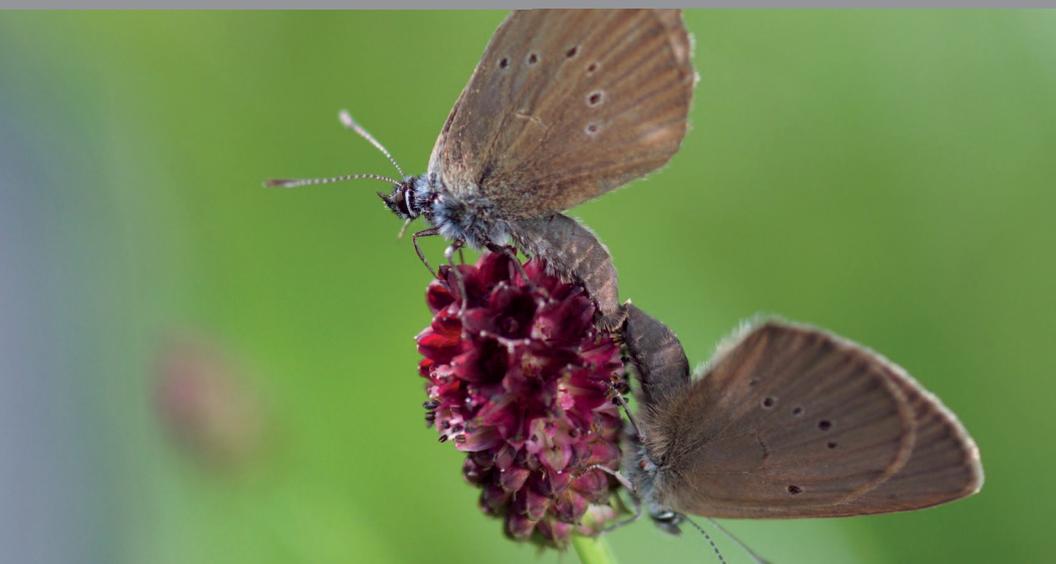


hermann

News from the Helmholtz Association



Butterflies are indicators of biodiversity. Photo: UFZ/Künzelmann

National Biodiversity Centre

The German Research Foundation DFG intends to establish a National Research Centre for Integrative Biodiversity Research in the region around Leipzig, in order to consolidate the competences from universities and extramural research institutions existing already in the area. The new research centre will be funded for an initial period of four years and is to receive some 33 million Euro during that time. Leipzig will be the central site for this institution, which is to be called "German Centre of Integrative Biodiversity Research - iDiv".

"The German Centre of Integrative Biodiversity Research is yet another example for a future-oriented cooperation model between universities and extramural research institutions", says Prof. Dr Jürgen Mlynek, President of the Helmholtz Association. He continues to say, that the critical mass achieved by this consolidation has the potential of rendering the Leipzig institution an internationally visible beacon of biodiversity research and that it could become the nucleus for other strategic networks marked by a high degree of

participation from Helmholtz centres. In addition to the centre's scientific concept, the scientific and structural conditions at the three neighbouring sites proved to be particularly positive arguments towards establishing the centre. Already now, the three universities of Leipzig, Halle and Jena maintain numerous research projects as regards biodiversity-related sciences, some even on an international level. The same applies to the involved extramural research institutions, such as the Helmholtz Centre for Environmental Research - UFZ and the Max Planck and Leibniz Institutes.

The cooperation between the three universities and the extramural institutions was assessed exemplary. "The iDiv opens up the unique perspective of establishing together with our partners an absolute world-class centre of the highest degree. This will require us to appoint the best of the best to staff the eight new professorships: Two from each university and two from the UFZ", said Prof. Dr Georg Teutsch, Scientific Director of the UFZ.

Dear Readers,



Doctoral students constitute the backbone of research. We therefore aim to support them to our best ability in successfully completing their doctoral thesis and in departing

on a sophisticated professional career. We thus have established, in close cooperation with universities, graduate schools and research training groups at many Helmholtz centres. Now funds have been made available for two more graduate schools and five additional research training groups. Including these, soon there will be 20 Helmholtz Research Training Groups and 13 Helmholtz Graduate Schools providing a well-structured environment on the path towards conferral of a doctorate. In this environment, the young researchers profit also from the possibility of acquiring key competences and from networking with other research groups.

