

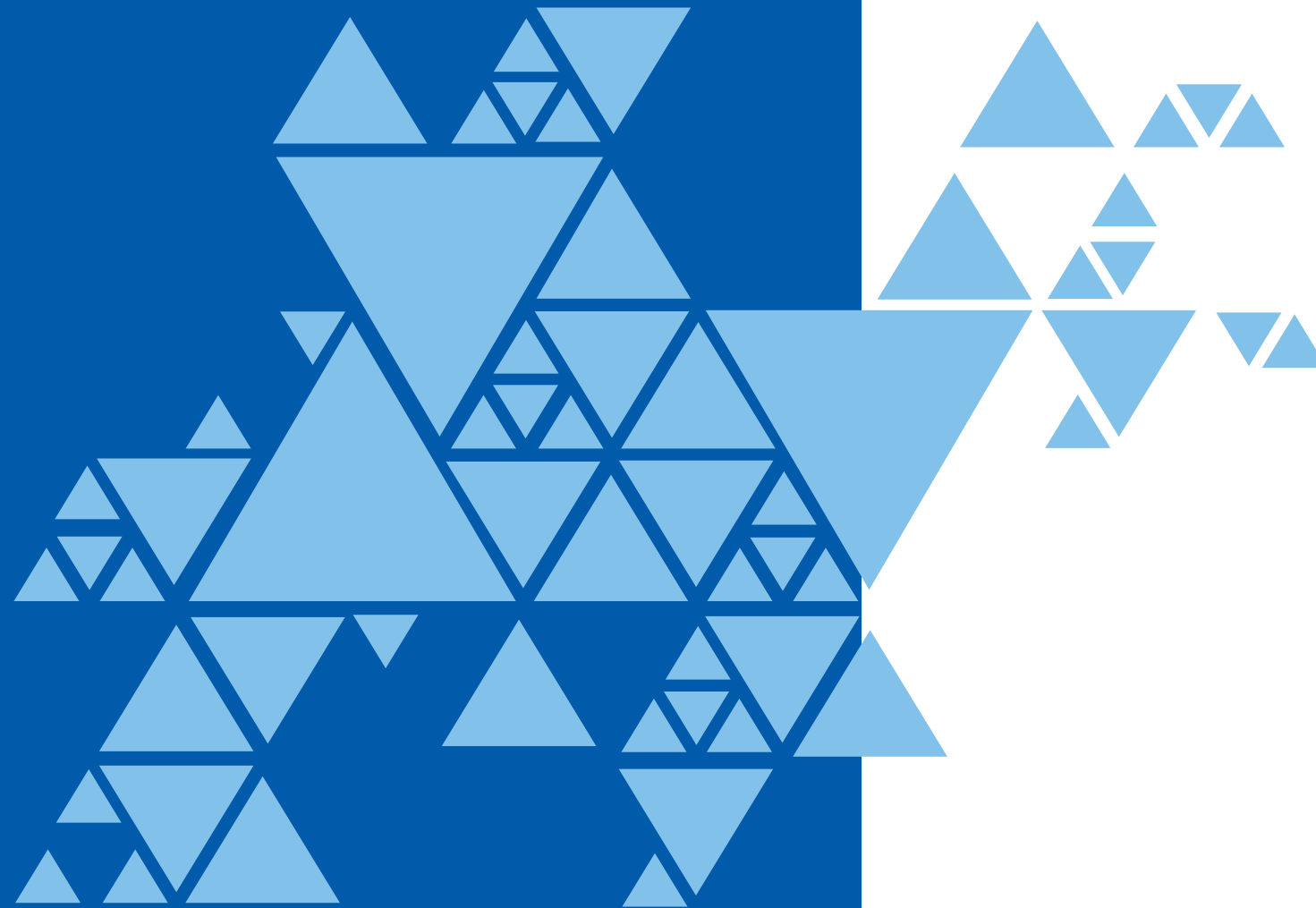


**DFG** Deutsche  
Forschungsgemeinschaft  
German Research Foundation

**LATIN AMERICA**



**DFG**



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## WELCOME



Internationality characterizes modern research in all its numerous facets. Collaboration across national borders on research topics such as migration or biodiversity loss, cooperation between the brightest minds in a particular research area, the transnational operation of major research infrastructures, and the diversity of cultures represented in a scientific working group – these are all standard features of scientific research in many countries around the world today. The internationalisation of science is not merely due to the necessity of collaboration, for example to increase knowledge gain or to generate scientific added value; rather, it has itself become a societal, social and cultural value. It occurs at all these levels, by way of a discourse on question and problem horizons as well as through mutual examination of knowledge traditions and research practices. It is thus instrumental in enabling freedom of research across borders. For this reason, DFG has enshrined the promotion of internationalisation in its statutes, is involved in international organisations, and is represented around the globe by its branch offices.

Cooperation with scientific institutions and research-funding agencies in Latin America is one of the DFG's strategic priorities. This publication is intended to shed light on the wide range of research collaborations between Germany and Latin America, and encourage new and more in-depth dialogue.

