[EE] Evening Poster | S (Solid Earth Sciences) | S-CG Complex & General

[S-CG55]Various interactions between solid Earth and climates

convener:Takashi Nakagawa(JAMSTEC/MAT), Yusuke Yokoyama(Atmosphere and Ocean Research Institute, University of Tokyo), Jun'ichi Okuno(国立極地研究所, 共同), Tadashi Yamasaki(National Institute of Advanced Industrial Science and Technology)

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

This session aims to discuss interactive features between solid Earth and climate evolution, for instance, atmospheric excitation of free oscillation in the solid terrestrial planets, crustal deformation and its influence on deep mantle rheological structure caused by post-glacial rebound, long-term climate evolution with volcanic degassing history, influence of topographic variations due to plate tectonics to the atmospheric circulations and physical and chemical interaction between ocean floor dynamics and oceanography. Other topics associated with an interaction between solid planetary geosciences and climate sciences should be addressed in this session. Contributions from all disciplines composed of Earth and Planetary Sciences (observations, field works, experiments and numerical computations) are definitely welcome.

[SCG55-P02]Northern Hemisphere ice-sheets simulation using a coupled ice-sheet/earth rebound/climate model

*Fuyuki SAITO[1], Ayako Abe-Ouchi[2,1], Jun'ichi Okuno[3] (1.JAMSTEC, 2.AORI Univ. Tokyo, 3.NIPR)

Keywords:Ice-sheet modeling, Isostatic rebound

Feedback between changes in the ice-sheet/climate and the earth's isostatic rebound is considered to be a key process for the evolution of the past Northern Hemisphere ice-sheets in glacial cycles. We report numerical experiments of the past northern hemisphere ice-sheets during several hundred thousands years using a coupled ice-sheet/earth rebound model with combination of climate parameterization computed based on a series of sensitivity studies using the general circulation model MIROC (Abe-Ouchi 2013). A self-gravitating visco-elastic multi-layer model developed by Okuno and Nakada (2001) is coupled to an numerical ice-sheet model IcIES (Abe-Ouchi 2013). The results are compared with the previous IcIES results which coupled with a simple isostatic model (i.e., a local lithosphere/relaxing asthenosphere) which is controled by two parameters (the mantle density and the time scale of isostatic response), in order to discuss the effect of more realistic visco-elastic structure of the earth.