



## **South Indian Ocean surface hydrology over marine isotopic stage 13 and 11: comparison with EPICA Dome C climatic record**

**C. Waelbroeck** (1), N. Caillon (1), J.-L. Turon (2), C. Kissel (1), E. Michel (1), E. Cortijo (1), J. Duprat (2)

(1) LSCE/IPSL, Laboratoire CNRS-CEA-UVSQ, 91198 Gif-sur-Yvette, France, (2) EPOC, Université Bordeaux 1, 33405 Talence, France (claire.waelbroeck@lsce.cnrs-gif.fr / Fax: +33 1 69 82 35 68 / Phone: +33 1 69 82 43 27)

Core MD97-2101 has been retrieved in the South Indian Ocean, east of the Kerguelen Islands, at the same location as a previous shorter core, MD94-102. Sediment magnetic properties have been measured on both cores and allow us to patch MD94-102 existing records with new MD97-2101 records. We present new high resolution planktonic isotopic and Mg/Ca signals over the lower part of core MD97-2101 covering marine isotopic stage 13 to 10, as well as lower resolution foraminiferal sea surface (SST) reconstruction along the entire core. Our high-resolution records encompass the transition from lower to higher amplitude climatic cycles observed in EPICA Dome C ice core records. Our results show that SST derived from *G. bulloides* Mg/Ca leads the oxygen isotopic ratio ( $\delta^{18}\text{O}$ ) signal measured on the same species by 3 to 5 ky over stage 12-11 transition. This implies that Southern Ocean *G. bulloides*  $\delta^{18}\text{O}$  can not be used as a proxy for SST, and that correlating *G. bulloides*  $\delta^{18}\text{O}$  to EDC ice isotopic records is not a valid way of building consistent time scales between Southern Ocean marine cores and Antarctic ice cores. Our records further demonstrate that a significant increase in sea surface salinity took place at core MD97-2101 site during stage 12-11 transition and lasted until the end of stage 11. Finally, although SSTs are significantly lower during stage 13 than during stage 11, the relative increase in core MD97-2101 SST from stage 13 to 11 appears to be much lower than the corresponding increase in air temperature derived from the EDC ice isotopic record.