[EJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CG Complex & General

[A-CG38]Science in the Arctic Region

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

The Arctic and circumpolar region is the key area for the study of global change because the anthropogenic impact is projected to be the largest in this area due to the complicated feedback processes of the nature. A number of international and interdisciplinary research projects have been conducted for the studies on the land-atmosphere-ocean system. In order to understand the feedback processes occurring in the Arctic and to project the global warming in the future, we need to establish the intense observational network and to exchange the knowledge and information by combining the different scientific communities under the common interest of the Arctic. The objectives of this session are 1) to exchange our knowledge on the observational facts and integrated modelling and 2) to deepen our understanding on wide range of natural sciences related to the Arctic and the circumpolar region. Studies on humanities, social sciences, and interdisciplinary fields are also welcomed.

[ACG38-P26]Development of a climate/ice-sheet coupled model (MIROC-IcIES) for Greenland ice-sheet simulation

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Keywords:Greenland ice-sheet, Ice-sheet modeling

Numerical modeling is an important technique for projection or reconstruction of ice sheets under past or future climate changes. Since climate and ice-sheet systems interact each other, development of a numerical model to couple a climate model and an ice-sheet model is expected recently, as well as stand-alone models. The recent intercomparison project of ice-sheet models ISMIP6 [1] includes a protocol of intercomparison of coupled models for future projection of hundred-year scales.

We are developing a coupled model of a climate model MIROC and an ice-sheet model IcIES. In this study a coupling design of the model is described. A temperature-index model (such as the positive degree-day model) is introduced to compute the surface mass balance on the ice sheet at first, which will be expected to replace by land-surface models. Changes in discharge from the ice sheet and ice-sheet topography are introduced in the climate component. Preliminary results will be presented to study the effect of the interaction, e.g, off-line coupling.