

Future Research Plan in the Polar region

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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 that holds most of the ice is the largest freshwater reservoir on the Earth, equivalent to about 70 m height of sea level. On the other hand, dense seawater produced in the polar regions 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 to 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 climate and sea level changes. Present scientific activities and plans in the polar region are summarized, and the future integrated multidisciplinary research plans in the polar region are discussed.

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