

FACTS AND FIGURES



2012

Business Report



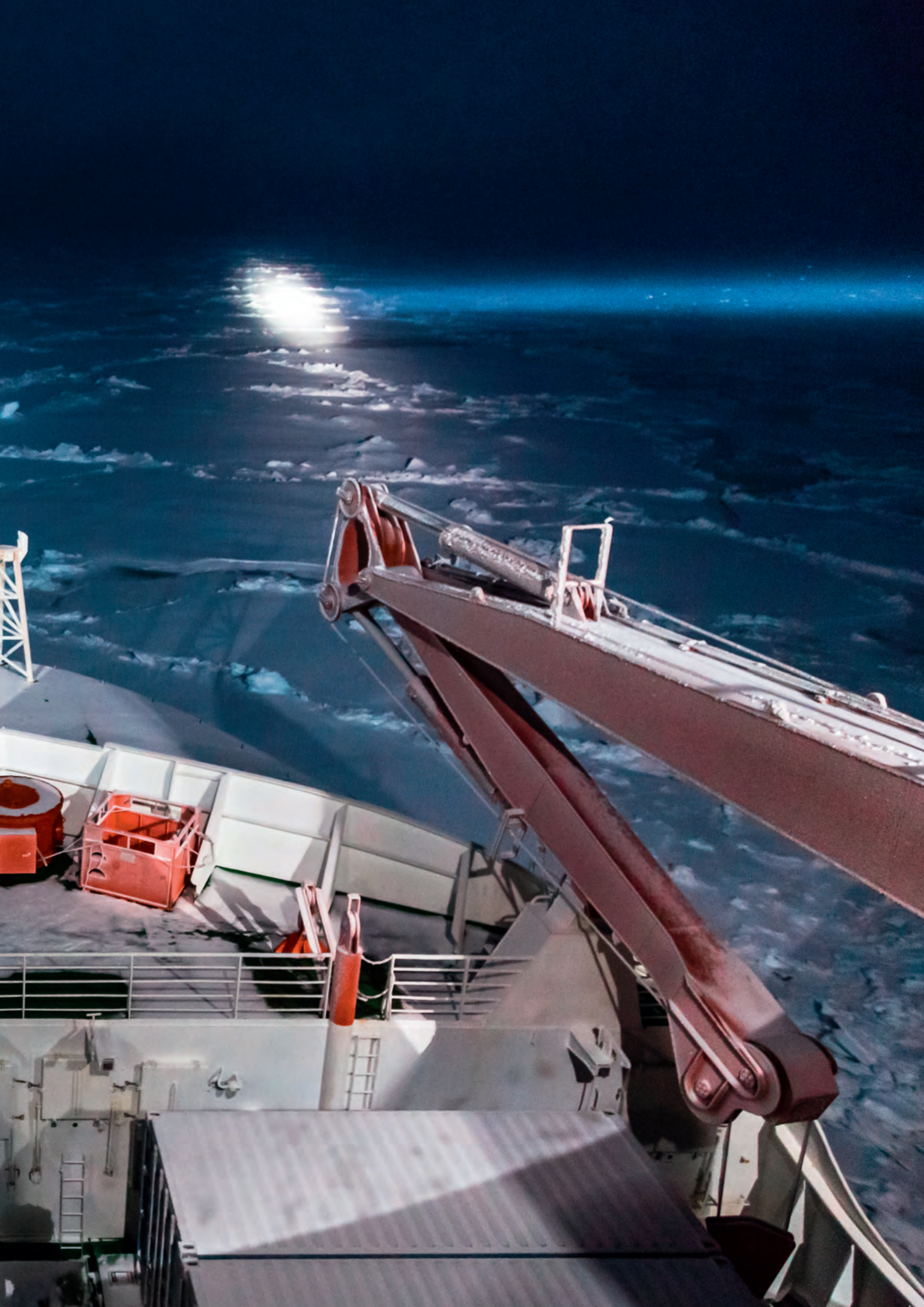




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Introduction



Dr. Heike Wolke

Prof. Dr. Dr. h.c. Karin Lochte

The Alfred Wegener Institute (AWI), Helmholtz Centre for Polar and Marine Research, conducts research in both polar regions with an interdisciplinary and long term approach and engages in comparative coastal and North Sea research at the highest level.

