

Scientific Support Services



MARINE RESEARCH VESSELS AND FACILITIES

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The NIOZ research vessel Pelagia sailed 321 operational days in total for 17 cruises during 2008. The National Programme for Sea Research comprised 3 cruises by Pelagia and another 3 projects by other research vessels. Active participation in the Ocean Facilities Exchange Group (OFEG) continued.

Marine Research Facilities

The Netherlands Marine Research Facilities (MRF) is a national structure integrated within NIOZ. MRF advises the Earth and Life Sciences (ALW) of the Netherlands Organisation for Scientific Research (NWO) on the technical, logistic and financial aspects of the National Programme for sea research. MRF supplies suitable ship capacity, dedicated technicians and sea-going equipment. When sea-going research projects have been approved of and granted by ALW, MRF assists the chief scientists in their planning, preparation and execution of the cruises. MRF also advises ALW on long-term investments, in consultation with the financial department and

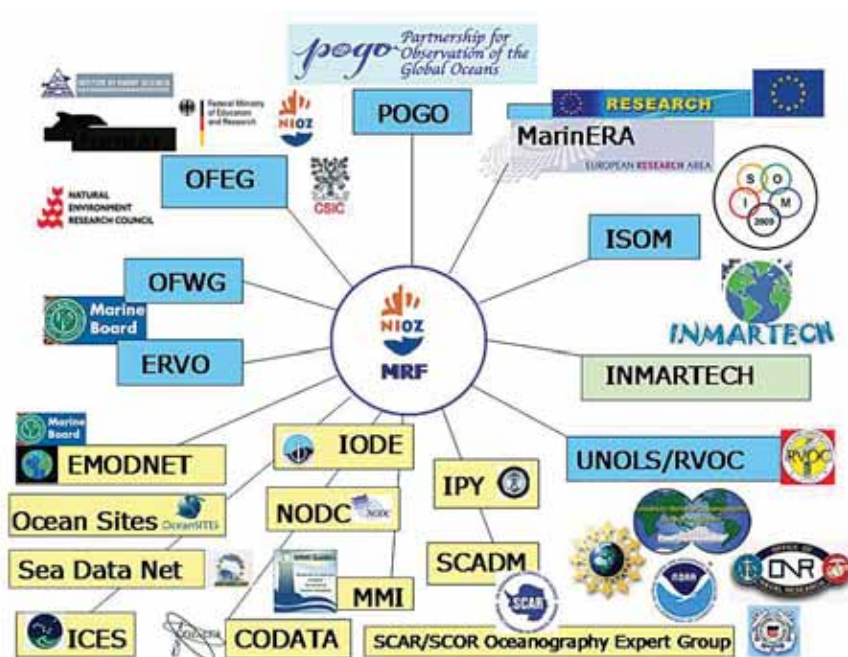
marine technical services of NIOZ and the advisory committees on CTD systems, auto-analyser systems, moored instrumentation systems, bottom sampling and seismic systems and biological sampling systems. Scientists and technicians from all Dutch groups involved in sea-going research participate in these advisory committees for pooled equipment. The Long Term Planning on MRF investments is updated every year and the update for the years 2009 – 2013 was submitted to NWO/ALW. NIOZ/MRF is responsible for the maintenance of the national equipment pool and NIOZ runs several marine research vessels and other facilities for accommodating scientific programmes of the oce-

anographic community in the Netherlands. NIOZ participates with its multipurpose RV Pelagia and its equipment pool in the Ocean Facilities Exchange Group (OFEG), wherein ship-time is exchanged between partners on a bartering basis.

Research vessels

Research vessel Navicula is a 25 m NIOZ research ship specially designed for working in the shallow Wadden Sea. She has been built in 1980, and elongated in 1999, with a major upgrade in 2004. In 2007 an overall fire monitoring and alarm system has been installed. In 2008 RV Navicula sailed for 195 days and also worked in the German and Danish part of the Wadden Sea.

