

Future Plan of the Polar Science

Yoshifumi Nogi¹, Tetsuo Sueyoshi¹ and Takuji Nakamura¹

¹ *National Institute of Polar Research*

The changes in the polar regions most likely indicate the precursor and driving force of the global environmental changes, and these changes are essential for future projection of the Earth system. The Antarctic and Greenland ice sheet holds most of the ice and is the largest freshwater reservoir on the Earth, which is equivalent to about 70 m height of sea level. Moreover, dense seawater is produced in the polar regions and formed bottom water that drives the thermohaline circulation. Changes in the thermohaline circulation are considered to be significant impacts on the global environment. Therefore, the polar regions are the key components that control global climate and sea level changes. However, the polar regions are still poorly unknown components in the Earth system due to the harsh weather conditions in these areas.

The interaction among the atmosphere, ice sheet, solid earth, and the ocean is vital to understand the system in the polar regions, and the various systematic field of scientific observations is required to elucidate the interaction. The scientific program and the framework of the integrated multidisciplinary study focused on the polar regions must be developed from the viewpoints of the global environmental changes. In this session, present scientific activities in the polar areas are introduced, and the future direction of the polar science are discussed.