The interest of scientists at the AWI focusses on the changes in the Arctic and Antarctic as well as along the coasts and in the shelf seas. The key role played by the polar regions in the global climate system justifies the high expense of polar research, particularly in view of the fact that the anthropogenic climate change has a particularly strong impact here. The research of the AWI therefore concentrates on the changes in climate in the Earth's history so as to be able to understand the complex climate system, on the creation of reliable predictions from observation and modelling, and on the impacts of climate change on the biosphere. The topics mass balance of the ice sheets, the sea level rise, development of sea ice and comprehensive observation of the ecosystems in the polar regions, coasts and the shelf are seas given top priority in the newly developed research program of the third period of the program-oriented research funding. In addition

to the warming and the acidification of the oceans, it is the anthropogenic influence in particular, such as the emission of pollutants and plastic waste, intensive use through fishing, tourism, shipping, wind parks and much more, which impacts marine organisms, the food chain and the entire ecosystem immensely.

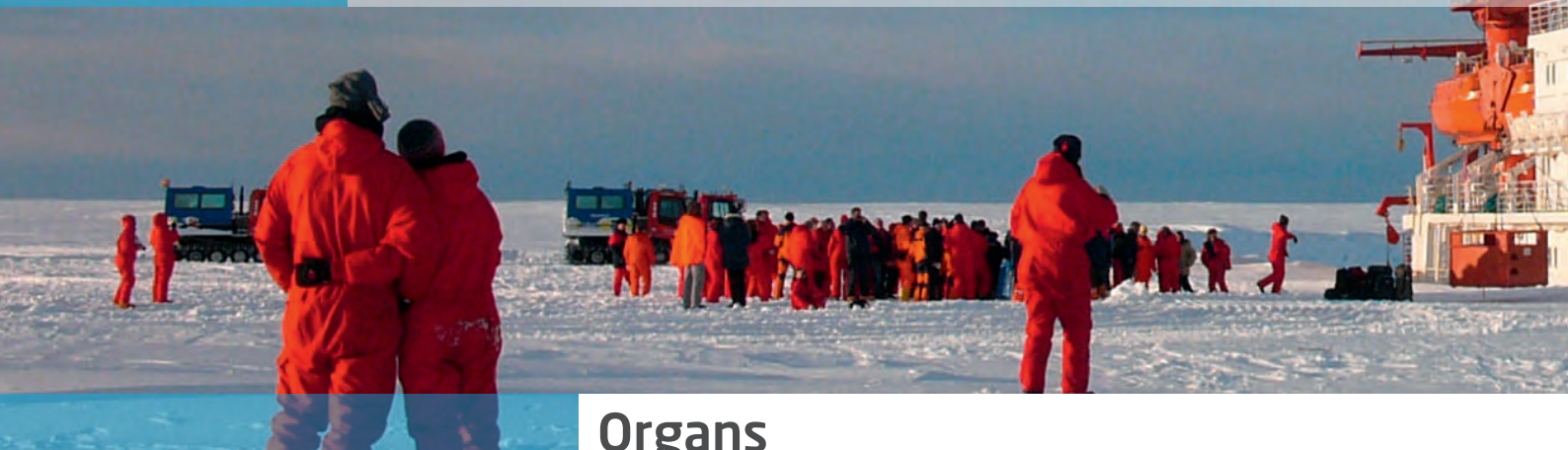
The research conducted at the Alfred Wegener Institute continued to show further changes in the polar regions in the year past. In 2012, a new sea ice minimum and thinning of the ice were determined in the Arctic. AWI researchers were on site with Polarstern and were able to demonstrate a surprisingly fast reaction of the ecosystem down to the deep sea. The strong decline in the sea ice cover can also influence the winter weather in Europe, as first model studies show.

We place special attention on the mass balance of the ice sheets and the influence of warm sea currents on the melting of the shelf ice. Our models show that the great Filchner-Ronne ice shelf in the Antarctic may be particularly affected by this. Therefore larger explorations in this region are planned for the coming years.

The Business Report provides fundamental facts and figures of the Alfred Wegener Institute for 2012.

