



20 Annual Report

15 FACTS AND FIGURES



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Foreword



Professor Karin Lochte

Dr Karsten Wurr

The Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI) conducts interdisciplinary and long-term research in both polar regions, as well as comparative research on coastal waters and the North Sea. This annual report presents the key facts and figures relating to the AWI in 2015. The management of the AWI has a dual leadership again this year. In February 2015 Dr Karsten Wurr assumed the position of Administrative Director.

The societal relevance of our research and our focus on knowledge and technology transfer were central topics during 2015 and will continue to be so in the years ahead as we pursue our mission as a publicly funded research institute. The AWI is already diversely engaged: We operate the sea ice portal, contribute significantly to the Earth System Knowledge Platform (ESKP), work closely with the Climate Service Centre and climate offices, create data products and advise public authorities and private companies.

At the beginning of this year, we established the cross-sectional area of Knowledge and Technology Transfer, which will be further developed in the medium term as a key organizational unit. The two IMARE (Institute for Marine Re-

sources) working groups „Bionic Lightweight Construction“ and „Marine Aquaculture“, REKLIM, the North Sea office as well as ESKP (Earth System Knowledge Platform) are part of this new cross-sectional unit „Knowledge and Technology Transfer“.

In addition to the current three EU projects coordinated by AWI, a fourth one started in March 2015. „EU PolarNet - Connecting Science with Society“ brings together almost all major European polar research institutions in a consortium. The aim of this project is to advise the European Commission in all matters related to Polar Regions and to develop a collaborative Polar research program for the commission.

In October, the AWI welcomed for the 3rd time its new international fellows. They started a ten-month training program for marine experts as part of the Centre of Excellence in Observational Oceanography, supported by the Japanese Nippon Foundation and POGO (Partnership for Observation of the Global Ocean). A highlight of this international training program was the five-week training cruise from Bremerhaven to Cape town aboard the German research vessel Polarstern, together with 32 selected students from all over the world, in order to promote training for research at sea and in marine science.

This year, the construction of the new laboratory and office building in Potsdam has started. Moreover, the construction of AWI's technical pilot plant in Bremerhaven has been decided and the federal government has agreed to finance the reclassification of the Helgoland aquarium into a modern scientific exhibition centre.

Please enjoy reading this report!

Professor Karin Lochte
Director

Dr Karsten Wurr
Administrative Director

Board of Governors

The Board of Governors with representatives from the government, the federal states, scientists and personages from public life, supported by a Scientific Advisory Board, takes decisions on general and financial matters relating to the Institute.

Chairman
Ministerialdirektor
Dr Karl Eugen Huthmacher (AL 7)
Federal Ministry for Education and Research, Bonn

Deputy Chairman
Professor Dr Eva Quante-Brandt
The Senator of Science, Health and Consumer Protection, Bremen (since July 2015)

Ministerialrat Gerd Conrad *)
Federal Ministry of Food and Agriculture, Bonn

Dr Peter Hoth *)
Federal Ministry for Economic Affairs and Energy, Berlin

Legation Councillor First Class
Dr Rainer Lassig
Federal Foreign Office, Berlin

Staatsrat Dietmar Strehl
The Senator for Financial Affairs, Bremen

Ministerialdirigent Carsten Feller
Ministry for Science, Research and Culture, Potsdam (Brandenburg)

Dr Hartmut Euler
Ministry of Economic Affairs, Employment, Transport and Technology, Kiel (Schleswig-Holstein)

Michael Stark
Chief Executive, Chamber of Industry and Commerce, Bremerhaven

Professor Martin Claußen
(Chairman of Scientific Advisory Board)
Max Planck Institute for Meteorology, University of Hamburg

Silvia Schön
Bremen Parliament

Professor Ulrike Feudel
Institute for Chemistry and Biology of the Marine Environment (ICBM), University of Oldenburg

Professor Eva-Maria Pfeiffer
Institute of Soil Science, University of Hamburg

Professor Sarah Jones
National Meteorological Service (DWD), Offenbach

*) The representatives of these Federal Ministries participate in alternating 2-year cycles (Federal Ministry for Economic Affairs and Energy represented since January 2015)

As of: December 2015

Scientific Advisory Board

The Scientific Advisory Board advises the Board of Governors and the Directorate on the fields of research, logistics and coordination.

The President of the Max Planck Society

Professor Martin Stratmann
(since June 2014)
Munich

Permanent representative

Professor Rudolf Amann
(since March 2011)
Max Planck Institute for Marine Microbiology, Bremen

The President of the German Research Foundation

Professor Peter Strohschneider
(since January 2013)
Bonn

Permanent representative

Professor Wolf-Christian Dullo
(since July 2014)
GEOMAR Helmholtz Centre for Ocean Research, Kiel

The President of the Federal Institute for Geosciences and Natural Resources

Professor Hans-Joachim Kumpel
(since August 2007)
Hannover

Permanent representative

Dr Christian Reichert
(since October 2008)
Federal Institute for Geosciences and Natural Resources, Hanover

The Director of the Federal Research Centre for Fisheries

NN
(Professor Cornelius Hammer until January 2008)

Permanent representative

NN

The Rector of the University of Bremen

Professor Bernd Scholz-Reiter
(since October 2012)

Permanent representative

Professor Wilhelm Hagen
(since February 2008)
University Bremen

Chairman

Professor Martin Claußen
(since September 2012)
Max Planck Institute for Meteorology, Hamburg

Deputy Chairman

Professor Konrad Steffen
(since September 2012)
Swiss Federal Institute for Forest, Snow and Landscape Research WSL
Switzerland

Professor Shubha Sathyendranath
(since July 2015)
Plymouth Marine Laboratory (PML)
United Kingdom

Dr Ljuba Woppowa
(since July 2015)
Engineering and Science
VDI - The Association of Process Engineering and Chemical Engineering,
Executive director Association of German Engineers, Düsseldorf

Professor Michael P. Meredith
(since January 2013)
British Antarctic Survey (BAS)
United Kingdom

Professor Toby Tyrrell
(since July 2015)
University of Southampton,
Ocean and Earth Sciences
National Oceanography Centre
United Kingdom

Professor Dorthe Dahl-Jensen
(since July 2012)
Niels Bohr Institute
Denmark

Professor Henk Brinkhuis
(since July 2015)
Royal Netherlands Institute for Sea Research (NIOZ), General Director
Netherlands

Professor Vladimir E. Romanovsky
(since January 2013)
University of Alaska Fairbanks UAF
Alaska, USA

Scientific Council

The Scientific Council advises the Directorate on significant matters of the foundation, e.g. development of the research programme.