I wish you an inspiring read!



► PROF. DR. PETER  
STROHSCHNEIDER  
President of  
the DFG

# German–Latin American collaboration: outlines and insights

We are delighted to provide you with this brochure, which is designed to offer a clear overview of the scientific cooperation promoted by the DFG in Latin America.

Read on to gain insights into the evolution and status of cooperation as a whole, find out which research funding organisations in Latin America are currently collaborating with the DFG and take a look at just a few of the joint projects underway between researchers from Latin America and Germany. These examples of joint initiatives serve as a small demonstration of the quality, robustness and vigour of the cooperation among scientists and research institutions that has developed over the years.

Research collaboration between Latin America and Germany has a long tradition, and has evolved significantly since its inception. Centuries ago, even decades ago, interest in cooperation was principally driven by the one-sided desire of European researchers to discover the “New World”. One of the most famous pioneering researchers was Alexander

von Humboldt, whose 250th birthday we celebrate in 2019. Along with others such as Spix, Martius, Wied-Neuwied or Sellow – to mention only a few – it was he who brought awareness of Latin American nature, culture, and thought to the German and European scientific communities and interested public. Humboldt himself recognized early on that a purely Eurocentric view cannot lead to real insight, understanding and partnership between the two world regions.

The founding of the first universities in Latin America dates back to the 16th century. Those

first universities were quite insular institutions, however. An independent science system was not a high priority for colonial rulers, and for a long time only a relatively small number of universities existed in Latin America.

Thus the majority of today’s universities and research institutions in Latin America are quite young, having been founded in the 20th century, and indeed many of them in the second half of the century. Since the 1950s, academic and research infrastructure in many Latin American countries has been developed more systematically. Following



**DR. DIETRICH HALM**  
Director  
International  
Cooperation with  
Latin America

the establishment of research funding agencies, international cooperation became increasingly fundamental to the exchange of scientific ideas and approaches.

Over the last two decades, Latin America’s scientific potential has grown continuously and the region has become progressively significant at the international level. This especially applies to those Latin American countries that set up advanced research funding structures, providing an excellent basis for international collaboration.

The growing interest in cooperation

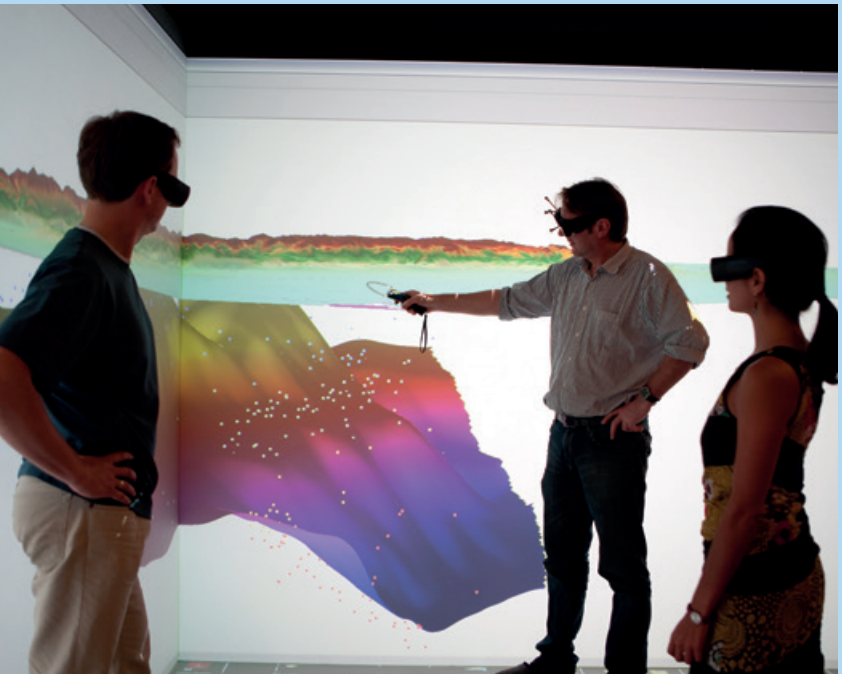
between the research communities in Germany and Latin America reflects these developments. As a result, the DFG appointed liaison scientists in Brazil and Chile in 2006, and four years later in Mexico. These efforts enabled the DFG to strengthen relations with Latin American funding organisations and to establish an office in São Paulo in 2011. The São Paulo office represents the DFG throughout Latin America, and is housed within the German Centre for Research and Innovation (DWIH São Paulo).

Nowadays, first-class research cooperation between Germany and Latin America is based on scientific excellence and takes its inspiration from a wide range of academic and cultural backgrounds. It seems that Humboldt’s ideal of mutual dialogue between researchers from different cultures has indeed been realised, at least in part. Together with our Latin American partners, we will continue our active commitment to developing strategic research collaborations and will broaden our joint initiatives in order to gain new knowledge which takes inspiration from both worlds. ◀



**DR. KATHRIN WINKLER**  
Director  
DFG Office Latin  
America

DEA PICTURE LIBRARY / GETTY IMAGES



3D LAB OF INSTITUTE OF GEOSCIENCES/POTSDAM UNIVERSITY

German research pioneer Alexander von Humboldt viewing the Andes in the 19th century, and the latest basin-modelling technology used by the DFG-funded StRATegy project in Argentina to analyse today’s Andean foreland.

