



## Voyage ss2011\_t04

### Pre-industrial sea-surface temperature reconstructions in the Australian region

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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 enable us reconstruct past sea-surface temperature [SST] records along the southern Australian margin, including the west coast of Tasmania. We sailed through a 10° latitude gradient. This is the first time that sediment/water interface samples have been obtained from this region except for three cores taken in the Murray Canyons Group area. 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 results will eventually be compared with those obtained after our previous transit cruise [ss2011-T01] held in May 2011 and for which we already have determined sedimentation rates and SST changes over the last three centuries. Preliminary results from the Tasman Sea show little temperature changes in waters south of Brisbane, extensive changes in the region south of Sydney, and less pronounced changes offshore northern Tasmania.

#### As a result of this voyage:

We will have a better understanding of past sea-surface temperature changes offshore southern Australia. In parallel we have obtained benthic samples for examination of the foraminifera assemblages that may inform us on the nature of the nutrients on the sea floor.

1. We have found that the sea floor at numerous locations consists of biogenic sand, suggesting therefore that bottom currents are active otherwise we would have found much finer grained material.

2. We have mapped a canyon/ undersea slide along the south western corner of Tasmania.

3. We will be able to establish sedimentation rates on the sea floor at selected sites.

#### Itinerary

Departed Fremantle  
16:00 Thursday 10 November 2011

Arrived Hobart  
13:00 Sunday 20 November 2011

#### > Voyage track ss2011\_t04