Chair

Brey, Professor Thomas
Kasten, PD Dr Sabine (Deputy)

Members

Boetius, Professor Antje
Boersma, Professor Maarten (since April 2015)
Cembella, Professor Alan
Dethloff, Professor Klaus
Diekmann, Professor Bernhard
Franke, Professor Heinz-Dieter (until March 2015)
Gerdes, Professor Rüdiger
Gerds, Dr Gunnar
Gohl, Dr Karsten
Hanfland, Dr Claudia
Hass, Dr Christian
Hiller, Professor Wolfgang
Hubberten, Professor Hans-Wolfgang
Humbert, Professor Angelika
Jokat, Professor Wilfried
Jung, Professor Thomas
Kanzow, Professor Thorsten
Lohmann, Professor Gerrit
Losch, Dr Martin
Pörtner, Professor Hans-Otto
Richter, Professor Claudio
Tiedemann, Professor Ralf
Wacker, PD Dr Ulrike
Waite, Professor Anya
Wiltshire, Professor Karen
Wolf-Gladrow, Professor Dieter

Permanent guests

Dummermuth, Dr Angelika
Damm, Dr Ellen (AWI-Equal Opportunity Officer)
Hain, Dr Stefan
Lemke, Professor Peter
Lochte, Professor Karin
Nixdorf, Dr Uwe
Röchert, Ralf
Sauter, Professor Eberhard
Schmengler, Dr Almut
Wilhelms, Dr Frank (AWI Staff Council)
Wurr, Dr Karsten (Administrative Director since February 2015)

Organization Chart

Board of Governors MinDir Dr K. E. Huthmacher	Board of Directors Professor K. Lochte Dr K. Wurr <hr/> Dr U. Nixdorf Professor K. Wiltshire			Internal Boards Scientific Council Ombudsman Equal Opportunities Officer Staff Council
Scientific Advisory Board Professor M. Claußen	Directorates Office Dr A. Dummermuth	Staff Units		International Offices National Offices
Scientific Divisions, Technologies and Services				
Geosciences Professor R. Tiedemann	Biosciences Professor D. Wolf-Gladrow	Climate Sciences Professor T. Kanzow	Infrastructure/ Administration	
Geophysics Professor W. Jokat	Polar Biological Oceanography Professor A. Waite	Atmospheric Circulation Professor K. Dethloff	Logistics and Research Platforms Dr U. Nixdorf	
Glaciology Professor A. Humbert	Marine Biogeosciences Professor D. Wolf-Gladrow	Polar Meteorology PD Dr U. Wacker	Computing and Data Centre Professor W. Hiller	
Periglacial Research Professor H.-W. Hubberten	Functional Ecology Professor T. Brey	Physical Oceanography of Polar Seas Professor T. Kanzow	Library M. Brannemann	
Marine Geology and Palaeontology Professor R. Tiedemann	Benthopelagic Processes Professor C. Richter	Climate Dynamics Professor T. Jung	Scientific Workshop E. Dunker	
Marine Geochemistry PD Dr S. Kasten	Integrative Ecophysiology Professor H.-O. Pörtner	Sea Ice Physics Professor R. Gerdes	Human Resources C. Ruholl	
	Ecological Chemistry Professor A. Cembella	Palaeoclimate Dynamics Professor G. Lohmann	Corporate Finances C. Ungermann	
	Shelf Sea System Ecology Professor M. Boersma		Purchasing Department J. Eilers	
	Coastal Ecology Professor K. Wiltshire		Administration and Organization M. Bong	
	HGF-MPG JRG Deep-Sea Ecology and Technology Professor A. Boetius		Construction and Facility Management M. Krüger	
Junior Research Groups				
Dr G. Grosse	Professor H. Lantuit PD Dr V. Schlindwein Professor I. Weikusat	Dr H. Flores Dr M. Wegner Professor S. Trimborn	Dr K. Metfies Dr M. Iversen	Dr T. Laepple
Knowledge and Technology Transfer				
Bionics Light Construction Dr C. Hamm	Aquaculture Dr M. J. Slater Professor B. Buck	KP Earth Environment Dr G. Krause	KTT Projects NN	Technology Transfer Centre Professor E. Sauter

New Senior Members of Staff



Dr Karsten Wurr started in February 2015 as the Administrative Director of the AWI.



Dr Uwe Nixdorf has been Vice Director of the AWI since August 2015.



Professor Maarten Boersma has headed the research section Shelf Sea Ecology since April 2015 in the Biosciences Division on Helgoland.



Dr Matthew James Slater and his working group Aquaculture Research came from the Institute of Marine Resources (IMARE) to AWI in January 2015.



Dr Kerstin Mölter has headed the coordination of the Waden Sea Station in List/Sylt since February 2015.

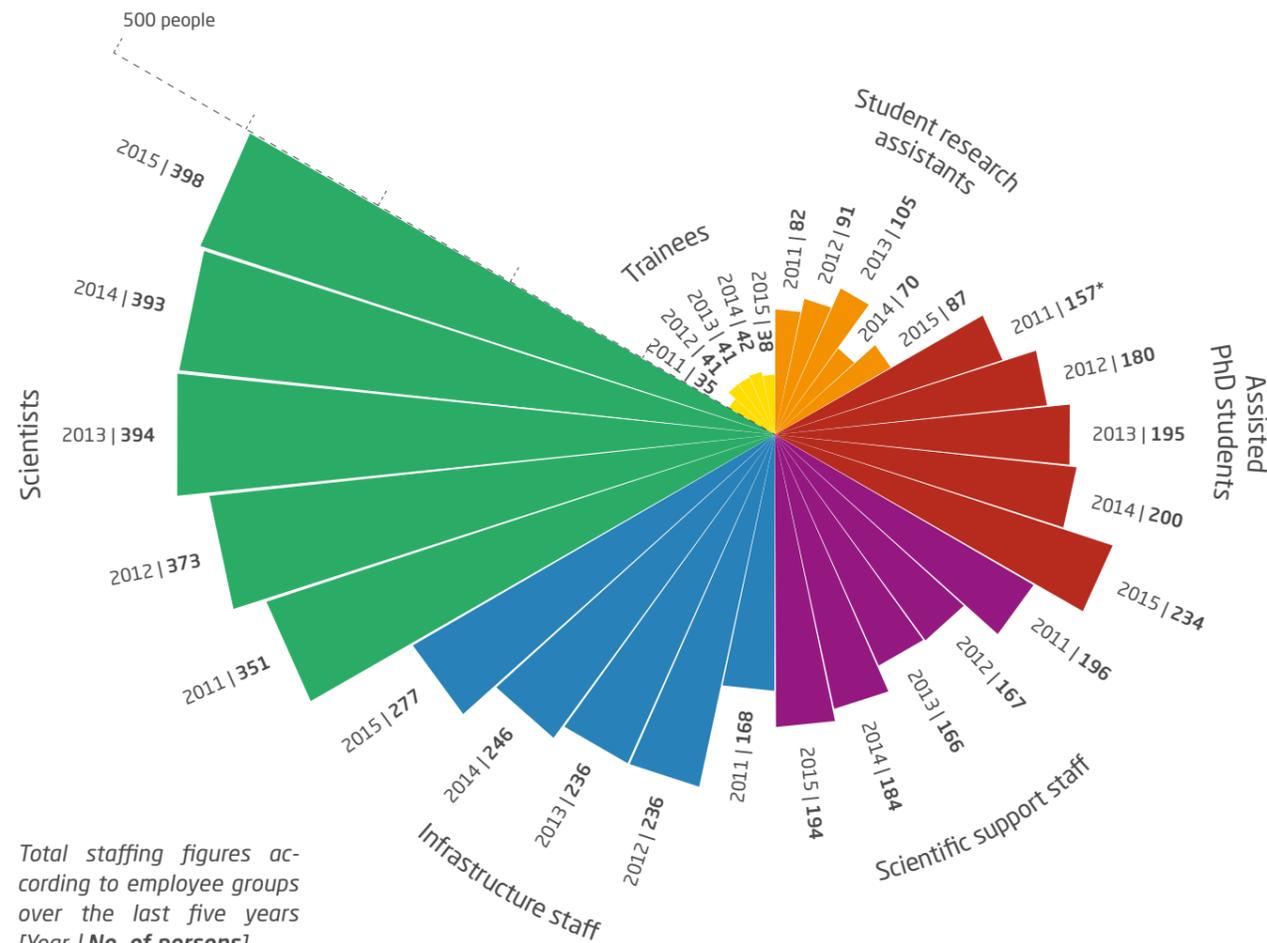


Professor Bernhard Diekmann has headed the Alfred Wegener Institute's research centre in Potsdam since April 2015 and represents the AWI in the regional environment of Potsdam.



