

15.06.2010

## NEWS FROM IFM-GEOMAR

11.06.09 09:59

### First successful mission with new experimental ocean observatory

#### – Investigation of ocean acidification in the Baltic Sea –

*15 June 2009/Kiel/Waabs.* For the first time scientists and engineers of the Leibniz Institute of Marine Sciences (IFM-GEOMAR) in Kiel, Germany, successfully operated an offshore observing system to study environmental changes in the oceans. The so-called mesocosms, which resemble oversized test tubes, are used to simulate the future ocean under close to natural conditions. IFM-GEOMAR scientists used six of these mesocosms, each enclosing about 60,000 litres of seawater, at the observing station Booknis Eck in the Baltic Sea to study effects of ocean acidification.

Above the sea surface they look rather unimpressive: six orange pillars connected by a transparent plastic roof. The true dimension of these floating enclosures is revealed under water - 20 metres long flexible tubes affixed to 8 metres high floatation frames. In each of these tubes scientists can isolate about 60 cubic metres of seawater with little disturbance of the enclosed plankton community. "So far we have studied the impacts of environmental changes such as eutrophication or rising carbon dioxide concentrations in small tanks in the laboratory. The new off-shore mesocosms enable us to study the effects of ocean change under natural conditions in the field. This allows us to better assess their impacts on complex ecosystem", explains project leader Prof. Ulf Riebesell from IFM-GEOMAR.

The first mission of the mesocosms, a technology developed at IFM-GEOMAR, was dedicated to research on the impact of ocean acidification. "The ocean absorbs more than a third of the carbon dioxide produced by human beings. As a consequence the ocean gradually acidifies", says Prof. Riebesell. Many marine scientists regard this process as equally dangerous to marine ecosystems as ocean warming. It is still too early for a final assessment of the results obtained at Booknis Eck. But in view of the comprehensive data set collected during the 18 day long experiment it is already



The mesocosm systems developed in Kiel at the Baltic Sea at Booknis Eck. Photo: U. Riebesell, IFM-GEOMAR



The mesocosms systems are launched from board of RV ALKOR. Photo: U. Riebesell, IFM-GEOMAR

regarded as a great success.

The study was conducted together with partners of the Alfred Wegener Institute for Polar and Marine Research in Bremerhaven, the Leibniz Institute for Baltic Sea Research in Warnemünde, the Leibniz Institute of Freshwater Ecology and Inland Fisheries in Berlin and 19 students from Kiel University. It is part of the joint project SOPRAN (Surface Ocean Processes in the Anthropocene) funded by the Federal Ministry of Education and Research that has also partially financed the development of the worldwide unique mesocosm system. Research organizations in the USA and the UK have already expressed interest in the new technology.

The experiment in the Baltic Sea was the acid test for a large-scale project in the high Arctic in spring 2010. As part of the EU project EPOCA (European Project on Ocean Acidification) the new experimental observatory will be deployed off the coast of Svalbard. The focus of this study, which will be coordinated by IFM-GEOMAR and involve 15 other European partners, will again be on ocean acidification. "The high Arctic was an obvious choice for us," explains Riebesell, "as it will be one of the first regions to be at risk under continued ocean acidification." An extension of research funding for the off-shore mesocosms in the framework of the SOPRAN project is presently under consideration. A decision by the BMBF is expected in the near future.

**Links:**

[sopran.pangaea.de](http://sopran.pangaea.de) - BMBF-Project SOPRAN

[www.epoca-project.eu](http://www.epoca-project.eu) - EU-Project EPOCA

[www.ifm-geomar.de](http://www.ifm-geomar.de) - Leibniz Institute of Marine Sciences

**Figures:**

High resolution versions of the figures are available here:

[The mesocosm systems developed in Kiel at the Baltic Sea at Booknis Eck. Photo: U. Riebesell, IFM-GEOMAR](#)

[The mesocosm systems are launched from board of RV ALKOR. Photo: U. Riebesell, IFM-GEOMAR](#)

**Contact:**

Prof. Dr. Ulf Riebesell, Phone: +49 431 600-4444,

[uriebesell@ifm-geomar.de](mailto:uriebesell@ifm-geomar.de)

Jan Steffen (Public Relations), Phone: +49 431 600-2811, [jsteffen@ifm-geomar.de](mailto:jsteffen@ifm-geomar.de)

[\[ Back \]](#)

---

[\[ Close | Schliessen \]](#)