



## Is the Indian Ocean a heat source for Late Pleistocene deglaciations?

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In today's ocean warm and relatively saline surface- and thermocline waters flow from the Indian into the Atlantic Ocean south of Africa. This inter-ocean exchange, or so-called 'Agulhas Leakage' (A.L.), forms a crucial link in the global ocean circulation and, in particular, helps to maintain the quasi-stationary mode of the present-day Atlantic Meridional Overturning Circulation. There is, however, evidence that the inter-ocean exchange was strongly reduced or may even have ceased during Late Pleistocene glacial maxima likely due to a more northward position of high latitude frontal zones in the southern hemisphere. The reduced A.L. communication led to a decrease or even cease in the transport of heat and salt into the Atlantic Ocean and to a more intra-basinal rather than inter-basinal circulation mode: While during glacial maxima the South Atlantic Ocean received less heat and salt through the Agulhas corridor, the glacial boundary conditions must have led to a further north-eastward retroflexion of the Agulhas Current, *i.e.* within the Indian Ocean, effectively stimulating intra-basinal re-circulation of the tropical Agulhas water. Due to its tropical setting and increased glacial intra-basinal circulation, the Indian Ocean may have rather quickly gained heat and increased its salinity, by repeated evaporation of the "trapped water masses, during periods of Agulhas closure. During this talk I will focus on various palaeo-oceanographic records in the context of this conceptual mechanism for Indian Ocean heat and salt storage, and discuss the glacial boundary conditions that led to the closure and subsequent opening of the Agulhas corridor and associated glacial termination dynamics.