

## Foreword

Rapid changes of Arctic sea ice cover have been in the focus of the international climate research community in recent years. Quite a few of nations have completed a large number of related surveys and research projects in the Arctic Ocean. Up to now, China has performed six research cruises to the Arctic Ocean resulting in a significant volume of research output. Improved knowledge on the atmosphere—sea ice—ocean interactions in the Arctic is a prerequisite for better understanding of the linkages between the Arctic and mid-latitude climate. These linkages have received increasing attention in the recent years with rapidly warming Arctic but several cold winters in mid-latitudes.

*Advances in Polar Science* publishes this special issue focusing on “The Rapid Change of Arctic Sea Ice and its Possible Effects on High- and Mid-Latitude Weather and Climate(RCASI)”, to provide an international forum to summarize the recent advances in this important topic.

This special issue RCASI is based on submissions from scientists of China, Finland, Germany and Japan, altogether 12 manuscripts, 9 articles of which were adopted before the acceptance deadline and released as expected. These papers involve the following topics: Using the physical decomposition method to study the effects of Arctic factors on wintertime temperatures in the Northern Hemisphere and China; Links between Arctic sea ice and extreme summer precipitation in China: an alternative view; Arctic sea ice and atmospheric circulation under the abrupt4xCO<sub>2</sub> scenario; Dominant patterns of winter Arctic surface wind variability; Numerical simulation of the impact of underlying surface changes on Arctic climate; An ice-ocean model study to explore climate change mechanisms in comparison with interannual-to-decadal variability of geochemical tracers; The seasonal foot printing mechanism of spring Arctic sea ice in the Bergen climate models; Linkages between Arctic sea ice cover, large-scale atmospheric circulation, and weather and ice conditions in the Gulf of Bothnia, Baltic Sea; and seasonal changes in sea ice conditions along the Northeast Passage in 2007 and 2012.

We expect that the present special issue will provide a foundation for further research on these themes. Finally, we would like to appreciate all the authors and reviewers, who made this special issue production as expected.

Guest Editors:

Prof. Matti Leppäranta, Prof. Timo Vihma, Prof. Huiding Wu

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