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

[A-CG38]Science in the Arctic Region

convener:Shun Tsutaki(The University of Tokyo), NAOYA KANNA(Arctic Research Center, Hokkaido University), Shunsuke Tei(北海道大学 北極域研究センター, 共同), Tetsu Nakamura(Faculty of Environmental Earth Science, Hokkaido University)

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-P23]Understanding of hydrological circulation of Arctic region using ^{17}O -excess variation in SIGMA-D ice core

*Akane Tsushima¹, Kumiko Goto Azuma², Sumito Matoba³, Naoko Nagatsuka², Teruo Aoki⁴, Koji Fujita⁵
(1.Research Institute for Humanity and Nature, 2.National Institute of Polar Research, 3.Institute of Low Temperature Science, Hokkaido Univ., 4.Okayama Univ., 5.Nagoya Univ.)

Keywords:Ice core, ^{17}O -excess, Greenland

The stable water isotope ratios ($\delta^{18}\text{O}$, δD and d-excess which is calculated from δD and $\delta^{18}\text{O}$) in ice cores are important proxy of paleo climate change. Recently, $\delta^{17}\text{O}$ and ^{17}O -excess which is calculated from $\delta^{18}\text{O}$ and $\delta^{17}\text{O}$ have attracted attention as a promising new proxy of hydro-climate variation. In this study, we measured $\delta^{17}\text{O}$, $\delta^{18}\text{O}$ and δD in an ice core, which was obtained from the northwest Greenland using Wavelength-Scanned Cavity Ring-Down Spectroscopy (model L2140-i; Picarro) with high precision at the National Institute of Polar Research. And we also calculated d-excess and ^{17}O -excess from those. For last 80 years, the correlation of ^{17}O -excess and d-excess is definitely changed with period of 10 to 20 years. The correlation of those shifted in 1967, that is, we showed sea-level pressure in periods 1(1949-1967) and 2(1968-1980) (NCEP Reanalysis data provided by the NOAA/OAR/ESRL PSD, Boulder, Colorado, USA, from their Web site at <http://www.esrl.noaa.gov/psd/cgi-bin/data/composites/printpage.pl>). During the periods 2, the high-pressure area extended across the whole Greenland, therefore, water vapor was hard to reach to SIGMA-D site. We think that the moisture influx route to SIGMA-D site and its amount changed due to the climate field change, resulting the changes of those correlations.