Prof. Dr. Dr. h.c. Karin Lochte
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Dr. Heike Wolke
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Organs

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*) The representatives of the BMELV and of the BMWi rotate every 2 years (BMELV represented since 01 January, 2011)
Status: 31 January, 2012



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Organs

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Organisational chart

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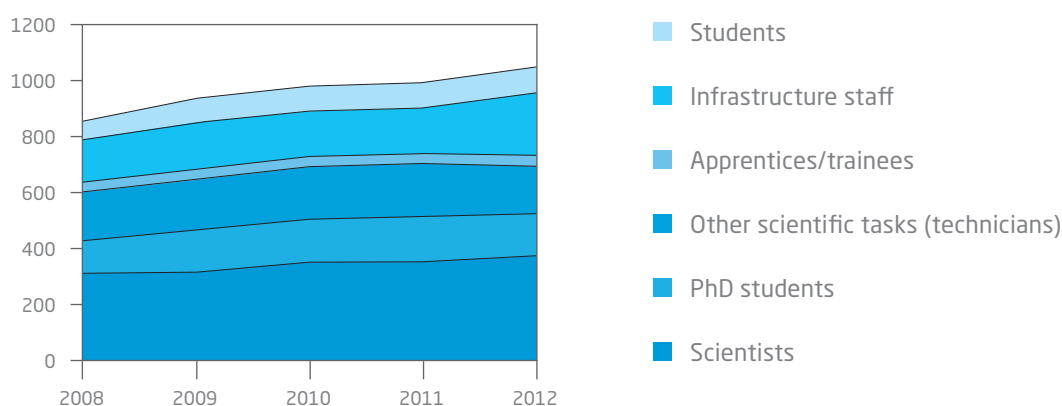
Last modified: December 2012



Business figures

Personnel

Head count



A total of 1060 employees worked at the Alfred Wegener Institute in 2012 compared with 989 in the previous year. The total number of staff has therefore risen steadily from 876 in 2009 and 979 in 2010. In the period under review, 80 percent of staff worked in Bremerhaven, 11 percent in Potsdam, 6 percent in Heligoland and 3 percent in Sylt, calculated in full time equivalents.

	2008	2009	2010	2011	2012
Students	68	93	89	82	91
Infrastructure staff	157	165	165	168	236
Apprentices/trainees	37	39	36	35	41
Other scientific tasks (technicians)	170	178	189	196	167
PhD students	114	150	152	157	152
Scientists	311	314	348	351	373
Total	857	939	979	989	1.060

Head count



Personnel

Personnel in full time equivalents

	on 31.12.2012
AWI Foundation in total	
Personnel with open end contracts	465,9
Personnel with fixed term contracts	529,1
Total	995
of which financed by third party funds	256,9
of which students	91
of which apprentices/trainees	41
<hr/>	
of which (according to locations):	
Bremerhaven	80%
Personnel with open end contracts	372,3
Personnel with fixed term contracts	428,3
Total	800,6
of which financed by third party funds	201,1
of which students	74
of which apprentices/trainees	35
<hr/>	
Potsdam	11%
Personnel with open end contracts	41,1
Personnel with fixed term contracts	65
Total	106,1
of which financed by third party funds	37,2
of which students	17
of which apprentices/trainees	3
<hr/>	
Heligoland	6%
Personnel with open end contracts	36,3
Personnel with fixed term contracts	23,3
Total	59,6
of which financed by third party funds	9,3
of which students	0
of which apprentices/trainees	3
<hr/>	
Sylt	3%
Personnel with open end contracts	16,2
Personnel with fixed term contracts	12,5
Total	28,7
of which financed by third party funds	9,3
of which students	0
of which apprentices/trainees	0

Personnel development measures

In 2012, 331 employees attended the AWI-internal further training measures in the areas of soft skills, languages and IT. This was associated with a leave of absence of around 5,560 hours and costs of some € 73,100. More seminars and courses could be offered at the Potsdam, Heligoland and Sylt locations than in the previous year. This was due amongst other things to remote training and local cooperations.

At the end of 2012, a working group for the further development of young scientists was established with the object of analysing the existing broad range of offers and measures from the early support of children through to the management of young scientist groups, of comparing current and future challenges in the different areas and developing a systematic overall strategy from these findings.

