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Foraminiferal tracers of Indian-Atlantic interocean exchange during the last 600 kyr

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The Indian-Atlantic interocean exchange (IAIE), occurring through Agulhas current and its leakage around the southern tip of Africa, is one of the return flows of global thermohaline circulation that contributes to the temperate climate in Europe. The IAIE affects the transport of heat and salt to the zone of deep-water formation in the N Atlantic, influencing the variability of Atlantic Meridional Overturning Circulation (AMOC). During the last 600 kyr, significant climatic events took place such as the Mid-Bruhnes event (MBE) (~430 ka) that marks a transition towards more intense interglacial periods.

The main objective of our study is to assess the impact of climate forcing on the strength of both surface and deep water IAIE during the last 600 kyr. For this purpose, we examined the variability of a group of warm-water planktonic foraminiferal species for tracing surface water circulation. We combined published and unpublished data from 3 cores along an Indian-Atlantic transect: two cores in the Indian Ocean, core MD96-2048 (26°10'S, 34°01'E, 660 m) in the source of the Agulhas current and our study core MD96-2077 (33°10'S, 31°14'E, 3781 m) in the middle of the Agulhas current; and one core in the Atlantic Ocean, core ODP1087 (31°27'S, 15°18'E 1372 m) recording the Agulhas leakage.

Since *Globorotalia menardii* and *Globorotalia tumida* are frequently used to trace Agulhas leakage, their variability in Agulhas current in the Indian Ocean is of our interest. Therefore, we compared the relative abundances of the warm-water planktonic *G. menardii* and *G. tumida* species with a group of warm-water planktonic foraminiferal species to record the strength of Agulhas current in core MD96-2077. Our results show that the group of warm-water planktonic species reflects increased Agulhas current strength at glacial terminations coinciding with stronger Agulhas leakage (Atlantic core ODP1087) as observed in previous studies. However, in core MD96-2077, both *G. menardii* and *G. tumida* relative abundances increase during interglacial periods. This indicates that production of these species in the Agulhas current source region is unlikely to trace Agulhas leakage in the Atlantic Ocean. The analyses of deep-water circulation proxies (Nd isotopes, benthic O and C stable isotopes) are in progress, and they will allow us to assess the response of deep circulation to changes in Agulhas current and leakage over the last 600 kyr.