Wishing you enjoyable reading,

Yours faithfully, Jürgen Mlynek, President

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www.helmholtz.de/abo

In Brief

Munich Allergy Study Test Person Search

People living in the larger area of Munich and suffering from allergies now can take part in a study researching the correlation between the allergen content of birch tree and grass pollen and the symptoms they cause. The study is headed by Prof. Dr Jeroen Buters from the Center of Allergy & Environment (ZAUM) and the Helmholtz Zentrum München – German Research Centre for Environmental Health. The study requires participants to keep a pollen symptom diary via the internet. People suffering from allergies caused by grass pollen can participate in the study between the end of May to the middle of August.

www.pollendiary.com

www.facebook.com/pollentagebuch

Email: pollentagebuch@lrz.tum.de

Helmholtz Involved in DFG SPP

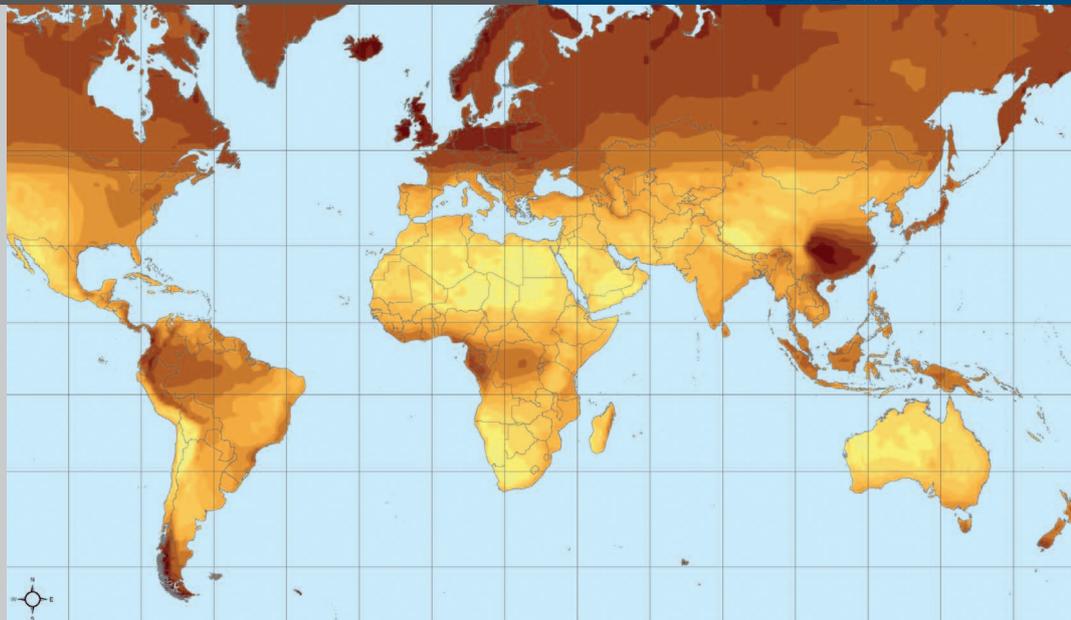
Helmholtz Involved in DFG SPP

The German Research Foundation DFG institutes ten more Priority Programmes (SPP), which are scheduled to be launched in 2013. Two of these SPPs from the field of natural sciences are coordinated by scientists at Helmholtz centres. Dr Oliver Rader from the Helmholtz-Zentrum Berlin für Materialien und Energie (Helmholtz Centre Berlin for Materials and Energy) coordinates the Priority Programme “Topological Insulators: Materials – Fundamental Properties – Devices”. The programme will deal with an innovative class of materials (topological insulators), which feature electrically insulating properties on the inside, yet remain conductive on their surface. Prof. Dr Andreas Oschlies from the Helmholtz Centre for Ocean Research Kiel | GEOMAR is to coordinate the programme “Climate Engineering: Risks, Challenges, Opportunities” with the objective of investigating the ecological and ethical opportunities and risks connected with targeted manipulation of the climate.

www.dfg.de/spp

Plant Against Hepatitis C

The herbaceous perennial *Marrubium peregrinum* (horehound) bears resemblance to other herbs, such as catnip or sage, and produces an interesting substance that could be used to combat the hepatitis C virus: The flavonoid ladanein. Researchers at TWINCORE, which was established by the HZI and



The solar atlas reveals the intensity of solar irradiation. Photo: DLR

First Solar and Wind Energy Atlas

The sun and wind are the most important renewable energy sources, however, they are not always and everywhere available. When planning energy plants it is therefore essential to be able to assess the prospective site's potential. The International Renewable Energy Agency (IRENA) and the German Aerospace Centre (DLR) now have presented the world-wide first solar and wind energy atlas.