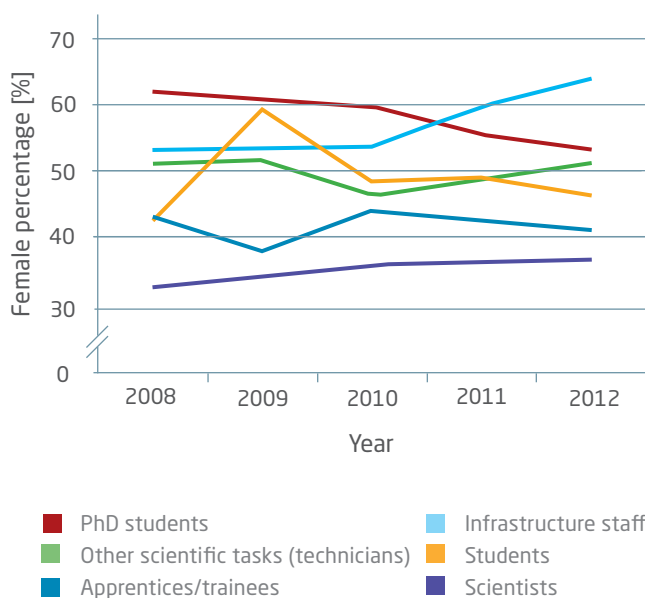
Further important individual measures of personnel development: the possibilities of using mentoring services were further extended by a cooperation with the University of Bremen. The endeavours towards closer cooperation with the existing Dual Career network Bremen-Bremerhaven-Oldenburg and an extension of the same were further intensified in 2012. Young managers regularly use the offer of the Helmholtz Academy for Managers for comprehensive management training.

Business figures

Equal opportunities

The share assumed by women amongst the scientists with open end contracts remained constant at 24 percent in 2012, compared to the two previous years. 46 percent of the junior scientist posts and other scientific positions financed by the Alfred Wegener Institute were occupied by women in 2012. Of the third party funded scientist posts, the share occupied by women was 49 percent in 2012. The quota of female PhD students was 53 percent compared to 55 percent in 2011. 41 percent of the trainees are female.

Female percentage chart



Combining work and family

The Alfred Wegener Institute was awarded the "Work and Family" audit certificate for the third time for its family-friendly personnel policy. For more than ten years, the Institute has taken different measures designed to facilitate a work/life balance such as:

- The Institute's holiday program (around 350 participant days per year)
- The Institute's crèche with a total of 20 places
- Joint summer holiday event for the first time and further events with the cooperation partners in Bremerhaven
- Child care services during conferences, congresses and PhD meetings
- Assistance for employees with relatives in need of nursing
- Special assistance in family-relevant issues
- Individual assistance and advice for new employees

Employees from all areas use the measures to combine work and family at all levels. Through the active participation of employees, the principle of achieving a work/life balance is lived at the Alfred Wegener Institute.



Technology transfer

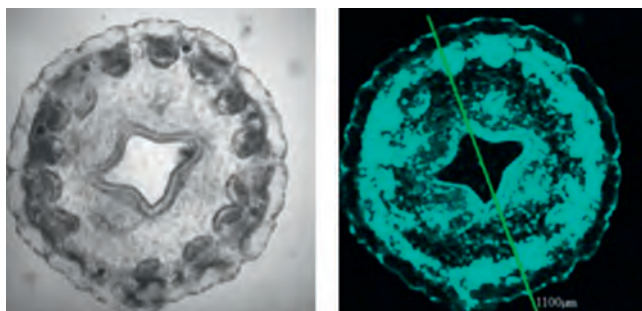
In the 2012 reporting year, the patent portfolio was extended by 22 property rights. Nine patents were granted, including two new technologies. 34 property rights were relinquished in the same period to streamline the patent portfolio. At the end of 2012, the AWI had 73 intellectual property right families with a total of 317 individual property rights.

The revenue from licences in 2012 amounted to around € 452,000. In addition, some € 810,000 was achieved for income from R&D cooperations as well as contract research in the year under review. Licence income and revenues from cooperations and contracts were lower than in the very strong previous years. This is attributable to the discreet licence and contract packages and the weak economic situation.

In spring and autumn 2012, two applications for the funding of spin-off projects were successfully filed within the framework of the Helmholtz Enterprise Fund. In the first project started in August 2012, the business prospects of a spin-off for the synthesis of nature-identical marine substances for drug discovery and diagnostics research is to be investigated. The second project prepares a service company for ice measurements and polar services for environmentally compatible activities in the Arctic. The planned project launch is mid-2013.

2012 was also the year of intensive marketing activities as the AWI participation in industry exhibitions shows: March: Oceanology International (marine technology); April: Hanover Trade Fair (bionic lightweight constructions); June: HUSUM WindEnergy (bionic foundation structures, ecological accompanying research); December: Arctic Technology Conference, Houston (oil remediation in sea ice, sea ice surveys, protection of marine mammals).