Professor Eberhard Sauter is new honorary professor at the University of Applied Sciences Bremerhaven in the field of Marine Technology. With the professorship his scientific performance and dedication have been recognized.

Staff



Total staffing figures according to employee groups over the last five years [Year | No. of persons]
*only PhD students with AWI contract

Human Resources Development Activities

In 2015, a human resources development concept for postdocs at the Alfred Wegener Institute was elaborated. It confirms the "Basic principles for dealing with fixed-term employment relationships and process instructions for taking on employees under a permanent contract" of 2014 and furthermore, introduces instruments suitable for doing justice to the amendment of the Wissenschaftszeitvertragsgesetz (law on fixed-term contracts in science). In this context, the concept addresses in a holistic way

the individual needs of the AWI postdocs as well as to the strategic demands of AWI overall. Core elements include a strengthening of the structured communication between postdoc and supervisor in order to identify development needs and potential, supporting and accompanying postdoc self-reflection on career development as well as supporting postdocs' supervisors by means of a proactive offer of seminars, training and coaching covering topics of communication and leadership.

Balancing Responsibilities for Work and Family

The reconciliation of work and family is a key issue for the AWI. There is a broad consensus across the institute for working towards this objective and it is particularly evident in everyday operations. It is an ongoing task of the Family Office to give meaning to this notion of reconciling family and work commitments. We do this through a number of initiatives, including:

- bridging the gap between school holidays and individual leave entitlement with 37 days of holiday program with an average of 12 to 13 participants, corresponding to 500 participant days

- the company crèche, providing a total of 20 seats in an educational facility where different nationalities are cared for
- individual help and advice regarding child care and school for new staff

The Family Office is also a point of contact for new members of staff from around the world, providing individual support and advice as they settle in. Employees from all work areas use the Family Office services to achieve life balance and we encourage the active participation of all employees to deliver a family-friendly life at the AWI.

Gender Equality

In 2015 the number of females as a percentage of total AWI personnel remained unchanged over the 2014 year, standing at 47%. There was however a decrease of 1% in the percentage of female scientist employees, with the 2015 figure at 39%. For doctoral students, the proportion of women in comparison to the previous year also remained constant at 54%. There were some small shifts in gender composition within the other occupational groups: the rate for the infrastructure staff (administration, logistics and staff positions) fell five percentage points

due to an increase in male training graduates taken on by the institute, so that our infrastructure staff is now 53% female. The number of female science support staff (technicians, engineers) now stands at 54% due to the engagement of more female training graduates (e.g. biology technician), which corresponds to an increase of 5 percentage points. From 2014 to 2015, the proportion of female student assistants fell from 43% to 41% and for trainees, the percentage of women increased by 6 percentage points to 42%.

Staff	2011	2012	2013	2014	2015
Trainees	35 43	41 41	41 39	42 36	38 42
Student research assistants	82 49	91 46	105 48	70 43	87 41
PhD students with AWI contract	157 55	152 53	123 57	118 52	106 53
Total assisted PhD students	k. A.	180 59	195 60	200 54	234 54
Scientific support staff (technicians, engineers)	196* 48	167 53	166 54	184 49	194 54
Infrastructure staff (administration, logistics)	168 62	236* 59	236 57	246 58	277 53
Scientists	351 37	373 39	394 39	393 40	398 39
Total	989 48	1.060 48	1.065 48	1.053 47	1.100 47

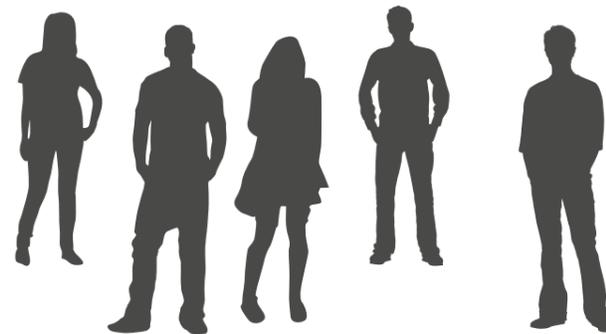
No. of persons | Proportion of women [%]

* The percentage increase in the infrastructure personnel can be accounted for to some extent by restructuring measures for service personnel

Staff at the various AWI locations

Staff in **No. of persons** | Full-time equivalents

AWI in total	as of 31 December 2015
Permanent staff	502 474,24
Limited-term contract staff	598 517,29
Total	1.100 991,53
of these, third-party financed	255 212,98
of these, international	119 no data



Bremerhaven	81%
Permanent staff	418 394,22
Limited-term contract staff	467 409,25
Total	885 803,47
of these, third-party financed	199 168,87
of these, international	91 no data

Potsdam	10%
Permanent staff	36 34,90
Limited-term contract staff	79 64,98
Total	115 99,88
of these, third-party financed	43 35,02
of these, international	15 no data

Heligoland	5%
Permanent staff	34 32,27
Limited-term contract staff	24 21,16
Total	58 53,43
of these, third-party financed	3 3
of these, international	5 no data

Sylt	4%
Permanent staff	14 12,85
Limited-term contract staff	28 21,90
Total	42 34,75
of these, third-party financed	9 6,09
of these, international	8 no data

Technology transfer

At the beginning of 2015 AWI established a cross-sectional unit "Knowledge and Technology Transfer" (KTT) with the aims of joining forces and increasing the internal and external visibility of transfer activities. Besides the two working groups Aquaculture Research and Bionics/Light Structure Engineering integrated from the Institute for Marine Resources IMARE into AWI, this new KTT unit includes the Marine Aquaculture Group, the Technology Transfer Office, and the Earth System Knowledge Platform, altogether approx. 50 persons.

The KTT also coordinates and advises in relation to the transfer activities of other operational units of the AWI, providing expert advice on patents, licensing, the development of spin-off companies, innovation and scientific knowledge transfer to society.

For 2015 the following transfer examples can be given to illustrate AWI's knowledge and technology transfer performance:

- Registration of a new spin-off company (SubSeaSpec) and successful application of two pre-seed projects within Helmholtz Enterprise (Helgoländer Hummer GmbH, MulTroNel)
- Over 3,500 new user downloads of the software "Ocean Data View"
- Continuation of the Arctic Dialogue series with the involvement of seven federal Ministries
- Publication of an extensive open-access compendium on "Marine Anthropogenic Litter"
- Presentation of a study on invasive species (neobiota) in the North and Baltic Seas by the AWI North Sea Office in collaboration with local authorities
- Intensive engagement of AWI within the Working Group II of the IPCC on the assessment of risks and consequences of climate change and the options of adaptation; the AWI biologist and climate researcher Professor Hans-Otto Pörtner was officially voted Co-Chair of the IPCC's Working Group II
- Delivery of new model scenarios for the acceleration of the Indonesian tsunami early warning system
- Three new patent applications for technical inventions in the fields underwater analytics, laboratory tide simulation, and bionic structures
- EUR 435,000 revenues from licenses, contract research and industry co-operations



The ELiSE/AG bionics working group presents new lightweight models at a trade fair.

