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## Arctic Research from now on : Science-Diplomacy learnt from the Antarctic

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In the recent, many changes occurred in the Arctic following global warming, such as abrupt decrease of summer sea ice extent, increase of surface air temperature, collapse of glaciers and melting of permafrost. All these Arctic Changes bring about not only the scientific interest but also the social consciousness. Abrupt decrease of sea ice extent, moreover, attracted social attention causing values of the Arctic as natural resources, territorial waters, application for extending an exclusive economic zone (EEZ), and possibilities as a ship route. The Arctic is highlighted internationally and nationally, and a new movement from Japan started to apply for the observer status in the Arctic Council last year though belated. However, to realize this direction, something has to be contributed from our country.

One of, or only possible, contribution to the Arctic from Japan is science. Science is the most important activity and we have to dispatch a message from science. This does not mean that we have to conduct top-down science; however, we should play a bottom-up science with a strong international recognition, and international cooperation. Science is the only way to support diplomacy in the Arctic from our country.

This is just similar what we have done for the Antarctic for these 50 years. The Antarctic Research Expedition was conducted under the Antarctic Treaty System. On the other hand, the Antarctic Treaty System was supported by the Antarctic Research Expedition. The Antarctic Science has been the basis for the Antarctic Treaty System, just as Science-Diplomacy. Now, we have to learn the lessons from 50 years of the Antarctic Treaty System for the Arctic and create a basis by science, scientific observations and research. For this purpose, we have to work together in all-Japan framework, constructing Arctic Consortium of Japan with collaborations of universities and institutions.

Keywords: Arctic research, global warming, abrupt sea ice decrease, Arctic Council, Science-Diplomacy, Antarctic Treaty System