



## Voyage ss2011\_t01

### Pre-Industrial Sea-Surface Temperature Reconstructions in the Australian Region: Part 1 Eastern Australia.

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#### Contribution to Australia's national benefit:

We have obtained a series of short sedimentary archives that predate the instrumental record that will help us reconstruct past sea-surface temperature records from the Tasman Sea across a broad temperature gradient. This is the first time that sediment/water interface samples have been obtained from the Tasman Sea. Once we have made our measurements on those sedimentary archives, we will be able to contribute to a global network of past temperature records that will help constrain our understanding of climatic signals and help better predict future variability.

Our project relied on international collaboration with colleagues from France [University of Bordeaux I] and the USA [Indiana State University] who brought expertise and also who will work on some of our samples in their respective laboratories. In addition, one of our students will go to Holland [NIOZ] to process some of our samples as part of an international collaboration funded through a Discovery Project awarded by the Australian Research Council.

#### As a result of this voyage:

1. We have a better understanding of the nature of the sea floor at the sediment water interface in the Tasman Sea. We collected short sediment cores which will now be analysed with the aim of reconstructing past sea-surface temperature changes. We also gathered numerous water sampling for radiocarbon dating, for chemical analysis so as to better understanding processes that exist in the water column.
2. We have found evidence of substantial water currents at the bottom of the Tasman Sea down to depths over 1,000 metres. Once our laboratory analyses are completed, we will be able to estimate rates of sediment accumulation on the sea floor.
3. We have collected samples of calcareous nanoplankton and zooplankton from the western side of the Tasman Sea and will relate their distribution to chemical parameters to be measured in the laboratory, including stable isotopes of water.
4. We have collected numerous samples of benthic microbiota in order to define their ecological requirements that may be related to processes in the water column at their site of collection.

#### Itinerary

Departed Hobart 08:00,  
Thursday 5 May 2011

Arrived Brisbane 09:00,  
Thursday 12 May 2011

#### > Voyage track ss2011\_t01