This atlas is a database consolidating all existing information within one portal. With this tool, investors can better assess the utilisation of renewable energies at different sites, politicians and scientists can use the data as a basis for effective measures for the promotion and market launch of new technologies. The initiative is coordinated by IRENA, the International Renewable Energy Agency with headquarters in Abu Dhabi and Bonn, and

by the Department for Systems Analysis and Technology Assessment at the DLR Institute of Technical Thermodynamics. In creating the atlas, the DLR contributes remote sensing data and the development of the web portal for geographical data.

During the Clean Energy Ministerial (CEM) forum, that was held in London at the end of April 2012, prime ministers from many countries collected information as to where building wind parks and solar energy plants would prove particularly lucrative. “If we were to achieve the adaptation of funding instruments to reflect locally available irradiation or wind conditions and to increase the number of investments in renewable energies, this would be a huge success for the global Solar and Wind Energy Atlas”, says Carsten Hoyer-Klick, project manager for the atlas at the DLR.

GPS Data Improve Tsunami Warning Systems

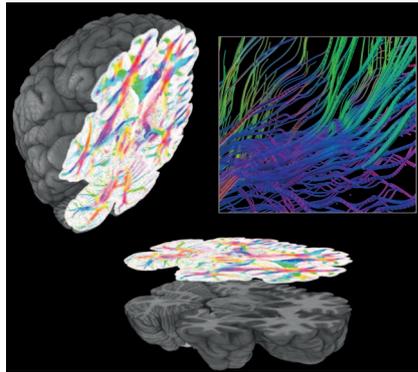
After investigating the Fukushima earthquake from 11 March 2011, Helmholtz scientists from the GFZ now have shown that the inclusion of GPS data could contribute to the significant improvement of tsunami warning systems. “On occasion of the Fukushima earthquake, we evaluated the data from more than 500 GPS stations and revealed that a correct estimate of the magnitude of M=9.0 and of the tsunami would have been possible as early as three to four minutes after the onset of the

earthquake”, said GFZ scientist Dr Andrey Babeyko. The GPS raw data and satellite orbit data can be used to compute a spatial earthquake model and the deformation of the seabed and thereby also of the tsunami wave expansion. Initially, this GPS protective shield was developed for the tsunami early warning system GITEWS, that was created for Indonesia by the Helmholtz Association headed by the GFZ upon commission from the German Federal Government.

Brain Research News

Spatial Orientation

A team around the DKFZ researcher Prof. Dr Hannah Monyer has discovered that the brain regions responsible for spatial orientation and location memory are directly connected to each other by long branched projections of inhibiting neurons. It is assumed that this connection contributes to synchronising these two brain regions and thus processing spatial information. "So far, only stimulating nerve fibres between the two regions were known to exist", explains Monyer.



The three-dimensional imaging technique with polarised light developed at Jülich allows for the spatial representation of nerve fibre connections within the human brain at a resolution of up to one thousandth of a millimetre.

Photo: Research Centre Jülich

Order in the Brain Cortex Jungle

Some 20 billion neurons in approximately 200 different regions of the brain work together in the cerebral cortex, communicating via synapses, transmitters, receptors and nerve fibres. In order to understand the complex organisation of this part of the brain, the basic rules governing the jungle that is the brain structure need to be discovered. The Jülich-based neuroscientists Prof. Dr Katrin Amunts and Prof. Dr Karl Zilles now have submitted a proposal: To this end, they employ the latest research results supporting the notion of a geometrically ordered and hierarchically operating "control centre". The neuroscientists from Jülich work on a three-dimensional model of the brain.

