



## **Understanding the circulation of the Arctic Ocean: A review in context with a changing climate**

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The Arctic region is experiencing the most rapid environmental changes on Earth. The ocean is a central control via Arctic Ocean warming, freshening, and circulation dynamics that link to the sea ice, atmosphere and terrestrial environment. Given the rapid pace of Arctic change, it is vital to take stock of our present understanding of the general circulation so that we may address knowledge gaps and make viable future predictions. Here, we synthesize the present understanding of the principal geophysical fluid dynamics of Arctic Ocean circulation, and explore the interconnected roles of wind-driven and buoyancy-driven processes in driving the observed state. We outline significant open questions with respect to mechanisms and limits of the complex ocean-ice-atmosphere interactions and feedbacks.