## ► THE DFG

The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) is the central self-governing research funding organisation in Germany. Its mission is to promote curiosity-driven research.

The DFG serves all branches of science and the humanities by funding research projects at universities and other research institutions. It promotes excellence by selecting the best research projects on a competitive basis in a transparent process and actively encourages interdisciplinary and international cooperation. The DFG is particularly committed to supporting early career researchers and to gender equality in science and academia.

In organisational terms, the DFG is an association under private law. Its members are German universities, research institutions, scientific associations and the academies of science. The DFG receives an annual budget of about 3.2 billion euros, primarily from the German federal and state governments.

With offices in São Paulo, Washington DC, New York, Moscow, New Delhi and Tokyo, as well as the Sino-German Centre for Research Promotion in Beijing, the DFG has expanded its presence in other research regions around the world in recent years.

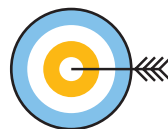
In 2017, the DFG funded over

# 30,000 projects

with an annual budget of 3.2 billion euros

## The DFG Office Latin America in São Paulo

Latin America is becoming increasingly important in terms of global scholarly output. This development is also reflected in the rising number of collaborations between German and Latin American researchers. The mission of the the DFG Office Latin America is to strengthen and enhance cooperation. Our main objectives and activities are:



to be a contact point for researchers as well as scientific institutions and funding organisations in all Latin American and Caribbean countries;



to inform and advise local and German scientists and research institutions about research opportunities in Germany as well as possibilities for international collaboration;



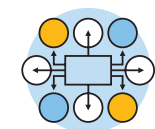
to maintain and expand strategic partnerships with Latin American funding organisations and to develop instruments for international collaboration;



to initiate, organise and support measures to promote cooperation, such as international seminars, workshops or conferences;



to provide special support to early career researchers through seminars, consultation and events, in close collaboration with key German and foreign stakeholders, and



to monitor and analyse developments in scientific and research policy in Latin American countries, thereby stimulating the dialogue between German and Latin American researchers, as well as research and funding organisations.

## FOSTERING INTERNATIONAL RESEARCH COLLABORATION

Developing and maintaining strategic partnerships with funding organisations in Latin American countries is one of the DFG's key activities in Latin America. Our central aim here is to promote research collaborations between Latin American and German researchers on specific topics of interest with potential for cooperation. We develop our joint funding schemes in close consultation with our partner organisations. These schemes are mostly based on the principle of matching funds, which guarantees shared success and the mutual responsibility of all organisations involved.

Over recent years, the DFG has launched joint calls for the submission of research proposals in various scientific areas, developed common long-term funding schemes with specific funding organisations in Latin America and promoted research

collaboration by jointly funding workshops and strategic research events.

These efforts have resulted in a wide range of bilaterally funded research projects and initiatives, ranging from support for research visits and workshops to grants for individual joint projects to the establishment of large research consortia.

By offering such flexible funding programmes for international collaboration, the DFG successfully finances research projects of scientific excellence in various fields of knowledge in cooperation with the funding organisations of a number of Latin American countries.

**You can find out more about the DFG's partner organisations in Latin America and some of our projects on the following pages.**

## OUR PARTNERS IN LATIN AMERICA

Funding of excellent cross-national research projects in all scientific fields requires partner organisations with compatible programmes and resources.

The DFG has agreements for the co-funding of research projects and researcher mobility with the following partners:



# Enhancing induced neurogenesis in the damaged mouse cerebral cortex by activation of local microcircuits

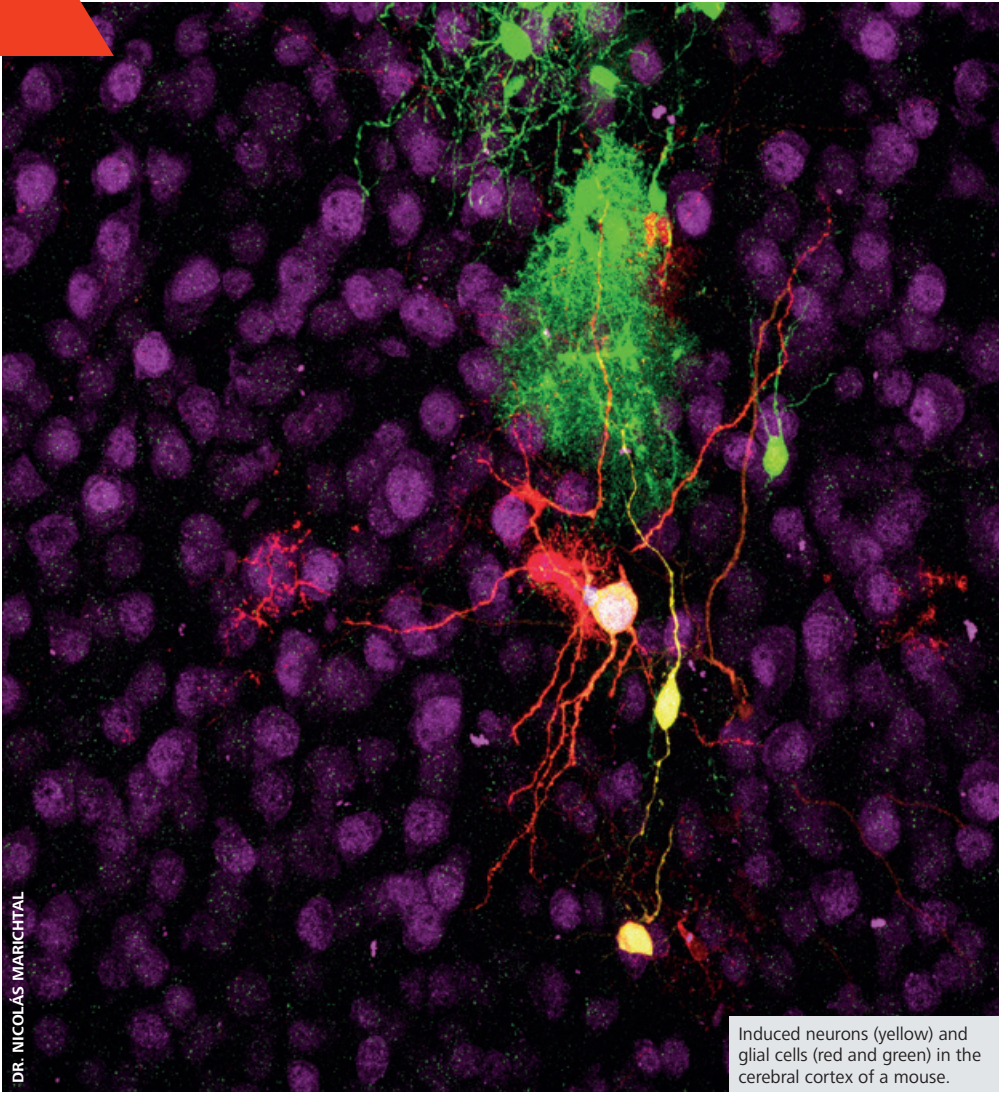
The objective of this project is to take advantage of complementary know-how. While the Argentinian principal investigator (PI), Dr. Alejandro Schinder, is an expert on the development and maturation of neural stem cells, the German PI, Prof. Benedikt Berninger, is a specialist in cell reprogramming. This project combines the findings and knowledge of the laboratories led by both researchers with the aim of investigating the effects of electrical activity on the development and integration of induced neurons in the damaged adult cerebral cortex and thereby optimising strategies for future brain repair.

“When you have damage in the brain, spontaneous recovery is very limited. For example, in a stroke, neurons die and there is no regeneration. So we are trying to find ways to change this”, explains Prof. Berninger. Dr. Schinder’s group works with a part of the brain called the hippocampus, where there is neurogenesis throughout life. They study the processes by which neural stem cells give rise to neurons, how they integrate into the existing neural network and what regulates this integration. These neurons mature at a certain speed, but this pace can be accelerated by manipulations of the environment and by certain other stimuli. He and his team are interested in how this

happens and how it affects the properties of those new cells.

In contrast, Prof. Berninger’s team studies areas of the cerebral cortex where no neurons are born. “Using some molecular tricks, we are able to convert other cells into neurons, a process called reprogramming. However, these new neurons are not yet mature. So, the idea of the project is to take some of the lessons we learned from Dr. Schinder’s work and test whether we can improve the maturation of the engineered neurons in areas of the brain where there is no natural neurogenesis, with the idea that maybe, one day, this can be used to replace degenerated neurons. At this point, it is not clinical therapy, it is just an experimental approach”, the professor explains.

Both researchers met in 1997 in San Diego, California, during their post-doctoral studies and have maintained contact since then. “Science and research are international endeavours. There are no borders when it comes to asking questions about biology and nature, so cooperation brings together different approaches, thoughts and ideas about a problem. Everyone contributes with different perspectives based on their own culture and environment, which widens the lens through which we look at questions”, Prof. Schinder says.◀



DR. NICOLÁS MARICHTAL

Induced neurons (yellow) and glial cells (red and green) in the cerebral cortex of a mouse.