Innovation screening also took place in 2012 at the AWI locations of Bremerhaven and Helgoland to identify new AWI technologies and sensitise scientists. The external innovation transfer partner engage AG supported these activities as well as market research as part of a BMBF project.



Microscopic image of the jelly fish *Nausithoe weneri*. Left: transmitted-light microscope, right: pH-value-dependent fluorescence by dyeing with the natural substance Ageladine A. (Ageladine A will be one of the first products of the planned spin-off mentioned in the text.)



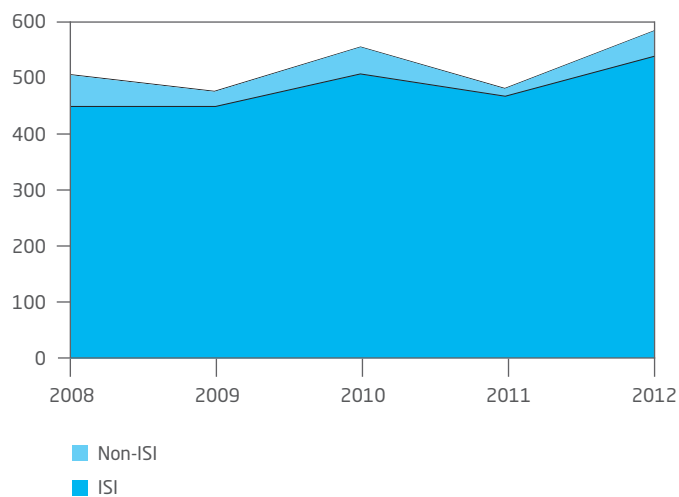
Business figures

Scientific publications

Over the last five years, the number of ISI noted AWI publications has continuously risen to 539 in 2012. With 41 publications in 2012, articles from referenced journals not listed in the ISI Master Journal List play an increasingly smaller role.

The official archiving database for publications and lectures of the Alfred Wegener Institute is ePIC (electronic Publication Information Centre) and may be found at <http://epic.awi.de/>.

Number of scientific publications





Financial plan

1. ACTUAL on 31 December, 2011 (Unit: EURk)

	Bremerhaven	Island stations	Potsdam	Total
Operations				
Personnel	27.680	3.951	2.807	34.438
Materials	50.529	5.995	2.022	58.546
Investments				
Current investments	11.534	1.243	770	13.547
Current investments	5.420	2.355		7.775
Revenue				
Proceeds and income	-4.344	-1.062	-15	-5.421
Reserves				900
Total	90.819	12.482	5.584	108.885
Third party funds	18.387	982	1.206	20.575

2. BUDGET 2012* (Unit: EURk)

	Bremerhaven	Island stations	Potsdam	Total
Operations				
Personnel	26.850	4.563	3.004	34.417
Materials	44.136	5.420	1.872	51.428
Investments				
Current investments	11.615	731	748	13.094
Current investments	4.085	4.680	1.000	9.765
Revenue				
Proceeds and income	-560	-307		-867
Reserves				900
Total	86.126	15.087	6.624	107.837
Third party funds	9.000	400	600	10.000

*The final figures will be available at the end of June 2013.

Origin of third party funds

(Unit: EURk)

Helmholtz	BMBF	DFG	EU	other subsidy givers
3400	7700	2900	3300	2700



National and international cooperation

Collaboration

As an internationally recognised institute for polar and marine research, the Alfred Wegener Institute collaborates with many national and international partners. Cooperation creates the necessary synergy effects to face major challenges such as climate change and the complexity of natural systems and processes as a joint effort. Collaboration also facilitates a more efficient use of resources in times of smaller budgets and higher competition for subsidies.

National cooperation

Within the Helmholtz Association, the Alfred Wegener Institute and the Helmholtz Centre Geesthacht work together in the joint research program PACES (Polar Regions and Coasts in a Changing Earth System). A strategic partnership with the Helmholtz Centre for Ocean Research GEOMAR addresses the following research topics: climate dynamics, including the development of proxies and palaeo-climate models; ecology of coastal and shelf seas; ocean observation; continental breaks and major magmatic events. In addition to programme research, the AWI also works in overarching programme and centre initiatives in which the expertise of different sub-areas of the Earth system and environmental research are concentrated such as in the Helmholtz Climate Initiative - Regional Climate Change or by participation in the major investment ACROSS ("Advanced Remote Sensing - Ground Truth Demo and Test Facilities") which aims to develop suitable methods and technolo-

gies to validate complex satellite data for issues of global earth observation.