Budget

	CURRENT on 12/31/2014 (unit: thousands of EUR)				PLANNED 2015* (unit: thousands of EUR)			
	Bremerhaven	Heligoland Sylt	Potsdam	total	Bremerhaven	Heligoland Sylt	Potsdam	total
Operation								
Staff	35.515	4.608	3.491	43.614	32.760	5.460	3.780	42.000
Materials and Equipment	54.774	7.645	1.889	64.308	53.951	6.494	2.030	62.475
Investments								
Current investments	5.629	1.141	430	7.200	10.866	814	828	12.508
Investments > EUR 2,5 Mio	773	2	733	1.508	3.867	0	2.653	6.520
Investments > EUR 15 Mio	578				6.393			6.393
Income								
Revenues and profits	-5.170	-1.572	-8	-6.750	-1.500	-500	0	-2.000
Reserves*				125				
* Reserve T EUR 125 not included in the actual result, because already revised.								
Gesamt	92.099	11.824	6.535	110.583	106.337	12.268	9.291	127.896
Third-party funding	19.699	1.146	3.215	24.060	17.500	1.000	1.500	20.000
Source of third-party funding								
	Helmholtz	BMBF	DFG	EU	others			
(unit: thousands of EUR)	5.689	8.963	2.593	3.739	3.076			

Major projects inaugurated in 2015 under AWI management or with AWI participation

PalMod

German Climate Modeling Initiative for understanding climate system dynamics and variability during the last glacial cycle, BMBF-Project.

Scientific Coord. and PIs: Professor G. Lohmann, Dr P. Köhler, Dr F. Lamy, Professor U. Herzschuh, Dr C. Völker, Dr M. Werner, Dr D. Barbi, Professor A. Humbert, Dr G. Knorr, Dr T. Laepple
 Term: 2015 - 2020
 Funding: EUR 4,120,000

Detection, assessment and mapping benthic species and biotopes, BFN-Project

PI: Dr L. Gutow
 Term: 2015 - 2018
 Funding: EUR 1,017,033

EU-PolarNet

Connecting Science with Society
 PI: Professor K. Lochte / Dr N. Biebow
 Term: 2015 - 2020
 Funding: EUR 501,250

DUALBAND WALROS

Thermography for purposes of wildlife and biodiversity, automatic detection of whales, seals and walrus in hot and cold seas, PTJ/FZ Jülich

PI: Dr O. Boebel
 Term: 2015 - 2016
 Funding: EUR 476,953

SO246-CHATHAM-Rise

Compression, extension and cancellation mechanisms of a submarine continental plateau, BMBF-Project.

PI: Dr K. Gohl
 Term: 2015 - 2018
 Funding: EUR 440,140

Climate Change Initiative Sea Ice (Phase 2), ESA/NERSC-Project,

Development of an operational system for the measurement and validation of sea ice thickness using satellite data.

PI: Dr M. Nicolaus
 Term: 2015 - 2018
 Funding: EUR 345,270

Scientific publications and awards

The scientists of the Alfred Wegener Institute published 519 peer-reviewed items in the course of 2015 (source: Science Citation Index, Web of Science, 01.03.2015). In 215 cases, AWI scientists were named as first author. Almost a quarter (24,3%) of all publications from 2015 were obtained through work with the United States, one of AWI's most important international cooperation partners. Further significant publication partners are the United Kingdom (20,2% of publications), France (13,5%) and the Netherlands (9,6%). In 2015 the AWI published in collaboration with a total of 57 partner countries.

A similar scenario emerges when examining a longer time period (2010-2015) (see also world map, pages 20/21, 'International co-operation', in dark red): The AWI published 2841 joint items with a total of 70 partner countries worldwide; most of them with the United Kingdom (595), the United States (585), France (318), Norway (242), Canada (222) and the Netherlands (220).

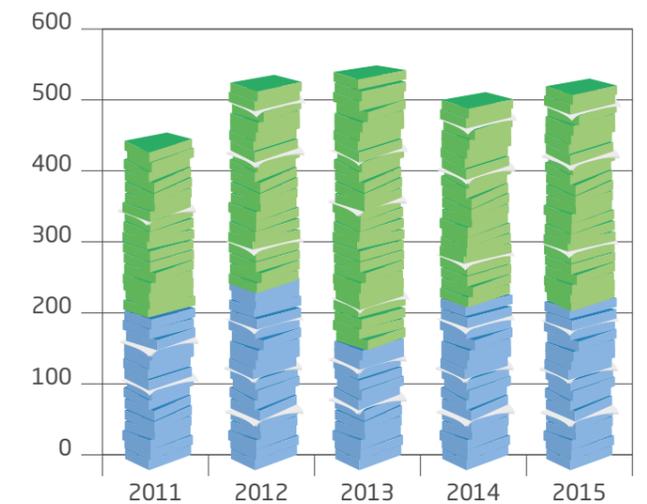
Free access to scientific publications (open access) is a major concern for both the AWI and the Helmholtz Association. The portion of our publications in open-access journals in 2015 was 27,2%; almost a doubling since 2009 (12%).

The „Friends of the AWI“ (Förderverein) awards three prizes each year. The AWI Science Prize (EUR 2.000) for the best scientific publication in 2015 was awarded to Dr Hanno Meyer (Meyer et al., 2015¹). This publication is the result of difficult but successful development of something new, an isotope thermometer for winter precipitation. This demonstrated for the first time that winter temperatures in the Arctic during the Central and Late Holocene continuously increased and during the last century a particularly steep rise was detected.

The AWI PhD Prize is awarded to young AWI scientists with outstanding research results during the course of their doctorate and who are additionally heavily involved in their groups and outreach activities. This year's prize - also endowed with EUR 2.000 - was awarded to Dr Jens Strauss.

The so-called 'Silent Hero' Award - a prize of EUR 2.000 awarded to colleagues who are absolutely necessary for scientific achievements and who support our scientists only in the background - was awarded to three colleagues: Ralf Müller, Wolfgang Neumann and Ritschy Kreie. These colleagues form the caretaker team at the AWI location in Bremerhaven and are employed in the AWI building services department.

Number [n]



■ Publications by peer review process
 ■ thereof AWI first authors

AWI scientific publications over the last five years.

¹ Meyer, H., Opel, T., Laepple, T., Dereviagin, A.Y., Hoffmann, K., Werner, M. (2015) Long-term winter warming trend in the Siberian Arctic during the mid- to late Holocene. Nature Geoscience, 8, 122-125.