OVERVIEW

This project combines the findings and expertise of both groups to investigate the effects of electrical activity on the development and integration of induced neurons in the damaged adult cerebral cortex.
<b>DURATION:</b> Since 2018
<b>SCIENTIFIC AREAS:</b> Developmental Neurobiology and Cellular Neuroscience
<b>INVOLVED INSTITUTIONS:</b> ► Universitätsmedizin der Johannes Gutenberg-Universität Mainz ► Fundación Instituto Leloir
<b>PARTNER ORGANIZATION:</b> Scientific and Technical Research Council (CONICET) - Programa de Cooperación Bilateral
<b>DFG PROGRAMME:</b> Research Grants
<b>WEBSITE:</b> <a href="https://bit.ly/neurogenesis-project">bit.ly/neurogenesis-project</a>

# Surface processes, tectonics and georesources: the Andean foreland basin of Argentina (StRATEGy)

This International Research Training Group (IRTG) addresses topics that extend from the complex relationships between tectonics, climate, erosion and sediment deposition to the conditions that are favourable to the formation of hydrocarbon resources and metallogenesis in the Andean realm. The Andes are characterised by ongoing, yet highly diachronous and spatially disparate tectonism, as well as their resulting contrasts in relief, rainfall, and erosion. This combination makes this region an outstanding natural laboratory for the study of surface processes and their tectonic and climatic forcing factors.

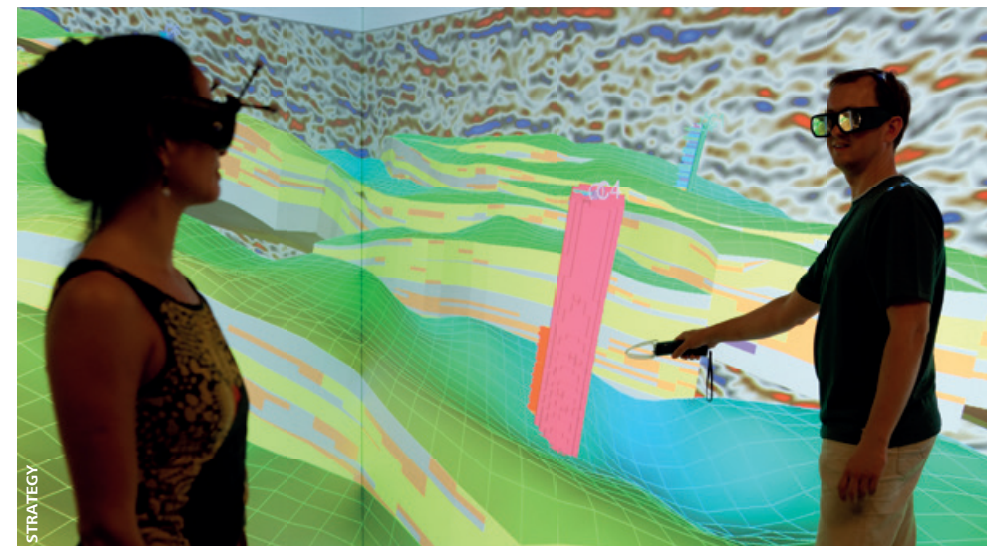
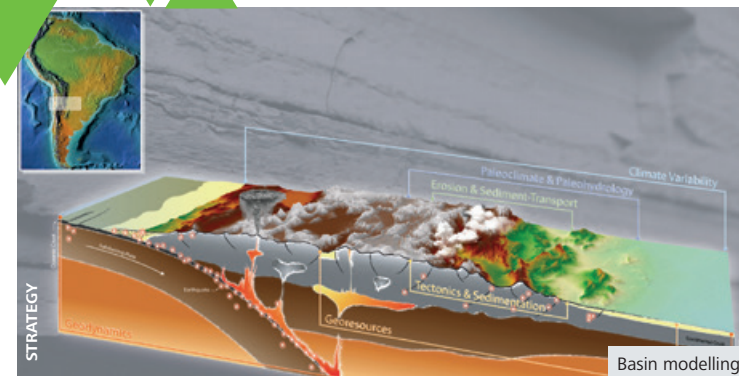
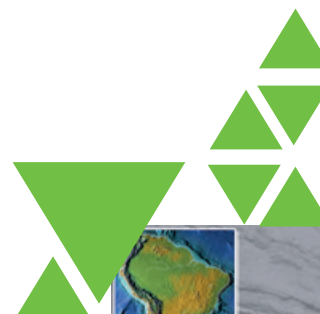
Against the backdrop of global warming and its impact on the distribution and amount of rainfall, tectonically active mountainous

regions constitute areas with exceptionally high biodiversity, which will face fundamental environmental changes over the next decades, including important societal challenges.

“Mountains are the sentinels of change, because high-mountain environments are sensitive recorders of climate-driven and tectonic impacts on the Earth’s surface. The Andes comprise one of these highly dynamic terrains, where almost 70% of the population lives in an area prone to natural hazards”, says Prof. Manfred Strecker, the German PI of StRATEGy.

To deal with this challenging and dynamic environment, the doctoral students of the IRTG gather data in the southern Central Andes on a variety of crucial topics with the aim of deciphering processes responsible for environmental change today and in the geological past.

StRATEGy brings together students not only from Germany and Argentina, but also from Colombia, the U.S., Spain, France and Iran. “The exchange of researchers benefits both sides in pursuing our common goal. A foreign researcher has access to a unique geological setting of the Andean foreland basin, whereas for an Argentine researcher, being integrated into the German team provides access to state-of-the-art analytical



facilities and new methodologies”, explains Prof. Mónica López De Luchi, the Argentinian PI of the project.

