IV ROSS SEA CONFERENCE 2023

Università degli Studi di Napoli "Parthenope"
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Topic: Ocean-ice-atmosphere interactions

Daniela Flocco

ABSTRACT Subject :

Analysis and interpretation of sea ice dynamics depending on large-scale weather pattern in the Ross Sea.

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The Ross Sea is one of the most active sea ice regions in the Antarctic and it is known for its high variability in sea ice concentration, which is influenced by several meteorological factors. Meteorological data, including temperature, wind, and precipitation, play a significant role in determining sea ice concentration in the Ross Sea: sea ice in this region is in fact influenced by both local and large-scale weather patterns, e.g. the Amundsen Sea Low, making it a valuable location for understanding the dynamics of sea ice and its response to climate change. Several studies have shown that warming temperatures and increasing wind speeds are associated with decreased sea ice concentration in the Ross: strong winds can cause the formation of leads or open water areas in the sea ice cover, which can indirectly lead to a decrease in sea ice concentration caused to the extra heat stored in the exposed ocean. Additionally, winds can push sea ice around, causing it to compact or thin in certain areas. In this work, we provide an overview of the current state of knowledge on sea ice concentration fluctuation in the Ross Sea, including the role of meteorological data in driving these changes. Our research aims to further investigate the relationship between meteorological data and sea ice concentration fluctuation in the Ross Sea using observational data and numerical models. The findings of this research will contribute to the understanding of the dynamics of sea ice in the Southern Ocean and have important implications for predicting future sea ice change in the region.