Cooperation Partners

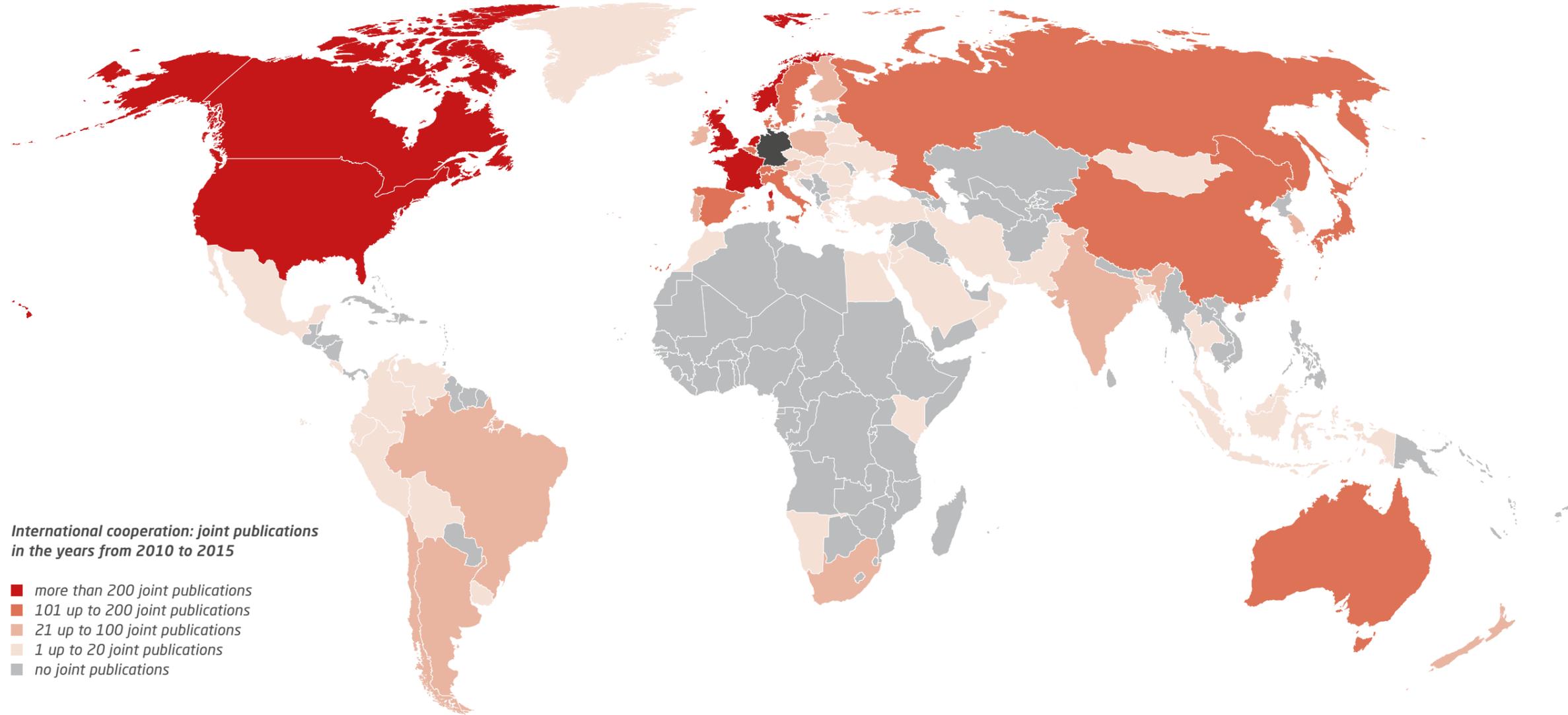
International cooperation

In 2015, the AWI has signed the following new cooperation agreements with international partners:

- Russia: P.P. Shirshov Institute of Oceanology in Moscow, Russian Academy of Science (RAS) and Yakutsk Division Geophysical Survey, Siberian Branch, RAS, Yakutsk for joint work in the Arctic Ocean
- Canada: LGL Limited from Ontario to jointly develop sensors to detect marine mammals in Canadian Arctic waters
- Micronesia: Palau Community College to jointly build an atmosphere observatory
- Norway: University Tromsø (UiT) on joint research in the Arctic.

In addition, the MoU between AWI and Japan Agency for Marine-Earth Science and Technology (JAMSTEC) was extended by five years on 27 April 2015 during the Arctic Science Summit Week (ASSW) 2015 in Toyama, Japan. Several additional meetings with Japanese partners took place during the ASSW e.g. with directors of the National Institute for Polar Research (NIPR) and JAMSTEC. A further intensification of the cooperation was the main topic of these meetings. An EU - Japan - US Workshop, co-organized by EU-PolarNet, was held to discuss the strengthening of cooperation with Japan and the US in Arctic research. Another bilateral AWI - JAMSTEC - NIPR workshop is planned for summer 2016 in Tokyo by invitation of MEXT (Ministry of Education, Culture, Sports, Science and Technology - Japan).

The AWI is working on a stronger collaboration with Dalhousie University and the Halifax Marine Research Institute (HMRI), Canada. This cooperation will be conducted within the framework of the Helmholtz MoU with HMRI. The cooperation is planned as part of the Canadian First Research Excellence Fund



International cooperation: joint publications in the years from 2010 to 2015

- more than 200 joint publications
- 101 up to 200 joint publications
- 21 up to 100 joint publications
- 1 up to 20 joint publications
- no joint publications

proposal, in which a Dalhousie's Ocean Frontier Institute will be requested. The joint work will take place in the Canadian Arctic and includes all relevant marine research disciplines.

In order to expand cooperation between the Helmholtz Association and Russian institutions the AWI plans to visit several Russian Helmholtz partners in Moscow. An interesting new partner for the AWI could be the Skolkovo Institute of Science and Technology in Moscow,

working very intensively on methane hydrates in the Arctic. For the next year, a Russian-German expedition in the Lena Delta (Lena-2016) is planned, which is coordinated on the German side by AWI Potsdam. The Russian partner is the Arctic and Antarctic Research Institute (AARI) in St. Petersburg. On this expedition, new data on environmental development in the late Pleistocene and Holocene based on geomorphological and hydrological activities in the Lena Delta are to be obtained.

In October, a second workshop between AWI scientists and scientists from various Argentinian institutions took place in Bremerhaven. The aim was to apply jointly for a large project in Horizon2020. This project will focus on training of PhD students. The workshop in Bremerhaven was a follow-up meeting to the workshop in Buenos Aires in November 2014.

The Argentinian ambassador, Daniel Polski, visited the AWI in Bremerhaven

on 20th July to inform himself about the AWI-Argentinian cooperation in the South Atlantic Ocean and in Antarctica.

Since 1 March 2015 AWI coordinates the EU-project EU-PolarNet - „Connecting Science with Society“. The EU-PolarNet kick-off meeting took place on 9 March - 11 March 2015 at the German Emigration Centre in Bremerhaven. The event was attended by 65 participants from almost every major polar research institution in Europe.

EU PolarNet works closely with the European Commission (EC) to advise and support them in all issues relating to the polar regions. Currently, the project advises the EC in the implementation of the trans-Atlantic Research Alliance with the U.S. and Canada as well as in cooperation with the European Space Agency. EU PolarNet was also instrumental in the development of the four polar calls in the current work programme 2016 - 17 of Horizon 2020.

National cooperation

The AWI is a member of the Helmholtz Association, the German Marine Research Consortium and the Nordwest-Verbund Meeresforschung e.V. Besides these memberships, particularly the universities and other research institutions form the research network of the AWI.

In the context of the AWI-MARUM Alliance, existing since 2010, joint collaborative projects in the fields of ocean and climate dynamics, underwater technology and earth observation systems as well as data information systems were successfully applied. Examples include the Graduate College ArcTrain with Canadian partners in Halifax, the EU project PalMod, the Helmholtz Alliance ROBEX and the data portal marine research (Manida). To expand the range of issues of cooperation also in view of possible future calls for proposals for collaborative projects, it was suggested to examine the synergy potential of the topic "Arctic-North Atlantic ocean and ecosystems in a changing climate". There were already several existing priorities in the scope of MARUM, the AWI research program PACES II as well as projects funded by the German Research Foundation or the European Union.