The Helmholtz Alliance "Robotic exploration of extreme environments" ROBEX as a joint project of AWI, the German Aerospace Centre, GEOMAR, MARUM Centre for Marine Environmental Sciences of the University of Bremen and six other universities is aimed for using synergies from the two so far separate research areas of deep sea and moon research. The combination of this complementary technical and scientific expertise will facilitate substantial progress in both research areas. The AWI also participates in a further Helmholtz Alliance for the "Remote Sensing and Earth System Dynamics" where it is responsible for the cryosphere. Innovative methods are to be developed to facilitate an improved understanding of the global environmental processes and to investigate their impact on climate change. In the Helmholtz networking and recruitment initiative "Minimisation of the environmental impacts of the energy turnaround", the AWI contribution focuses on the impact of offshore wind power plants on the marine environment.

The development of the cooperation with the University of Bremen is supported by participation in the successful future concept "Ambitioned and agile" of the University of Bremen as part of the excellence initiative. The AWI is involved in a joint professorship in "marine chemistry" and in the development of a cooperative junior research group in "remote sensing of ice". Within the AWI-MARUM alliance AMAR, project outlines for joint work



in the three research units have been developed: "Data information systems and Pangaea"; "Ocean system North Atlantic-Arctic" and "Underwater technologies and earth observation systems".

A national Helmholtz-supported data portal "Marine Network for Integrated Data Access" (MANIDA) has been developed within the AMAR research unit "Data information systems". MANIDA is intended to permit the development of national marine research data via a joint portal in a network approach and to be able to have access to these data - associated with an efficient management to secure long-term sustainable operation. In the AMAR research unit "Underwater technologies and earth observation systems", plans are underway to develop, equip and use underwater robots for under-ice experiments on the seafloor, in the water column and on the sea ice. The research infrastructure applied for by AWI as part of the strategic investment FRAM (FRontiers in Arctic marine Monitoring) of the coast of Spitsbergen is an innovative technology offering



a variety of possibilities for scientific/technical cooperation, also with other scientific partners to investigate the effects of the retreat of the sea ice on the marine ecosystem. As member in the German Marine Research Consortium (KDM), scientists are actively involved in the KDM activities in Brussels so as to push ahead with the joint programming initiative (JPI) Oceans, for example, or to participate in events such as parliamentary evenings.

The AWI currently has over 50 contractually regulated scientific cooperations with German universities, technical universities, non-university research institutions and authorities. All professorships at the AWI are set up via mutual appointments with the University of Bremen, the Jacobs University Bremen and the Technical University of Bremerhaven as well as the Universities of Potsdam, Kiel, Oldenburg and Göttingen. New networks and existing contacts are developed through young investigator groups, graduate programmes and science clusters and new paths of cooperation and networking pursued time and again.

International cooperation

In 2012, eight contractually regulated collaborations were entered into or extended with foreign partners, two of which with Russian and two with Canadian partners. Strategic partners in the area of international collaborations are from AWI perspective Canada, Russia, France and Norway, particularly for the operation of research platforms and the access to research areas.

For the AWI, 2012 was in particular a year of intensification of the collaboration with the Canadian partners. Numerous new contacts to Canada were made during the Conference on the International Polar Year "From Knowledge to Action" which took place in April in Montreal and in which 34 AWI researchers participated. In August 2012, the AWI entered into a new collaboration agreement with the Halifax Marine Research Institute (HMRI) together with GEOMAR and the GFZ in order to work more closely in the area of joint oceanographic and marine-biological work in the North Atlantic and Arctic sector of Canada.

On 5 October 2012, a cooperation agreement between the AWI and the Argentinian "National Scientific and Technical Research Council" CONICET was concluded. It underlines the focal area of collaboration with Argentina, particularly in the IMCONet (Interdisciplinary Modelling of Climate Change in Coastal Western Antarctica - Network for Staff Exchange and Training) project successfully acquired by AWI.

Prof Asahiko Taira, the new president of JAMSTEC (Japan Agency for Marine-Earth Science and Technology), visited the AWI on 18 September 2012 with a large delegation. For 2013, a joint workshop is planned together with further German research institutions (for example GEOMAR, MARUM).

