



## **Air-Sea exchange of CO<sub>2</sub> and particles along the Galathea route, a cruise around the world.**

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A world wide Danish research cruise was started in August 2006 going from Greenland down through the Atlantic Ocean, around Australia and down to the Antarctic Peninsula; back along the west coast of South America and across the North Atlantic to Denmark where it arrived on April 27<sup>th</sup> 2007. The Cruise is named Galathea III and is the third within the past 150 years.

The purpose of this study is to investigate the role of the ocean in absorbing CO<sub>2</sub> introduced to the atmosphere through human activities and to study formation and transport of atmospheric particles.

Measurements are made continuously onboard the ship over the entire cruise track. In this manner, it will be possible to develop a global estimate of the role of different ocean regions in ocean-atmosphere exchange.

During the cruise, air-sea fluxes of both particles and CO<sub>2</sub> have been measured using micrometeorological techniques in order to validate the transfer velocities for different oceans and to evaluate the potential uptake and potential feedback mechanisms in marine waters.

We present here the measurements from the cruise and some data from direct measurements of CO<sub>2</sub> fluxes and water pCO<sub>2</sub> measurements from the Antarctic circumpolar current in the Southern Ocean and the Antarctic Peninsula.