
[JJ] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-CC Cryospheric Sciences & Cold District Environment

[A-CC28]Glaciology

convener: Takayuki Nuimura (Chiba Institute of Science), Ishikawa Mamoru (Hokkaido University), Kzutaka Tateyama (国立大学法人 北見工業大学, 共同), Hiroto Nagai (Japan Aerospace Exploration Agency)

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The cryosphere is a fundamental component of the earth system. It is a region where snow and ice exist in the form of glacier/ice sheet, snow cover and snowfall, frozen ground, sea ice and fresh water ice, and they play a critical role in the global environment under the interactions with atmosphere, ocean, ecosystem and others. In this session, research results on physical and chemical characteristics of snow and ice, variations and dynamics of cryospheric environment, roles of the cryosphere on the earth and other planets will be discussed broadly, regardless of the research method.

[ACC28-P01] Detection of cavities developed inside the debris front the glacier landform using ground penetrating radar

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In the northern region of the Tianshan Mountains (Republic of Kyrgyzstan), there is a type of glacial lake, called short-lived glacier lake, which emerges and floods in just a few months to a year, causing flood disasters in the downstream area. In 2008, the Western Zyndan glacial lake of the Teskey Mountains expanded in two and a half months and three floods came out of the flood (Narama et al., 2010). The appearance and discharge of short-lived glacial lakes are thought to be due to the opening and closing of the ice tunnel which develops inside the debris topography including the buried ice in front of the glacial lake. It suddenly appears when the water inside the tunnel freezes in winter and closes the tunnel, and in the spring melting ice water suddenly appears when it is stored in a depression. And sudden flooding occurs at the opening of the ice tunnel in summer. However, the development process, location, scale, the actual state of closure and opening of the ice tunnel related to this flood is not clear. In this research, in order to grasp the underground structure including the location and the scale of the ice tunnel, the reflection characteristics of the cavity developed inside the debris glacier were investigated using the underground radar. Also, based on the results of the study, We estimated the location and size of the cavity in the debris topography of the Kara Kungoy glacier that had been flooded in 2015.