



## **Diatoms in Ice Cores. Exploring a new proxy for reconstructing past wind strength in Ellsworth Land, Antarctica**

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In the last decade, several efforts have been carried out to assess the causes of the recent warming measured on West Antarctica and Antarctic Peninsula. The increase in wind strength and shifts in atmospheric circulation patterns have shown to play a key role in driving the advection of warm air from mid-latitudes to high-latitudes. Winds are also responsible for driving surface melting in the ice shelves, enhancing the removal of surface snow, and for promoting basal melting through the upwelling of deep warm water. All these combined have shown to produce substantial effects on environmental parameters, such as sea surface temperatures, sea ice extension, air surface temperatures, and precipitation.

Even though winds are fundamental components of the climatic system, there is a lack of reliable long-term observational wind records in the region. This has hindered the ability to place the recent observed changes in the context of a longer time frame.

In this work, we present a record of marine diatoms preserved in an intermediate depth ice core retrieved from the Ellsworth Land coast in the Amundsen Sea region. In particular, this work focus in the second half of the twentieth century where we explore the diatom abundance and species assemblages to assess the capacity of this record to represent the local/regional variability in wind strength and circulation patterns that influence the onshore northerly winds.