2012 also was the German-South African year of science. In this context, a reception on board of RV Polarstern took place on 29 November 2012 in Cape Town with high-level political participation. South African and German guests from research and politics met to exchange their views on current issues of climate change and to become acquainted with the only German research icebreaker. A joint inspection of research stations in the Antarctic was also prepared similarly as part of the German-South African science year which took place at the beginning of 2013.



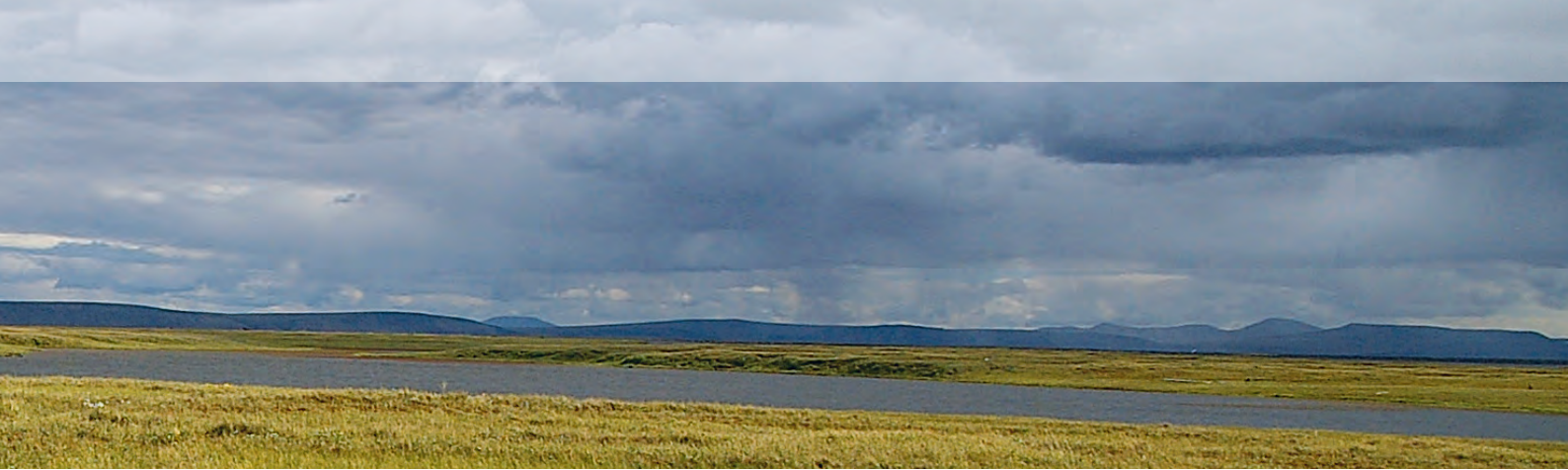
Land, airborne and ship expeditions

The Alfred Wegener Institute provides ships, stations and aircraft throughout the world for German polar and marine research. Information on the expeditions supported is provided by the following table.

Outstanding highlights in the period under review were the progress made in the project for the replacement of the research and supply vessel Polarstern and the successfully completed planning phase for the replacement of the coastal research ship Mya.

Research vessels	Expeditions	Participants Germany	Participants abroad	Days of deployment	Harbour/docks	Man days (of which AWI)
FS Polarstern	9	399	46	312	54	15.642 (5.052)
FS Heincke	22	348	1	265	101	2.855 (894)

Stations	Projects	Participants Germany	Participants abroad	Days of deployment	Man days (of which AWI)
Arctic					
AWIPEV research base Arctic (permanently manned)	37	94	42	366	3.224 (1.538)
Samoylov Station (Summer station)	10	35	11	63	1.536 (672)
Antarctic					
Neumayer Station III (permanently manned)	18	73	8	366	4.787 (800)
Kohnen Station (Summer station)	2	29	5	62	580 (105)
Dallmann laboratory at the former Station Jubany (Argentina) (Summer operation)	18	12	14	148	1.101 (63)



Land expeditions	Projects	Participants Germany	Participants abroad	Days of deployment
Arctic				
Greenland, NEEM	1	8	80	46
Russia (North East Siberia), Kytalyk	1	11	9	43
Russia, Buor-Khaya	1	3	7	32
Russia, Island of Muastach, Bykovski	1	3	3	36
Canada, Yukon Coast	1	8	6	57
Antarctic	1	1	0	90