The largest sea-going facility is RV Pelagia, a 66 m NIOZ research vessel developed for oceanographic research in coastal seas, on continental shelves and in the blue ocean. RV Pelagia was built in 1991 (ISM Certified) and was specially designed as a multipurpose research vessel with most favourable nautical and acoustical properties, with a very low noise level due to diesel-electric drive. Scientific gear used onboard comprises a variety of CTD-systems and water samplers (including the Ultra Clean CTD system TITAN), diverse biological sampling methods, seismic surveys, deep tow sonars, coring activities (box-, multi-, piston, gravity, vibro-, CPT) as well as deployment and recovering of deep-sea moorings and bottom landers, including a deep sea crawler (MOVE!). Since 2006 RV Pelagia is equipped with a



- International Research Ship Operators Community
- Marine Technology Community
- Data Management Community

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KONGSBERG EM 300 1 x 2 degree Swath multibeam echo sounder for shallow and deep water, which was upgraded in 2008 to EM 302. During a three week maintenance and docking period the ship's hull was cleaned, what resulted in an increase in speed from 9 to 10 knots.

At the beginning of 2008 the expert's report for the development of a long term maintenance plan for the remainder of the ship's operational life was presented to the NIOZ board. As a consequence a three months Mid-Life refit has been scheduled for the end of 2009 beginning of 2010. With the intention to use the refit period for the implementation of a number of substantial scientific innovations a proposal was submitted to the National Roadmap committee. Unfortunately, although excellent grades were awarded by the international peers with positive recommendations, the Roadmap Committee did not select the proposal.

RV Pelagia cruise programme

RV PELAGIA sailed year round for 323 operational days. This included two barter cruises and four charter cruises. One barter cruise of 37 days was in the Gulf of Cadiz in February/March for a science team of MARUM, Bremen. Another barter of 21 days was in the Arabian Sea in December for the University of Aberdeen. In January, March and August a survey was done in the North Sea on a 11, 12 and 28 days commercial charter.

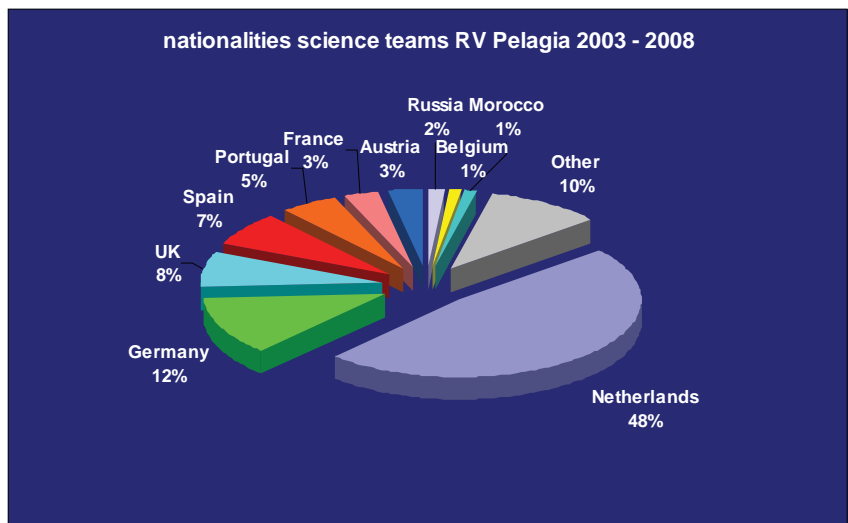
Another 19 days cruise on charter basis was done for IfM-GEOMAR, Kiel in the West Nile Delta in November.

Science projects were funded by the Netherlands Research Council NWO (also funding 48 days ship time), the European

Union (funding 5 days ship time), and NIOZ (200 days of which 43 days for the NWO National Programme and 85 matching EU/IGBP projects); 70 days were funded by charterers and other third parties. An overview of the Pelagia cruises in 2008 (excluding barter and charters) is presented below and this overview also comprises the cruises by other research vessels with Dutch participation. Details of the cruises within the National Programme (funded by NWO) are given in the next subchapter.



