

## Ice-Ocean-Atmosphere Exchanges in the Arctic Region and Its Impacts

Guest Editor:

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### Message from the Guest Editor

Dear colleagues,

The Arctic is warming faster than any other region of the world, a phenomenon which is known as the amplification of global climate changing. Arctic warming has accelerated and resulted in the reduction of multi-year and single-year sea ice in this region. Sea ice plays a fundamental role in regulating key earth system processes, including nutrient cycling, air-sea gas exchanges, and climate changes in the Arctic regions. The sea ice retreat in the Arctic Ocean will significantly impact ice-ocean-atmosphere exchanges of different materials, such as CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, DMS, VOCs, aerosols, etc. The increase of greenhouse gases, DMS, and aerosols due to sea ice melting in the Arctic will significantly impact regional climates and change the carbon and sulfur cycles between the ocean and the atmosphere. However, how the sea ice melting impacts ice-ocean-atmosphere exchange is a question whose answer is still a mystery when it comes to the Arctic Ocean, due to the limitations of field observations. This Special Issue aims to better understand the response and feedback of ice-ocean-atmosphere interaction to the rapid changes of the Arctic.





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