Currently, there are 29 professors associated with universities by means of cooperative professorships; thereof 19 are at the University of Bremen in the departments of Physics, Biology/Chemistry, Mathematics and Geosciences. In addition, there are 11 extraordinary professorships. The close cooperation with the University of Bremen is being re-established in view of the realignment of the Excellence Initiative and subsequently developed programmes. Based on the concept of the "Campus Alliance" with joint research activities between AWI and MARUM, an expanded concept is being pursued. The „Northwest Alliance Marine Research and Technologies“ will create a common research area building on five scientific columns and following joint graduate training, operation and development of infrastructure as well as planning of professorships. The research themes "ocean and climate", "dynamics of the sea floor", "geosphere-biosphere interactions", "innovative marine technologies" and "marine ecosystems and biodiversity" build the five columns. Besides the AWI and MARUM, the Max-Planck Institute for Marine Microbiology and the Institute for Chemistry and Biology of the Sea (ICBM) at the University of Oldenburg are involved as further partners. Additional partners may be involved in the further development, for example Jacobs University, Senckenberg am Meer as well as applied universities in the region. It is the aim of the Northwest Alliance to face big future themes of marine research with this internationally outstanding research network in a comprehensive approach working with natural, engineering and social sciences.

Both the University of Oldenburg (ICBM) and AWI have ex-

tensive expertise in the field of marine functional biodiversity research. These complementary capabilities should be combined in a joint research cluster for functional marine biodiversity at the University of Oldenburg.

To further this initiative, an expression of interest has been delivered to the Helmholtz Association, applying for a new Helmholtz Institute for functional marine biodiversity (HIFMB). The participating institutions (AWI, University of Oldenburg) plan to initially develop the institute with their own finances and with funding from the Federal State of Lower Saxony. Should the Helmholtz Association agree to the establishment of the Institute, sufficient finances will be provided by both partners until the Helmholtz Association funding period commences. Discussions around the financing and the location of the Institute in Oldenburg were conducted throughout 2015 and the participating institutions anticipate an adequate financial and operational solution in the event of success with the application to the Helmholtz Association.

This initiative implements a recommendation of the structural analysis of the German marine research, attaching high importance to the theme "Functional biodiversity" and demanding coordinated interdisciplinary research in Germany. The marine biodiversity research which is rather fragmented in Germany could be focused and better linked with this approach.

In February 2015 the AWI and the Institute for Advanced Sustainability Studies jointly hosted the 5th Arctic Dialogue with focus on „Governance“ and „Black Carbon“. In September 2015 the Federal Ministry for Education and Research invited participants to Berlin for an evaluation of the Arctic Dialogue series and the assessment proved extremely positive. All participating ministries and authorities sought the continuation of the Arctic Dialogue series as a discussion platform. Additional expressions of interest for participation have also been raised by ministries not previously involved, indicating strong interest in the event.

² ArcTrain (International Research Training Group ArcTrain „Processes and impacts of climate change in the North Atlantic Ocean and the Canadian Arctic“)

³ PalMod – Palaeo modeling – A national initiative for palaeo climate modeling

⁴ ROBEX – Robotic exploration of extreme environments

⁵ MaNIDA – Marine Network for Integrated Data Access

Ships and Stations

The Alfred Wegener Institute provides research vessels, stations and aircraft for German polar and marine research. The following graphics display the supported expeditions. During its expedition within the central Arctic, RV Polarstern reached the North Pole on September 7th, 2015 for the 5th time since its commissioning.

In December 2014, RV Polarstern received damage to the adjustment unit of the portside propeller shortly prior to providing Neumayer Station III with supplies. Consequent-

ly, the spring shipyard period lasted longer than originally planned, resulting in a shortened Arctic season 2015.

At the end of 2015 and under direction of the BMBF, the manufacturing specification for the construction of the new RV Polarstern was completed. Shipyards are now invited to submit tenders based on that concept.

In 2014, RV Heincke was equipped with new motors, providing good service since its relaunch.

Research vessels	Expeditions	Participants Germany	Participants abroad	Days of deployment harbour / docks	Man days (of which AWI)
RV Polarstern	9	235	127	245 (120)	9.651 (3.203)
RV Heincke	27	354	15	288 (77)	2.957 (622)

Stations	Projects	Participants Germany	Participants abroad	Days of deployment	Man days (of which AWI)
Arctic					
AWIPEV Research Base permanently manned	52	74	35	365	2.533 (828)
Samoylov Station summer station	12	36	33	183	2.059 (465)
Antarctic					
Neumayer Station III permanently manned	26	45	2	365	3.135 (2.143)
Kohnen Station summer station	2	20	1	21	231 (231)
Dallmann Laboratory at the Carlini Station (Argentina) summer operation	18	7	28	160	1.468 (123)

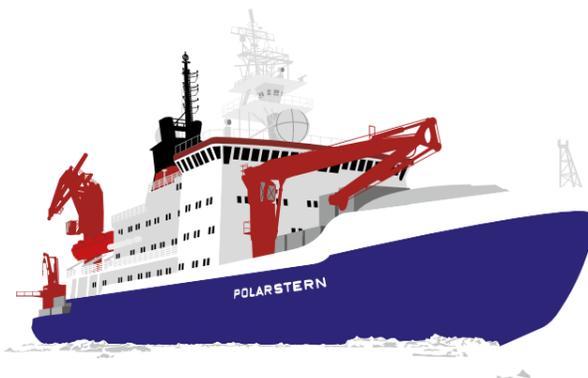
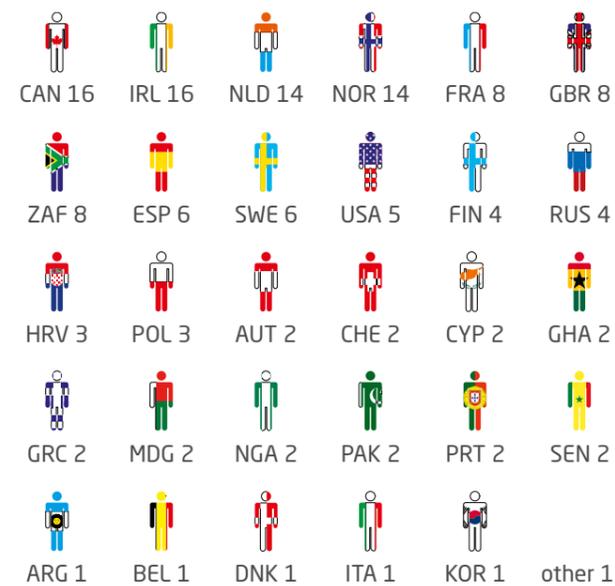
Equipment (provision of polar clothing, field equipment)	Projects	Participants Germany	Participants abroad
Ship expeditions	36	589	142
Station operations	101	182	88
Flight missions	10	20	4
Field missions	16	57	16

Field Expeditions

Field Expeditions	Projects	Participants Germany	Participants abroad	Days of deployment
Arctic				
Russia, Sobor-Sise, Lena delta, summer	2	5	3	19
Russia, Jakutsk	1	3	1	27
Russia, Kolyma	1	3	0	15
Russia, Yamal	1	2	0	22
Greenland, RECAP	1	4	4	61
Greenland, NOW	1	1	0	62
Alaska, PETACARB	1	4	0	45
Alaska, NAAT 2	1	2	0	153
Yukon Coast	1	4	6	68

Field Expeditions	Projects	Participants Germany	Participants abroad	Days of deployment
Antarctic				
FISP (Filchner Ice Shelf Project)	3	4	2	34
Kohnen traverse NM to Kohnen	0	7	0	9
Kohnen traverse Kohnen to NM	0	7	0	6

Native countries of international scientists on Polarstern expeditions in 2015 [Number]



Aircraft Campaigns

During 2015, AWI's two aircraft conducted measurement flights for seven projects in the Arctic and three in the Antarctic, in the area of geosciences and atmosphere science. They also conducted transportation flights for logistical support for two projects. In addition to solely research-motivated measurement campaigns, a test mission for implementing two newly developed radar systems in Greenland, in cooperation with the CReSIS (Center for Remote Sensing of Ice Sheets, University of Kansas, Lawrence, KS, USA), was conducted.