To accommodate the cruises by RV Pelagia, diplomatic clearance has been granted by Denmark, Egypt, Germany, Greece, Iceland, Ireland, Italy, Morocco, Norway, Pakistan, Portugal, Spain, and UK. Besides calling at homeport Texel, port calls for change of crew and scientific party as well as (un)loading scientific equipment took place in Port-Said (Egypt), Bremerhaven en Hamburg (Germany), Heraklion (Greece), Cork (Ireland), Muscat (Oman), Lisbon and Portimão (Portugal), Aberdeen (Scotland - UK), Las Palmas and Vigo roads (Spain)



Cruises by RV Pelagia and by NIOZ parties on other ships during 2008

Programmes and projects funded by NWO, EU, NIOZ etc

Barter and charter cruises by RV Pelagia: see text

Pelagia cruises	Departure	Arrival	Area	Project	Chief Scientist
Pelagia 64PE287	05/04 Bremerhaven (Ger)	13/04 Texel	North Sea	NORMOMAP	R. Witbaard (MEE)
Pelagia 64PE288/289	14/04 Texel	27/04 Texel	North Sea	COSTRA	M.J.N. Bergman (MEE)
Pelagia 64PE290	05/05 Texel	15/05 Texel	North Sea	FACEIT	C.P.D. Brussaard (BIO)
Pelagia 64PE291	11/06 Texel	19/06 Cork (Irl)	North Atlantic	HERMES-CORALFISH plus MOVE! test	M.S.S. Lavaley (MEE)
Pelagia 64PE292	21/06 Cork (Irl)	16/07 Texel	North Atlantic	HERMES-CORALFISH	G.C. Duineveld (MEE)
Pelagia 64PE294	19/08 Texel	11/09 Texel	North Sea	CARBOOCEAN	H.J. Zemmeling (BIO)
Pelagia 64PE295/296	19/09 Texel	16/10 Lisbon (Por)	North Atlantic	BIOFUN/MOVE!	M.S.S. Lavaley (MEE)
Pelagia 64PE297	17/10 Lisbon (Por)	06/11 Heraklion (Gr)	Mediterranean	MOCCHA	G. de Lange (UU)
Other cruises	Departure	Arrival	Area	Project	Chief Scientist / NIOZ scientist
Meteor 75/1b	19/01 La Réunion (F)	04/02 Dar es Salaam (Tan)	Mozambique Channel	LOCO	H. Ridderinkhof (NIOZ)
Cefas Endeavour	15/01 Lowestoft (UK)	24/01 Lowestoft (UK)	North Sea	MEC	D. Sivyer / S.S. Oosterhuis (BIO)
Polarstern ANT XXIV/3	06/02 Cape Town (SA)	17/04 Punta Arenas (Chili)	Southern Ocean	IPY-GEOTRACES	E. Fahrback / H.J.W. de Baar (BIO)
Revelle	09/07 Woods Hole (USA)	12/08 Miami (USA)	North Atlantic	Mid-Atlantic Ridge 08	A-L. Reysenbach/ M.T.J. van der Meer (BGC)
Corystes	17/08 Belfast (UK)	26/09 Belfast (UK)	Irish Sea	Liverpool/Dundalk Bay	R. Gowen / S.S. Oosterhuis (BIO)
Discovery D332	20/08 St John's (Can)	25/09 Clyde (UK)	Irminger Sea	LOCO/VAMOC	S. Bacon / F. de Jong (FYS)
Nancy Foster (NOAA)	04/10 Pascagoula (USA)	16/10 Pascagoula (USA)	Gulf of Mexico	DISCOVRE	S.W. Ross / T.C.E. van Weering (GEO)
Mirai MR08-05	10/10 Dutch Harbor, Alaska (USA)	10/11 Onahama (Japan)	Western North Pacific	MR08-47	T. Nagata / T. Yokokawa (BIO)



National Programme for Sea Research

In 2008 the National Programme consisted of three Pelagia cruises and another three programs were done by NIOZ parties on other research vessels, all facilitated by grants of NWO/ALW.

