

---

[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-OS Ocean Sciences & Ocean Environment

## [A-OS12]Continental-Oceanic Mutual Interaction: Planetary scale Material Circulation

convener:Yosuke Alexandre Yamashiki(Earth &Planetary Water Resources Assessment Laboratory Graduate School of Advanced Integrated Studies in Human Survivability Kyoto University), Yukio Masumoto(Graduate School of Science, The University of Tokyo), Swadhin Behera(Climate Variation Predictability and Applicability Research Group, Application Laboratory, JAMSTEC, 3173-25 Showa-machi, Yokohama 236-0001, 共同), Takanori Sasaki(Department of Astronomy, Kyoto University)  
Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

The main purpose of this session is to promote discussion on mutual interaction between Continental zone and Oceanic zone. The global-scale material circulation induced by River runoff through oceanic general circulation as major topic on Continental-Oceanic Interaction, where the ENSO / IOD influence into continental climate as major topics on Oceanic-Continental Interaction. Numerical simulation and field observation of radionuclide transport from continental zone into ocean and its potential impact is also important topics of this session. The session also extend discussion on planetary hydrology and oceanography focusing on subsurface ocean in Jupiter's moon &Ancient Martian Hydrology.

---

## [AOS12-P03]Hydrological and Debris-flow simulation of Martian Surface in Hesperian &early Amazonian epoch

\*Hiroaki Sato<sup>2</sup>, Yosuke Alexandre Yamashiki<sup>1</sup>, Ryusuke Kuroki<sup>1</sup>, Hideaki Miyamoto<sup>3</sup>, Ryodo Hemmi<sup>3</sup> (1.Earth &Planetary Water Resources Assessment Laboratory Graduate School of Advanced Integrated Studies in Human Survivability Kyoto University, 2.Faculty of Engineering, Kyoto University, 3.Graduate School of Engineering, The University of Tokyo)

Keywords:Hesperian Epoch, Debris flow

It is considered that the Mars in Noachian epoch to early Amazonian was much warmer temperature than current condition, with atmosphere and ocean supported by its magnetic activity. Several valley which seems to be developed by ancient hydrological processes are observed in Martian surface, is being considered to be built long time before. Some fluvial fan was formed during the following Hesperian to early Amazonian epoch, which is considered as much cooler and drier than Noachian epoch. In this study, we applied Hydro-debris 2D model into Martian surface in Hesperian epoch in order to try developing surface valley formation throughout hydrological processes. Sediment transport and associated small-scale debris-flow occurrence may be the key for valley formation, where might be the micro-habitable zone in ancient period. At the same time it is still uncertain how much precipitation and erosion should have been required to formulate such topography. Large-scale inverse analyses using the proposed model might be the key for future answer to prevail this mystery.