EU NeuroCare Project Launch

In future, neuronal implants could contribute towards substituting damaged sensory cells in the eye or ear. One of the greatest challenges in effecting this, is designing the interface between technology and hu-

man tissue. In the context of the EU NeuroCare project launched in March, scientists from the Research Centre Jülich and from eleven other institutes develop innovative carbon-based bio-interfaces. "We develop bio-interfaces that are even better accepted by live tissue and which cause fewer problems as regards contamination", reports Prof. Dr Andreas Offenhäusser, Head of the Bioelectronics Department at the Research Centre Jülich. The carbon-based materials can be produced at low cost, are robust, biologically inert and feature a broad range of electronic characteristics, ranging from metal-like conductors over semi-conductors to insulators. Within the coming three years, the project coordinated by the French CEA is to produce prototypes for retinal, cortex and cochlea implants, which then can be further developed to marketability over the course of the subsequent ten years.

the Medical University Hannover, have discovered that this substance prevents hepatitis C viruses from entering into liver cells. This could in future help to prevent the re-infection of transplanted livers, as is the hope of the group of scientists around Dr Sybille Haid from the working group Experimental Virology. These days hepatitis C is one of the most frequent causes for having a liver transplant. However, if a hepatitis C patient is to receive a new liver, the virus often attacks also the transplant.

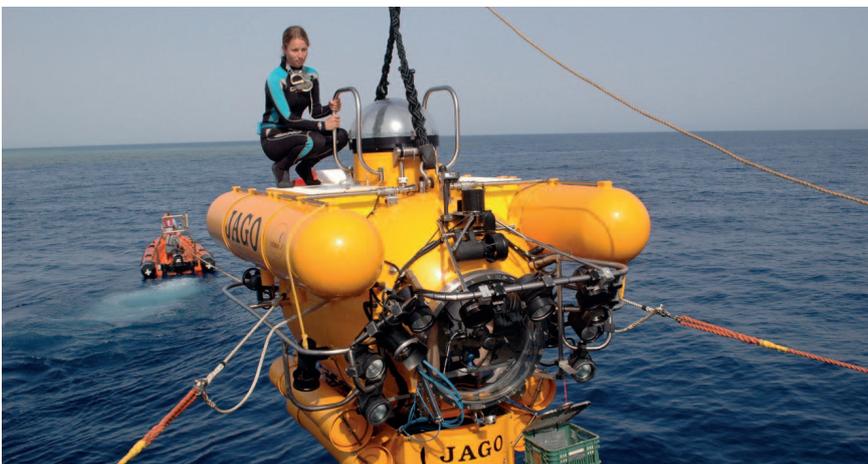
Plastic Waste at Sea

Large quantities of the plastic materials produced around the globe end up in the oceans. Very small objects in particular, so-called microplastic particles, pose a threat to the well-being and life of many marine creatures. Yet due of the lack of globally comparative research methods and data, it was hitherto impossible to estimate the degree to which the oceans are contaminated with microplastic particles. Together with British and Chilean colleagues, scientists from the Helmholtz Association's Alfred Wegener Institute now have evaluated all published studies on this topic and have proposed standardised guidelines for the assessment and characterisation of microplastic particles in the ocean.

Metabolic Syndrome Research Funded

Around the world, an increasing number of people fall ill with complex metabolic disorders. The metabolic syndrome is one of the particularly severe forms of such disorders, characterised by an excess of weight, high blood pressure, abnormal levels of lipids in the blood and insulin resistance. In the context of the portfolio topic "Metabolische Dysfunktion und Volkskrankungen" (Metabolic Dysfunction and Widespread Diseases), the Helmholtz Association's health centres research the causes and options for diagnosis and treatment in cooperation with university and extramural partners. The portfolio topic is funded with a total of 15 million Euro up until 2016. Epidemiological studies reveal that the metabolic syndrome not only increases the risk of diabetes and cardiovascular diseases, in particular in the case of young people, but that it also can promote the onset of cancer and infection diseases as well as of neuropsychiatric and neurodegenerative diseases.