The new radar systems are the latest advancements of systems and are currently employed in flight measurements of the NASA for operation IceBridge in the Arctic and Antarctic. With these systems, AWI has a transmission channel broadband radar system for high-resolution field mapping of ice thickness and internal structure of glaciers, ice shields, and ice shelf, as well as combined radar equipment for altimetry and identification of snow layers on top of sea ice.

Aircraft	Projects	Flight hours scientific	Flight hours logistics incl. ferry	Total hours
Arctic				
Polar 5	4	147	61	308
Polar 6	3	156	154	310
Antarctic				
Polar 5	2	52	69	121
Polar 6	1	74	72	146



Routes and flight campaigns

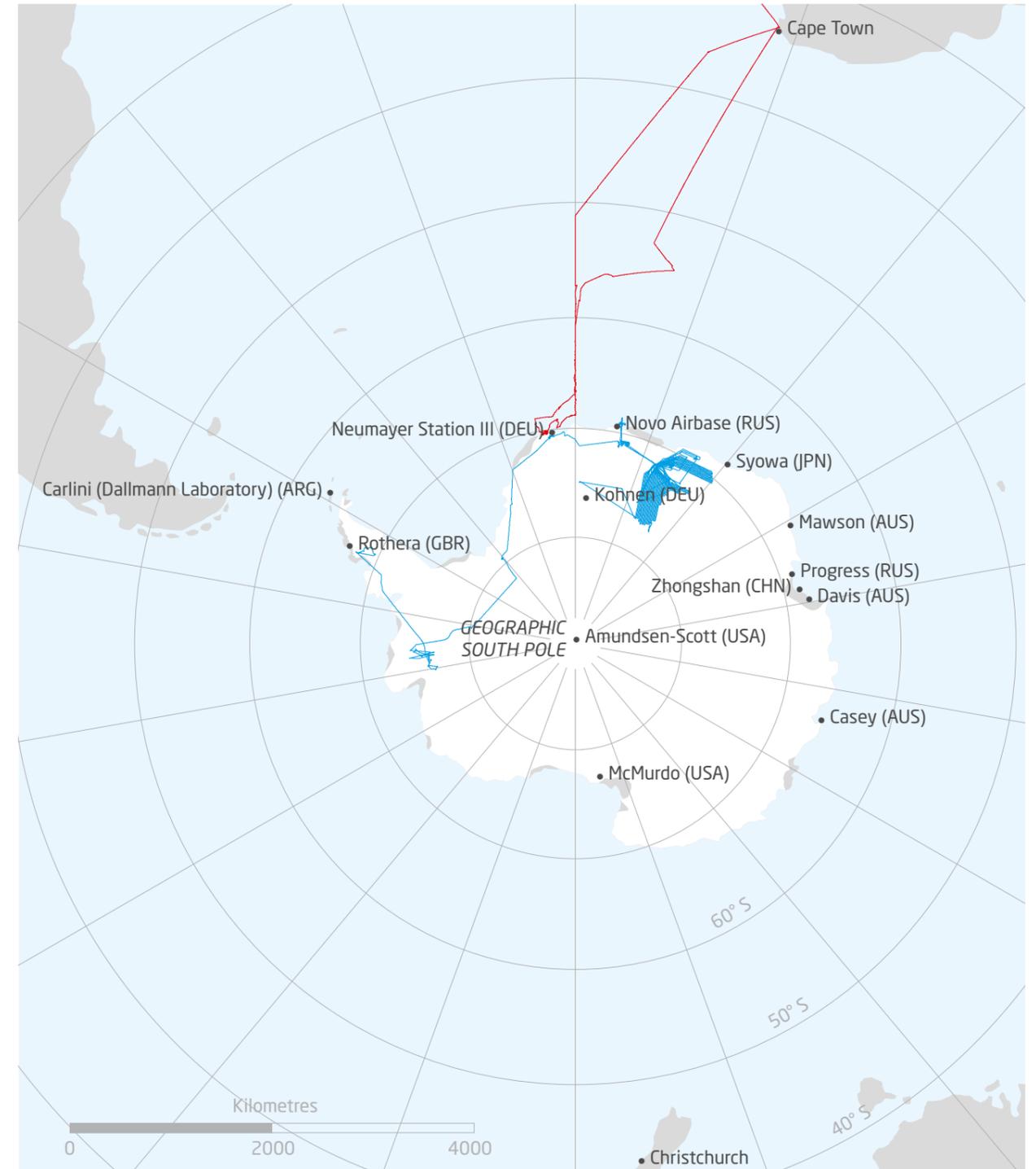
Scientific and logistical routes and flight campaigns in the North



Arktis

- Flight campaigns Polar 5 and Polar 6
- Research Vessel Polarstern
- Research Vessel Heincke