The group also sees the importance of communicating the outcomes of their research. “Today’s decision-makers can only meet the needs of a globalised society if Earth scientists provide them with the scientific basis for taking calculated risks. We therefore engage our students in outreach activities, public speaking and dissemination training”, Strecker says. ◀

## OVERVIEW

A German-Argentine project that combines training of PhDs with interdisciplinary research into the source-to-sink system of the Argentine Andes and the adjacent foreland basin.

**DURATION:** Since 2015

**SCIENTIFIC AREAS:** Geology, Palaeontology, Geochemistry, Sedimentology, Seismology, Mineralogy and Economic Geology.

### INVOLVED INSTITUTIONS:

- ▶ Universität Potsdam
- ▶ Helmholtz-Zentrum Potsdam / Deutsches GeoForschungsZentrum (GFZ)
- ▶ Universidad de Buenos Aires: INGEIS (Instituto de Geocronología y Geología Isotópica), IGEBA (Instituto de Geociencias Básicas, Aplicadas y Ambientales de Buenos Aires)
- ▶ Universidad Nacional de Salta: IBIGEO (Instituto de Bio y Geociencias del Noroeste Argentino)
- ▶ Universidad Austral
- ▶ Universidad Nacional de Cuyo: IANIGLIA (Instituto Argentino de Nivología, Glaciología y Ciencias Ambientales)
- ▶ Universidad Nacional de Jujuy
- ▶ Universidad Nacional de La Plata

**PARTNER ORGANISATION:** Scientific and Technical Research Council (CONICET) - Grupo Internacional de Investigación (GII)

**DFG PROGRAMME:** International Research Training Group (IRTG)

**WEBSITE:** [www.irtg-strategy.de](http://www.irtg-strategy.de)



## Brazilian-German collaborative research initiative on smart connected manufacturing (BRAGECRIM)

Growing competition from countries with low-cost work forces is putting enterprises worldwide under considerable pressure to innovate, which is compelling industries to improve the efficiency of their production processes. Hence manufacturing technology plays an essential role for sustainable development in many countries. That is why the main goal of this cooperation initiative is the sustainable strengthening of industry in Brazil and Germany through basic and applied research.

“

*We hope for a knowledge transfer to enterprises, since this would contribute to the creation of new companies”*

To cope with the current trade scenario, it is necessary to ‘think global’ when planning industrial processes. The expanding exchange of research experiences and information within the BRAGECRIM network creates a highly qualified environment conducive to the emergence of new manufacturing solutions, such as an increase in the level of automation or better management of quality, innovation and information.

Dr.-Ing. Reinhard Freudenberg, who has been a part of the initiative since its very beginning, explains that at first the focus was on the entire production chain: from energy supply and raw materials exploration, product development, production planning, machining and distribution, all the way through to final use, repair and recycling. “Now we are focusing on Industry 4.0, which means improving the efficiency and quality of the entire process by using sensors that allow us to speed up production more accurately and

prevent breakdowns”, explains Prof. Tilo Pfeifer, the German coordinator of the initiative.

The selected projects prioritise current hot topics, such as the use of simulation for staggering dynamic production systems and the optimisation of logistics chains. “We decided to focus on digital transformation, for instance the development of a learning tool based on a virtual factory, which enables us to study the entire process and improve it in the real world”, says Pfeifer.

Prof. Carlos Eduardo Pereira, the Brazilian coordinator of the initiative, highlights the fact that many of the techniques developed by the researchers of BRAGECRIM may be applied not only by large companies but also by small or medium-size businesses, helping them to become more competitive. “We hope for a knowledge transfer of the results to enterprises, since this would eventually contribute to the creation of new companies by Brazilian and German students from this initiative, leading to a growing consolidation of relations between both countries”, Pereira says.

In the future, CAPES and DFG will adopt the principle of bilateral projects interconnected in a network-like structure, such as the one used in BRAGECRIM, to other fields of research. In this structure, a central coordinator on each side organises meetings and workshops in order to ensure dialogue between the projects within each area of research. Regular publishing of calls will enable the establishment of networks in areas such as Chemistry, Industry 4.0/Advanced Digitalisation and Law. ◀

### OVERVIEW

A German-Brazilian research programme to generate technological knowledge that enables innovative solutions and hence improves the productivity, quality and sustainability of manufacturing companies.

**DURATION:** Since 2008

**SUBJECT AREAS:** Production Management and Operations Management

**INVOLVED INSTITUTIONS:** Over 30 Brazilian and German universities, research institutes and industrial partners

**PARTNER ORGANISATIONS:** Funded by the Federal Agency for Support and Evaluation of Graduate Education (CAPES). Partly funded by the National Council for Scientific and Technological Development (CNPq) and the Brazilian Agency for Research and Innovation (FINEP).

