

# **PALEO-HYDROGRAPHY SOUTH OF AFRICA: ASSESSING THE ROLE OF THE SUBTROPICAL FRONT IN REGULATING AGULHAS LEAKAGE AT THE LAST GLACIAL TERMINATION**

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## **ABSTRACT**

Glacial Terminations are among the most extreme abrupt warming events in climatic history. One hypothesis for the cause of glacial terminations (i.e. the abrupt climate change from cold glacial to warm interglacial conditions) involves a rapid resumption of North Atlantic Deep Water formation, possibly triggered by increased salt input to the North Atlantic from the Indian ocean via the Agulhas Leakage (e.g. (Peeters et al. 2004; Bard and Rickaby 2009)). The proposed project aims to test the combined hypothesis that southward migrations of the subtropical front allowed for increased Agulhas Leakage, which triggered the resumption of North Atlantic Deep Water formation associated with glacial terminations. In a proposal to be submitted to NSF-OCE-P2C2, I propose to test this hypothesis by measuring planktonic Mg/Ca and  $\delta^{18}\text{O}$  from deep-sea cores in the region of the subtropical front immediately south of the Agulhas Retroflexion, in order to reconstruct the sea surface temperature and salinity gradients associated with the front in this region at a high temporal resolution over the Last Glacial Termination. I also propose to evaluate the timing of any observed frontal shifts with respect to changes in Agulhas Leakage and deep water changes in the Agulhas Current region. I request support from the Climate Center for preliminary analyses to include in the NSF proposal, which would greatly increase its chances of success.

## **REFERENCES**

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