Scientific and logistical routes and flight campaigns in the South



Antarktis

- Flight campaigns Polar 6
- Research Vessel Polarstern

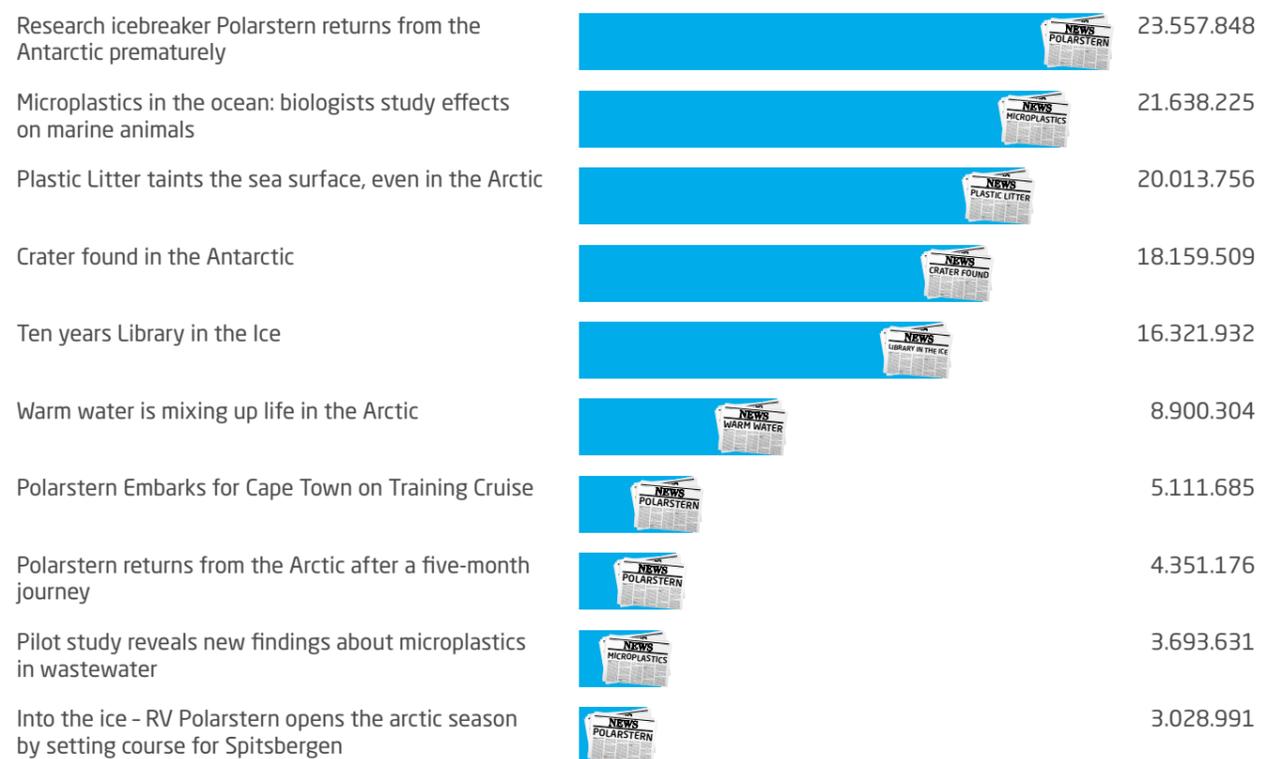
Communication and media

The year 2015 was marked by the relaunch of the AWI website: The institute's fresh and modern internet site has been live since July. The welcome page includes a large visual opener, teasers to announce featured topics, many fascinating pictures, and a new drop-down navigation menu. Posts from social networks such as Facebook, Twitter and YouTube, as well as blogs from the Helmholtz portal, are also integrated into the welcome page to ensure additional up to date information. A responsive web design enables users to access awi.de from their mobile devices.

The website also contains a wide range of information on key topics, infrastructure and other institute issues. The 'work and study' section specifically addresses potential applicants at all career levels, and the research section has its own science-to-science communication area. We placed great emphasis on the search function, which allows users easy access to the specific content they are looking for.

As in the previous year, the press work of the Alfred Wegener Institute received positive response from the media: More than 8,500 articles about the institute were published in the German media (previous year: 8,700). With more than 618 million readers, listeners and viewers, we even managed to increase the audience reached (reach in 2014: 550 million). A press release about the Polarstern expedition at the beginning of the year, which had to be aborted due to repairs, had the widest reach. Three additional Polarstern press releases made it to the top ten, demonstrating the high public interest - may news be good or bad - in Germany's popular research icebreaker. Three reports on the topic of plastic litter in the oceans were among the ten most widely distributed press releases. The discovery of a crater in the Antarctic and the tenth anniversary of the "Library in the Ice" at the Neumayer Station were also widely covered. Another topic to make it into the top ten was the results of the 15 years of long-term studies in the AWI Arctic deep sea observatory "Hausgarten".

Top 10 of AWI press releases according to coverage [print only]



Imprint

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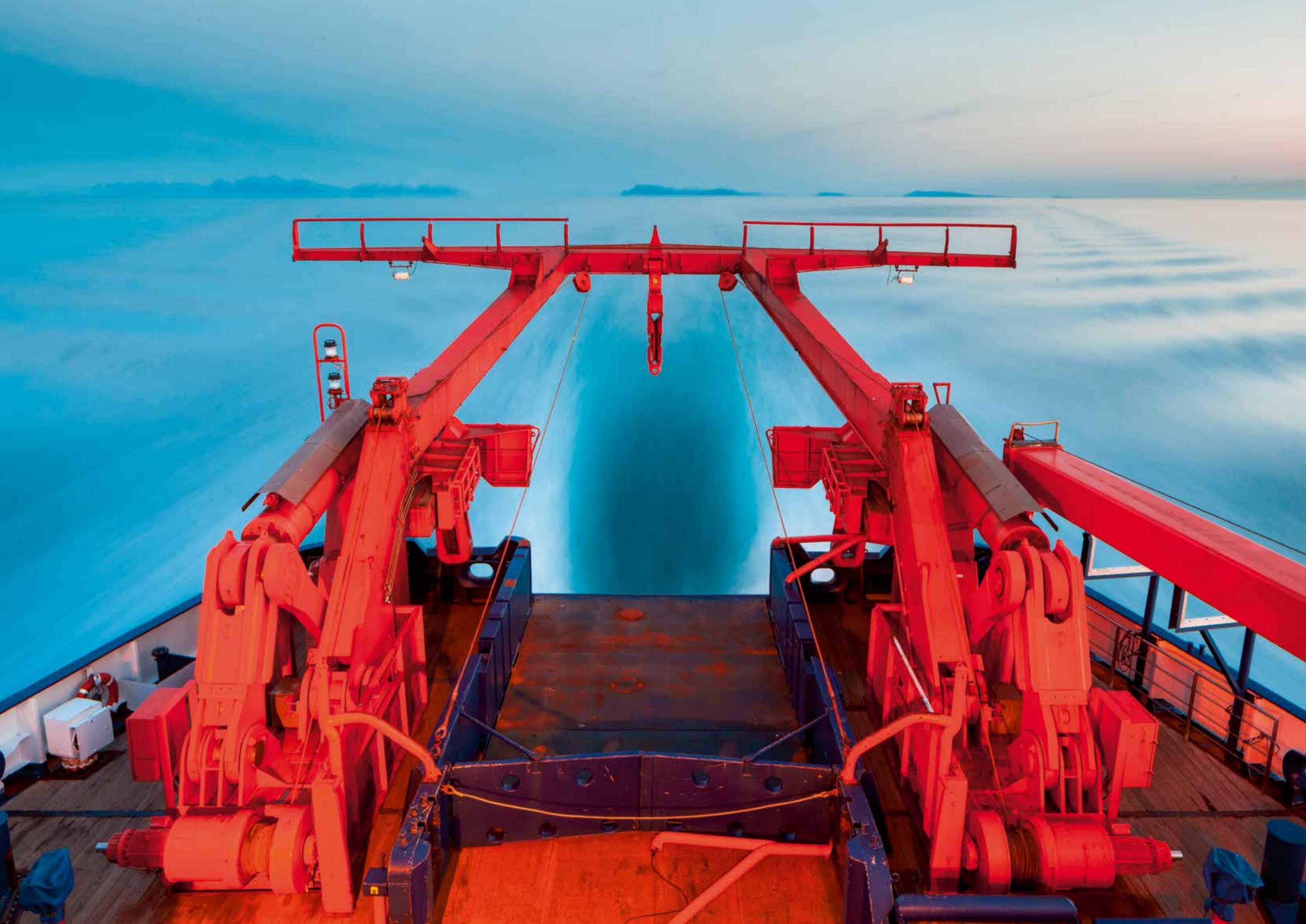
Credits for images:
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Kerstin Mölter (p. 13)
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ELiSE/AG Bionik (p. 17)
Mario Hoppmann (pp. 30 / 31)

Route maps:
Dr Christine Wesche (pp. 26 / 27)

Graphics:
Yves Nowak

Design: Yves Nowak, Alfred Wegener Institute
Editor: Dr Corinna Kanzog, Alfred Wegener Institute
Printed by: BerlinDruck GmbH, Achim

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