MEDIA RELEASE

Unlocking the Secrets of Sea- Level Change

- Great Barrier Reef Expedition starts -

Townsville, February 11th. An international team of researchers and technicians today left Townsville, Australia to start the Great Barrier Reef Environmental Changes Expedition. During the next six weeks the team will collect samples of fossil corals that will help them understand sea-level changes in recent Earth history. The expedition is carried out under the auspices of the Integrated Ocean Drilling Program (IODP) and has been organised by the European Consortium for Ocean Research Drilling (ECORD).

The expedition team, including 24 scientists and technicians from 7 countries, will recover shallow sediment cores from several key sites in three regions at the outer edge of the Great Barrier Reef (see map below) using the *Greatship Maya*, a newly built, 94 metres long and 20 metres wide vessel. Coring of fossil (old, non-living) reef material will take place at the outer reef edge, about 40 to 150 kilometres offshore in water depths of 40 to 200 metres.

The recovery of fossil corals that grew throughout the last deglaciation about 20,000 to 10,000 years ago will allow scientists to gain a better understanding of sea-level changes during that period. Climate variations based on information such as ocean temperature, salinity and chemistry can also be reconstructed. The cores will also be studied to see how the reef ecosystem responded to these rapid rise of sea level and changes in climate. Scientists currently believe that there were three such periods of accelerated sea-level rise about 19,000, 13,800, and 11,300 years ago. Gaining deeper insights in those events is especially important to our understanding of how the modern Great Barrier Reef, a World Heritage Site since 1980, will respond to future changes.

"To construct global sea-level models that help to predict future changes we need records of sea-level change from as many locations as possible", co-chief scientist Dr. Jody Webster from Sydney University points out. The importance of the Great Barrier Reef is that the Earth`s crust underlying the Australian Shelf has not been moved vertically by seismic activities over the last 20,000 years. The area is also far from the vast ice-sheets that existed in the northern hemisphere during the last ice age and so less

sensitive to the Earth's response to melting of the ice. These factors makes it an ideal place to investigate how sea level and climate varied throughout this period.

There are considerable uncertainties as to how the Great Barrier Reef will respond to changes in our oceans, such as acidification, increasing sea-level rise and sea-surface temperatures in the next 20 to 30 years. "Scientific coring will provide important insights into how robust the reef is over different timescales and under different environmental conditions", co-chief scientist Dr Yusuke Yokoyama, Tokyo University adds.

The expedition is a European/Canadian contribution to the Integrated Ocean Drilling Program and has been organised by the European Consortium for Ocean Research Drilling (ECORD). The Great Barrier Reef Marine Park Authority (GBRMPA) has been consulted through the permitting and Environmental Impact Assessment process for the expedition. The samples cored during the expedition will be shipped to Germany. In July 2010 a detailed analysis of the material will take place at the IODP Core Repository at the University of Bremen.

You are invited to follow the progress of the expedition on the logbook website http://www.eso.ecord.org/index.php.

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Great Barrier Reef Expedition: Sampling locations