1. CARBOOCEAN (Marine carbon sources and sinks assessment; chief scientist Dr. H. Zemmeling, NIOZ). A 27 days cruise was performed in the greater North Sea on board RV Pelagia in August/ September.

2. BIOFUN (BIOdiversity and ecosystem FUNctioning; chief scientist Dr. M. Lavaleye, NIOZ), a 25 days cruise was performed in the Atlantic Ocean in the Galicia Bank area on board RV Pelagia in September/October. The aim of the cruise was to understand the relationship between sediment community structure and seafloor ecological processes. During this cruise landers were deployed and the deep sea crawler MOVE! was used. The transit of the cruise was used for a multi-beam test.

3. MOCCHA (Multidisciplinary study Of Continental / Ocean Climate dynamics using High resolution records from the eastern mediterranean, part of the ESF EuroDEEP programme; chief scientist Dr. G. de Lange, Utrecht University). A 21 days cruise on board RV Pelagia was performed for recovery and redeployment of two sediment trap moorings, coring and CTD sampling work in the Mediterranean Sea in October/ November.

For the investment subsidy NWO-Large two cruises were performed for the LOCO project (Long-Term Ocean Climate Observations).

4. LOCO/MOZAMBIQUE (Long-Term Ocean Climate Observations – Mozambique Channel; project manager and chief scientist Dr.ir. H. Ridderinkhof); a 19 day barter cruise was done on RV Meteor in the Indian Ocean in January/ February for the recovery and redeployment of eight LOCO moorings.

5. LOCO/VAMOC North Atlantic (Long-Term Ocean Climate Observations – North Atlantic; project manager Dr. H.



van Aken, NIOZ); a combined barter cruise on RRS Discovery in the North Atlantic in August/September for the recovery of the VAMOC lander and the recovery & redeployment of the 4 LOCO moorings in the Irminger Sea.

For the Netherlands contribution to the International Polar Year (IPY) 2007/2008, cruise participation was granted by NWO/ALW for a programme in antarctic waters and for the GEOTRACES programme in arctic waters.

6. Netherlands participation in the Antarctic cruise (ANT-XXIV/3) with RV POLARSTERN, project manager Prof.dr. H. de Baar, NIOZ and Groningen University). The 75 days ANT-XXIV/3 expedition was a central contribution to the International Polar Year 2007/2008. The Netherlands contribution was concentrated on the work with the NIOZ Ultra Clean CTD sys-

tem TITAN and subsequent analyses of iron and other trace metals to determine the physical and chemical speciation of dissolved trace metals in the Southern Ocean. On the hardship of the helicopter crash and the loss of two lives during this cruise is reported elsewhere in this annual report.

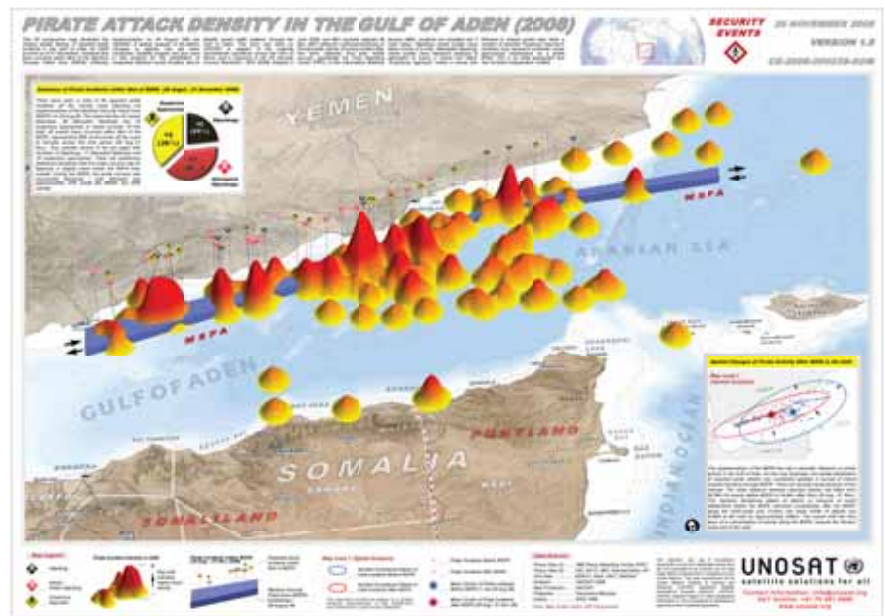
In addition to the National Programme, NIOZ scientists were invited to participate in a number of foreign cruise programs. These cruises are included in the Table. Most remarkable in this respect was the Netherlands participation in the US program DISCOVRE 2008 (University of North Carolina) to study deep coral environment in the Gulf of Mexico. The NIOZ contribution comprised deployment of a BOBO and an ALBEX lander during an 12 days cruise by the NOAA ship RV Nancy Foster in October.

