(Department of Natural History Sciences, Faculty of Science, Hokkaido University), Tomohisa Irino(Faculty of Environmental Earth Science, Hokkaido University), Shin-ichi Onodera(Graduate School of Integrated and Arts Sciences, Hiroshima University), Shinji Nakaya(Department of Civil Engineering, Faculty of Engineering, Shinshu University), Masahiro Kobayashi(Forestry and Forest Products Research Institute), Mitsuyo Saito(Graduate School of Environmental and Life Science, Okayama University), Seiko Yoshikawa(National Institute of Agro-Environmental Sciences), Noboru Okuda(Center for Ecological Research, Kyoto University), Chair:Shin-ichi Onodera(Graduate School of Integrated and Arts Sciences, Hiroshima University)

Wed. Apr 30, 2014 4:15 PM - 5:45 PM  314 (3F)

We focus on water and material transport and cycle in watersheds. The area includes headwater to coastal or estuarine area. We welcome these new topics in various scales and fields. For example, material transport in soil, slope and watershed scale, suspended material transport interacting with dissolved material, groundwater flow system and material transport, heterogeneity and dynamics, scale up from soil to watershed, effect of human activity and climate change for long period, N and P cycles, contaminant transport, river - groundwater interaction, new tracer methods, and sediment analysis etc.

5:15 PM - 5:30 PM


3-min talk in an oral session

*Yuta SHIMIZU¹, Shin-ichi ONODERA², Mitsuyo SAITO³ (1.NARO/WARC JSPS-PD, 2.Graduate School of Integrated Arts and Sciences, Hiroshima University, 3.Graduate School of Environmental and Life Science, Okayama University)

Keywords: Hydrological Model, Phosphorus, Material transport, Watershed

Phosphorus which derived from forest, agricultural area and urban is discharged to river stream via surface runoff and drainages. There is a time lag from "inflowing to river channel" to "outflowing to coastal area" because most of transported phosphorus is retained in river channel due to physical, chemical and biological processes. Previous studies about material balance in watersheds show that total amount of phosphorus emission is not correspond to total amount of discharged phosphorus. This is because of phosphorus retention in watersheds. So it is necessary to understand about phosphorus retention processes for estimation of phosphorus transportation. In recent years, distributed hydrological models are used to estimate phosphorus transportation. Most of these models are developed in western countries, and have been improved its accuracy of estimation of sediment and water quality. The objective of this study is to review phosphorus retention process in watersheds and model description for understanding model limitation for phosphorus transportation.