



Agulhas leakage preconditioning in the tropical Indian Ocean during glacial terminations

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Enhanced transport of subtropical surface waters from the Indian into the Atlantic Ocean has been inferred for glacial terminations on the basis of foraminifera assemblages from the southeastern Atlantic (Peeters et al. 2004). This increased flux of heat and salt has been referred to an increased formation and leakage of Agulhas rings around the southern tip of Africa. This explanation assumes a fairly constant hydrography of source waters in the tropical/subtropical Indian Ocean. Here, we trace the Agulhas leakage upstream towards the Southern Equatorial Current north of Madagascar to assess the history of the source waters. We reconstructed temperature and $\delta^{18}\text{O}$ of the surface water for the last 150 ka using the oxygen isotope and Mg/Ca ratios of planktonic foraminifera from sediment core WIND 28K (10S 52E). These records reveal transient increases of upper ocean temperatures by 2-4 deg C and of salinity by up to 1 psu during glacial terminations I and II. Concurrent records from two surface water (*G. ruber*, *G. sacculifer*) and one thermocline species (*N. dutertrei*) demonstrate that these hydrographic anomalies affected a large portion of the upper water column. Our results imply that part of the observed increase in transfer of heat and salt from the Indian to the Atlantic Ocean may in fact be due to higher temperature and salinity of tropical Indian Ocean source waters during deglaciations.