RV Pelagia passage through the Gulf of Aden

On 19 September, RV Pelagia left the NIOZ harbour on Texel for a long series of cruises in the North Atlantic, the Mediterranean Sea (Ionian Sea and West Nile Delta), the Indian Ocean (Arabian Sea, off Tanzania and in the Mozambique Channel, North and South Natal Valley), the equatorial North Atlantic Ocean, Canary Basin, and Northern North Atlantic Ocean. RV Pelagia will not return in the own NIOZ harbour till 11 months later (Mid August 2009). On its outward voyage towards the Arabian Sea, through the Suez Canal and the Red Sea, the ship also had to pass through the Gulf of Aden.

During 2008 the number of piracy attacks in the Gulf of Aden increased tremendously. Knowing that RV Pelagia had to pass that area at the end of the year, initiatives were taken to try to get protection from the Dutch Navy during her passage. After a three months period of writing letters, filling in forms, telephone calls, consulting ministries, the Coast Guard, the Shipowners Association, the newly installed European coordination Cell EUNAVCO, and the French Navy active in the area, at last RV Pelagia could be included in the last convoy that would be escorted by the French warship FS Jean de Vienne, starting at 4 December just before midnight. This was an exceptional convoy, as the cruising speed was decreased to the speed of RV Pelagia. By strategic reasons the convoy took a route 30 nmiles south of the Maritime Safety Patrol Area (MSPA), where for safety reasons the traffic had concentrated since the end of August, and as a consequence, piracy attacks had increased.

In the morning of 7 December RV Pelagia had completed her passage and could bid farewell to the French Navy ship with a wholehearted "Thank you!" Pelagia's planned arrival time in Muscat was just slightly delayed.



Ocean Facilities Exchange Group (OFEG)

The OFEG was established to use research vessels from different European institutes more efficiently by exchanging ship time and large equipment. Participants of OFEG are NERC and NOCS (UK), IFREMER (France), BMBF (Germany), NIOZ (NL), UTM-CMIMA of the Spanish research council CSIC, and IMR-UoB of Norway. In 2008 the OFEG fleet consisted of 21 research ships. The OFEG's primary objective is bartering ship time and exchange of major marine equipment without the need to exchange money. This arrangement has significant advantages. It allows scien-

tists access to a wider range of facilities and equipment than would otherwise be possible, and also it reduces wasted time, and therefore wasted costs on long transit passages.

Another OFEG advantage is offered by opportunistic interventions by recovering, when within reach, lost equipment or drifting moorings, as well as by en-route servicing and turn-around of partners' moorings.