**DFG PROGRAMME:** Research Grants

**WEBSITE:** [www.bragecrim.rwth-aachen.de/](http://www.bragecrim.rwth-aachen.de/)

# Dynamic phenomena in complex networks: fundamentals and applications

Number of  
participants:  
**156**

What do your brain, global meteorology, the distribution of electricity in a country and websites such as Facebook have in common? If you thought of networks, you are on the right track. That is why physicists, mathematicians, climatologists, biologists and geographers work together in this International Research Training Group (IRTG) to understand the functioning of large complex systems in various fields of application, ranging from neuroscience, engineering and earth sciences to sociology and economics. This ambitious study is only possible with a strong interdisciplinary approach.

The group aims to go beyond the usual studies on fixed topology by investigating

the principles of self-organisation in evolving complex networks, as well as the influence of heterogeneity in the network structure, multiscale time delays and stochasticity. These theoretical studies are connected with the investigation of experimental and natural dynamical networks, from lasers and hybrid networks of neurons through to the Earth system.

Our (extremely) complex Earth system is a special challenge for network theory, and the focus of this IRTG. The main objective is to understand the functioning of the Earth's subsystems under changing conditions, especially global warming and deforestation in the Amazonian rainforest. "This topic can yield vital discoveries that may directly affect people's lives, such as the prediction of tropical downpours and other potential natural disasters", explains Prof. Jürgen Kurths, the German PI of the IRTG.

"We are living in a world where interaction permeates everything", says Prof. Elbert Macau, the Brazilian PI of the

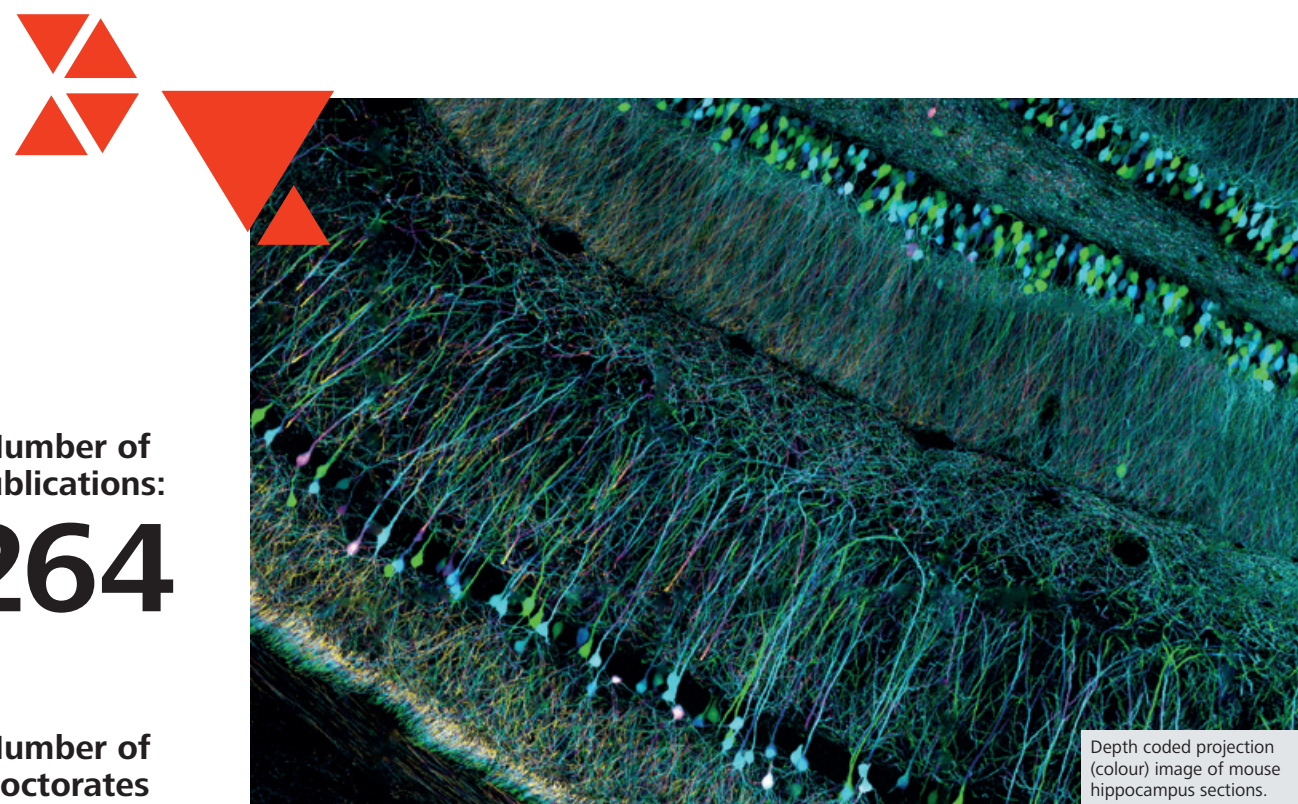
Number of  
publications:  
**264**

Number of  
doctorates  
concluded:  
**87**

group. Hence, interchange is not only the subject but also the research method of this IRTG, in which international collaboration plays a central role. The key goal is to develop a doctoral programme that enables early career researchers to work across various fields of network applications. It comprises education about modern theoretical concepts and training on network applications, involving "hands-on"

experiments and including dual supervision of each student, annual schools, workshops, teleconferences, e-learning and wikiversity.

