Toward Future Plan of the Arctic and Antarctic Science

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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 ice and is the largest fresh water reservoir on the Earth, which is equivalent to about 70 m height of sea level. Moreover, dense seawater are produced in the polar regions and formed bottom water that drive the thermohaline circulation. Changes in the thermohaline circulation are considered to be large impacts on 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 ocean is vital to understand the system in the polar regions, and the systematic various 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. Present scientific activities in the polar regions are introduced, and the future direction of the Arctic and Antarctic science are discussed. We will also have discussion time for the session summary.

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