

MARINE TECHNOLOGY

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On 2 March 2008 a tragic helicopter accident during an Antarctic cruise ripped away our dear colleague and friend Willem Polman. The Marine Technology department was shaken to its foundations.



In remembrance of Willem Polman

2008 was a devastating year for our department Marine Technology and NIOZ. On Sunday afternoon 2 March we received a message that Willem Polman had died in a helicopter accident on the ice of Antarctica. It still feels unreal that he is no longer with us. He had departed for a cruise to Antarctica, to which he looked forward very much, but from which he did not return.

Willem started working at the institute on 1 February 1986 as a shipboard technician on the research vessel Aurelia. Later he became a marine technician at the Department of Marine Technology. He was responsible for the operation and maintenance of bottom sampling and seismic equipment. We remember him as a fine colleague, steady as a rock when we needed him.

We will never forget him.

Jack Schilling

But also after this tragic accident we had to take up our daily work. Therefore we give a summary of our highlights. The total project volume of 2008 was slightly lower (4%) than in 2007. About 32% of the department capacity was used to support and prepare scientific research cruises at sea, a slight decrease of 2% compared to 2007. The share of new constructions increased from 26% of the capacity in 2007 to 36% in 2008. In 2008 we worked on 281 projects, of which a few are highlighted below.

Fish Observation Video system

Stock assessment of fish is usually carried out with acoustic systems. However, for long-term stand-alone systems in the deep sea there are drawbacks, such as a high energy demand and the limited capacity for the identification of different fish species. Therefore a test model for an optical fish assessment observatory was developed, consisting of a fully programmable high-definition video camera in combination with an automatic food (bait) dispenser. This prototype was attached to a benthic lander and used with great success during the first CoralFISH expedition to the Hatton bank in the NE Atlantic.



Micro profiler MOVE

The autonomous deep sea vehicle MOVE was equipped with ultra high resolution oxygen sensors for profiling into sediment. The sensors were based on photonic technology and could be deployed into undisturbed seabed. A tripod "nano-lander" containing several oxygen probes, functioning like a mini drilling rig, was successfully deployed from the MOVE.



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Deep Digging Dredge: renewal of frame and gliders

The NIOZ Deep Digging Dredge (Triple D) is frequently used in the North Sea for taking large volume, accurately quantified samples of the bottom fauna. The harsh working conditions of this apparatus causes serious mechanical wear and tear. Although the Triple D construction is very robust, the frame and gliders had to be refurbished.



Seismic trials with Delft University of Technology

In order to improve the penetration depth of existing air gun seismic equipment, NIOZ participated in trials by Delft University of Technology on the river Danube. In these trials a 100m deep borehole was created in the riverbed and equipped with seismic hydrophones. A new mathematical post processing model was successfully validated and resulted in a significantly higher bottom penetration.



Deep Sea Kevlar Cable Winch: major overhaul after extensive Polar program

Honoring the International Polar Year, 2 major cruises were carried out on the German Icebreaker RV Polarstern using the new NIOZ developed TITAN Ultra Clean Water Sampling system. The main objective of these cruises was to measure very low concentrations of trace metals in sea water, mainly iron, manganese and aluminium.

A vital part in this project was the Mobile Deep Sea Kevlar Cable Winch. This complex and vulnerable winch remained on board for almost a year, often suffering from harsh conditions. Therefore a major overhaul had to be carried out to bring it back into good condition.



AUV trials near the Dutch coast

The use of Autonomous Underwater Vehicles (AUV's) for sea research opens a new horizon of opportunities for the science community. In a joint test cruise with the Royal Dutch Navy, the practical possibilities were tested in shallow water close to the coast line. The use of this 'high tech' equipment was extensively covered by the news media.



Fiber Optics workshop for technicians

A dedicated workshop of state of the art applications and latest developments "in fiber optics technology" was presented by our colleagues from the Institute for Particle Physics, NIKHEF.



Shipboard Technical Support: University of Hamburg cruise

In 2008 the department of Marine Technology supported a large number of MRF research and barter cruises. An example is the cruise led by prof. Dierk Hebbeln of the University of Hamburg on the RV Pelagia. A great deal of creativity was needed to meet all demands. For using the deep sea video system, an additional winch and coax cable had to be acquired. The winch was borrowed from the Netherlands Geological Survey (NITG), enabling video grabbing with a NIOZ box corer and video system. Furthermore, quite a number of adaptations had to be made for operating the German ROV Cherokee and its gravity coring system. Altogether this resulted in a very successful cruise.

