



Investigations of an ecological white spot and its response to climate change.

The German research ice breaker 'Polarstern' will navigate to Antarctica.

Census of Antarctic Marine Life is a major project of this expedition.

One third of the Antarctic coastal waters down to 800 metre depth are covered by up to several hundred metre thick ice shelves. Such unique conditions do not exist anywhere else on Earth; with a few exceptions corresponding ecosystems are undiscovered. In the past 12 years in the northern part of the Antarctic Peninsula huge parts of ice shelves collapsed completely due to global warming. The loss of the Larsen ice shelves A and B so far affects the Antarctic continent only regionally. The Alfred Wegener Institute for Polar and Marine Research in Bremerhaven, Germany (AWI) provides the RV Polarstern for an international team of scientists to study this unique ecosystem and its dynamics. This will happen under the umbrella of the "Census of Antarctic Marine Life" (CAML). The major target of the expedition is life close to the sea-floor since in case of environmental changes most of such animals cannot escape. In addition, colonization of sediments by young life stages will be slower by orders of magnitudes than in the water column.

The major scientific questions of this project are:

- (1) What kind of life forms, species compositions and ecosystem function exist under ice shelves? How did they adapt to these unique conditions? Due to the generally slow growth rates of sessile but also some mobile animals we will still find conditions that reflect life as if under ice shelf cover.

- (2) How much did life close to the bottom suffer from the immense impact when the ice shelves disintegrate, when food conditions alter significantly, when thousands of icebergs calve and disturb the sea-floor when running aground? It is almost impossible to imagine a more radical change in any ecosystem.

(3) What is the future of such unique ecosystems? We will be able to observe first processes of colonization after disturbance events. These results will be used to test different hypotheses on the driving forces of marine biodiversity. The future of Antarctic benthic biodiversity will be simulated in predictive computer models under ongoing global warming.

A full range of organisms from microbes to intermediate sized meiofauna, larger invertebrates, fish and finally whales will be targeted. 47 scientists from 14 countries represent different approaches such as systematics, ecosystem colonization processes and resilience, genetics, pelago-benthic coupling, physiology, trophic relationships, biodiversity-change, sedimentology and bathymetry. The CAML aspects overlap with the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR) project, also carried out during the expedition around the South Shetland Islands including Elephant Island and the shelf of Joinville Island at the tip of the Antarctic Peninsula. Education, outreach and communication are an important concern of the expedition. For that purpose 12 students will have the opportunity to get first-hand experience in Antarctic field research embedded in international programmes. Further contact person for media requests in direct link to the scientist will be on board themed bringing science to the people. The expedition will start 23/11/2006 in Cape Town, South Africa, will include the logistic supply of the German Neumayer Station and end 30/01/2007 in Punta Arenas, Chile.