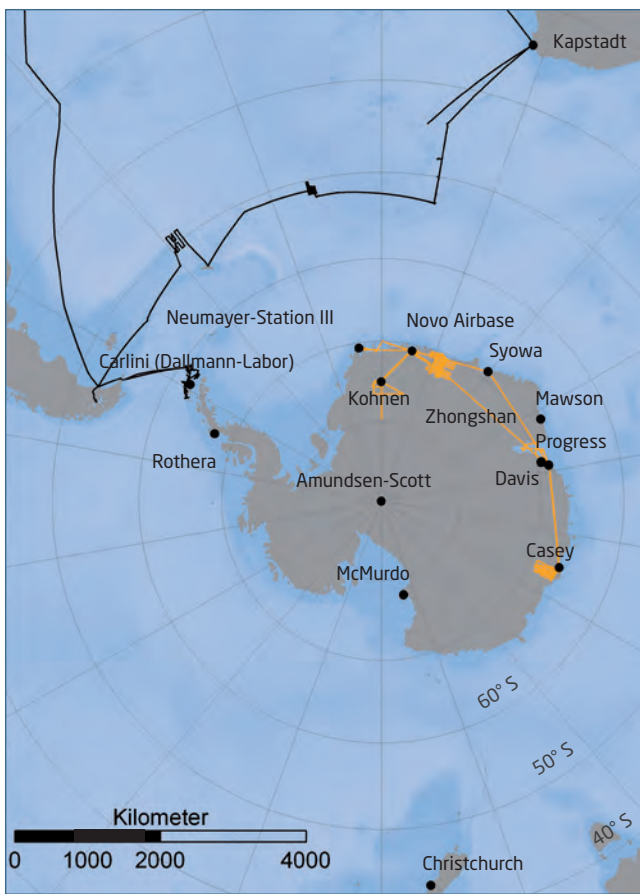
Aircraft	Projects	Flight hours Scientific	Flight hours abroad Logistics incl. ferry	Total hours
Arctic				
Polar 5	4	250	145	395
Polar 6	3	44	99	143
Antarctic				
Polar 5	0	0	0	0
Polar 6	4	177	146	323

Equipment (Provision of polar clothing, field equipment)	Projects	Participants Germany	Participants abroad
Ship expeditions	31	747	47
Station operations	75	223	69
Flight missions	11	6	0
Field missions	7	37	147

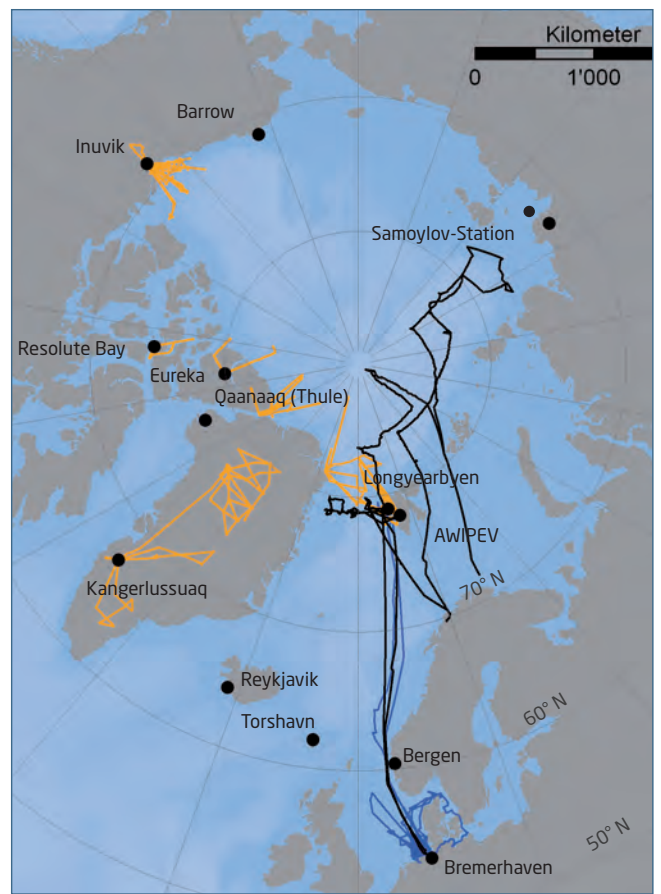


Routes and flight missions

Scientific and logistic routes and flight missions



Antarctic



Arctic

Diagram: Christine Wesche

— Flight campaigns Polar 5 and Polar 6

— Research and supply vessel Polarstern

— Research vessel Heincke



Imprint

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