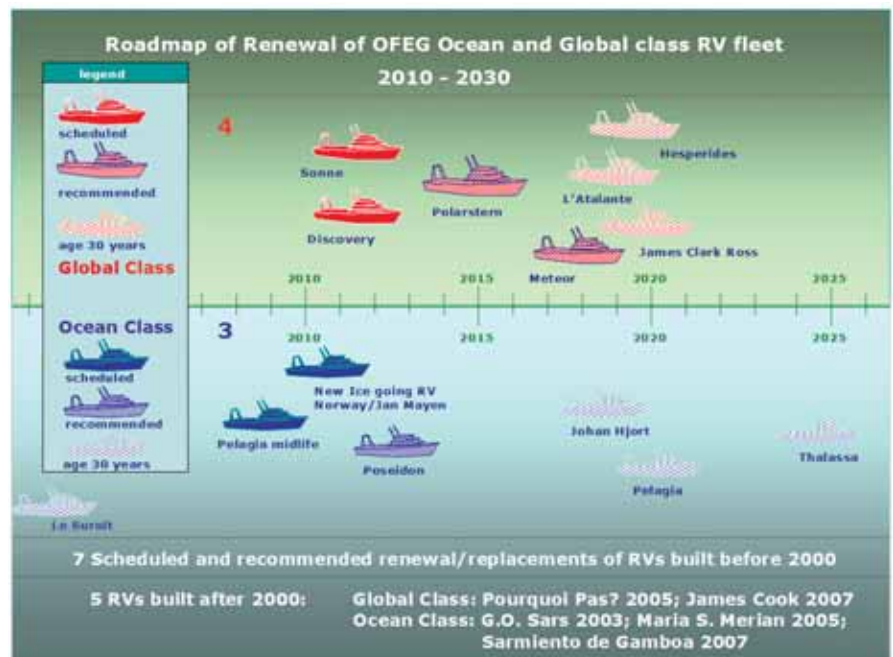
Another favourable development evolving from the partnership is the impulse to international co-operation and exchange of marine technicians for training and support on board.

In 2008 OFEG started activities aiming at investigate ways of investment co-ordination and cost sharing and in April the first Roadmap for the Renewal of the OFEG fleet was accepted.

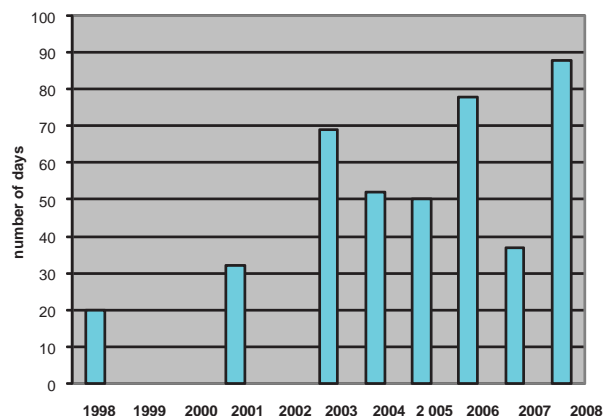


In 2008 a number of Dutch barter exchange cruises were performed in the OFEG framework. A 37 days cruise for a science team of the MARUM - University of Bremen (Chief Scientist Dr. D. Hebbeln) was done by RV Pelagia in the Gulf of Cádiz. Another barter of 21 days of a 28 days cruise with RV Pelagia was done in the Arabian Sea off Pakistan for a science team of the University of Aberdeen and the National Oceanography Centre Southampton. The German RV Meteor did a 19 days cruise in the Mozambique Channel for the LOCO-Mozambique project. The UK RRS Discovery did recovery of a lander for the VAMOC project and recovery and redeployment of 4 moorings for the LOCO-Irminger Sea project for 4 days in the northern North Atlantic.

Since 1998 NIOZ participated in OFEG with 32 exchanges. Total number of exchanged ship days for the Netherlands numbered 426 by the end of 2008.



Exchanged days Netherlands within OFEG 1998 - 2008



OFEG meetings and other international activities

This year the OFEG met twice for its regular meetings, in April in Kiel, Germany, and in November in London, UK

In November the second OFEG-TECH workshop was organised by and hosted by NIOZ.

M.J. Rietveld participated in the European Research Vessel Operators (ERVO) meeting that convened in Varna, Bulgaria in May. As a member of the Sub-Panel "Deep Sea Research Vessel (Follow-up Ship "Sonne") of the Steering Committee "Large Scale Facilities for Fundamental Scientific Research" of the German Science Council, she participated in a site-visit that was held at MARUM, Bremen in December.