Expedition to the Red Sea



In April 2012, GEOMAR researchers (here Dr Yvonne Sawall) and their colleagues from the King Abdulaziz University in Jeddah in Saudi-Arabia investigated coral reefs in the Red Sea with the aid of the research submarine JAGO. Read the expedition report online under www.helmholtz.de/hermann. Photo: Karen Hissmann, GEOMAR

Full article under:
www.helmholtz.de/hermann

Awards

The international Committee on Space Research (COSPAR) awards **Prof. Dr Herbert Fischer**, former Head of the Institute for Meteorology and Climate Research at the KIT, with the William Nordberg Medal 2012. COSPAR thus honours Fischer's outstanding achievements in the field of atmospheric research. Since the 1980s, Fischer had decisively co-determined the development of Fourier transform infrared spectroscopy for atmosphere remote sensing, by which the concentration of trace gases in the atmosphere can be determined. Fischer is the first German scientist to be awarded this medal.

The GSI's new supercomputing centre "MiniCube" was awarded the "Deutscher Rechenzentrumspreis 2012" (German Data Processing Centre Prize) for its energy and cost saving concept. The concept includes cooling of the computer cabinets with water, so that practically no heat filters into the ambient air. Since additional ventilators are not required, the energy consumption as regards cooling is limited to a mere five per cent in addition to the computer's power requirement.

With the "fastest film of the world", the **press office at the HZB** headed by Ina Helms won the idw Award for Science Communication 2012 for the second time after 2010. The Informationsdienst Wissenschaft (idw – Science Information Service) awards this annual prize in recognition of the best press release of the previous year. The press release thus honoured with an endowment of 2,000 Euro dealt with the fastest film of the world, recorded by Prof. Dr Stefan Eisebitt, and presents an innovative procedure by which scientists can visualise processes taking place at a molecular level.

Other awards and calls for applications under www.helmholtz.de/hermann

Since May 2012, Thomas Frederking is the Administrative Director of the HZB. He joined the BESSY GmbH in 1993 as controller for the BESSY II project. He subsequently was appointed head of the budget and finances department and assistant to the administrative management board. In 2001 he was made head of business administration at the institute, a post he filled until the merger at the end of 2008. When the institute merged to become the Helmholtz-Zentrum Berlin in 2009, he was responsible for administration in the capacity of chief department manager and headed the finances and accountancy department. In his new role as Administrative Direc-



tor of the HZB, Frederking intends to work towards creating the best conditions as regards administration and infrastructure at both HZB sites for the HZB's exciting scientific future.

Newsflash: Prof. Dr Horst Hippler, since 2009 one of the KIT's two presidents, was elected to head the Hochschulrektorenkonferenz (HRK – German Rectors' Conference). Hippler succeeds Prof. Dr Margret Wintermantel, who had chaired the HRK since 2006.

Leibniz Awards 2012



This year's Gottfried Wilhelm Leibniz Award goes to eleven scientists, including three scientists from the Helmholtz Association. The awardees are free to invest the prize money of usually 2.5 million Euro respectively in their scientific work entirely according to their own judgement. The "hermann"

editorial staff inquired in how far this award changed matters for the Helmholtz awardees Prof. Dr Nikolaus Rajewsky (MDC), Prof. Dr Ulf Riebesell (GEOMAR) and Prof. Dr Peter Sanders (KIT):

What has changed in your life after being awarded the Leibniz Award?

Rajewsky: There was a wave of interviews, but fortunately this has subsided again. Otherwise, not much has changed, quite to my content.

Riebesell: My children now call me Leibniz Cookie.

Sanders: I write fewer project applications and instead am looking for "really hard nuts to crack".

How do you intend to use the prize money in your research?

Rajewsky: I am still working on a few ideas.

Riebesell: The prize money gives me the freedom to attempt research involving more risks, to develop new cooperation schemes and to advance into new fields of research.

Sanders: In particular for funding my staff. As regards content, I deal, roughly speaking, with the efficient processing of large amounts of data in applications, such as company databases, search engines, traffic, energy supply grids, bioinformatics ... In doing so, theory and practice are to be harmonised.

Can you capitalise on the attention the award brings with it towards achieving your research objectives?

Rajewsky: No.

Riebesell: The media attention contributes to bringing to the public's attention the problem of ocean acidification and warming and the potential consequences this has on marine organisms and ecosystems.

Sanders: I would imagine the Leibniz Award was a door opener in winning over cooperation partners.

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