Even though researchers take advantage of online interaction, face-to-face meetings are considered vital. "The complementary expertise of the participants often leads to vigorous debate. But sometimes, all it takes is to sit together over a glass of wine for new ideas to emerge", Prof. Kurths says.◀



## OVERVIEW

A German-Brazilian IRTG to study the principles of self-organisation in evolving complex networks with an interdisciplinary approach.

**DURATION:** Since 2011

**SUBJECT AREAS:** Biology, Physics, Geology, Mathematics, Climatology and Neuroscience

### INVOLVED INSTITUTIONS:

- ▶ Humboldt-Universität zu Berlin
- ▶ Potsdam-Institut für Klimafolgenforschung (PIK)
- ▶ Universidade de São Paulo (USP)
- ▶ Instituto Nacional de Pesquisas Espaciais (INPE)
- ▶ Centro Nacional de Monitoramento e Alerta de Desastres Naturais (Cemaden)
- ▶ Universidade Estadual de Campinas (UNICAMP)
- ▶ Universidade Federal do ABC (UFABC)
- ▶ Universidade Federal do Estado de São Paulo (UNIFESP)

**PARTNER ORGANISATION:** São Paulo Research Foundation (FAPESP) - Thematic Projects

**DFG PROGRAMME:** International Research Training Group (IRTG)

**WEBSITE:** [www.physik.hu-berlin.de/de/irtg1740](http://www.physik.hu-berlin.de/de/irtg1740)

# Magnetic fields of massive stars and their compact remnants

How do galaxies form and evolve across the universe? Massive stars are the major agents that have driven the evolution of galaxies throughout cosmic history. There is growing evidence that magnetic fields play an important role in their development. This project has united previously separate efforts in Germany and in Chile to understand the evolution of magnetic fields of massive stars, from their birth to their final stage as compact remnants (white dwarfs or neutron stars). Combining an analysis of existing observational data, rigorous physical reasoning, analytical calculations and well-

focused numerical computations, Chilean and German researchers have addressed challenging questions in their field. "Stars consist of plasma, i.e., a gas made of charged particles (electrons and atomic nuclei). As moving charged particles induce magnetic fields, they are essentially expected in all types of stars. However, since it is difficult to incorporate them into stellar models, they are mostly neglected. In our project, we made an effort to find observational evidence for magnetic fields in young and evolved stars, and to find ways to incorporate them into stellar models, with the aim of predicting the

Number of publications:  
More than  
**20**

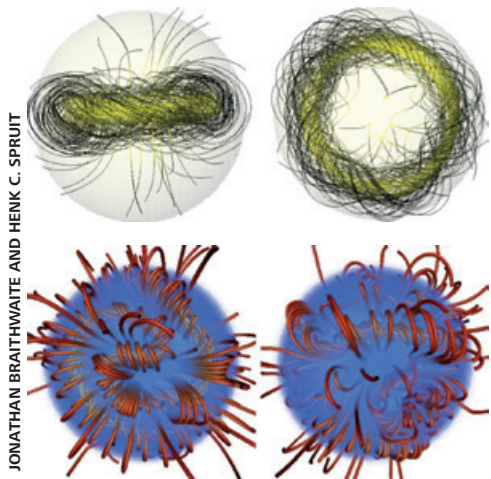


Prof. Andreas Reisenegger's research group in Santiago.

PROF. ANDREAS REISENEGGER

effects of those fields on the appearance and evolution of stars", explains Prof. Norbert Langer, the German PI of the project. One of the highlights of this study was the discovery of several highly magnetised massive main sequence stars, which add to the evidence that about 10% of them possess strong, large-scale magnetic fields.

The scientists also developed computer models of evolving stars with magnetic fields and discovered that the large number of blue supergiant stars could be explained by the presence of strong fields inside massive stars. In particular, the famous Supernova 1987A, which was the explosion of a blue supergiant star, could be explained in this way. "Specialists with the required expertise are very rare worldwide. It would have been impossible to pursue this project in a national framework. It was great that the DFG-CONICYT initiative allowed this collaboration, which otherwise would have been very difficult to fund", says Prof. Langer. "An interesting aspect of our project was the participation of a postdoctoral researcher, Dr. Joseph Mitchell, working in Santiago and in Bonn. He provided a strong link between both groups, which motivated three Chilean Master's students to continue their education as PhD students in Bonn", enthuses Prof. Andreas Reisenegger, the Chilean PI of the project. ◀



JONATHAN BRAITHWAITE AND HENK C. SPRUIT

Simulated magnetic fields of stars.

## OVERVIEW

This project united efforts in Germany and Chile to understand the evolution of magnetic fields of massive stars, from their birth to their final stage as compact remnants.

**DURATION:** From 2012 to 2016

**SUBJECT AREAS:** Astrophysics and Astronomy

**INVOLVED INSTITUTIONS:**  
▶ Rheinische Friedrich-Wilhelms-Universität Bonn  
▶ Max-Planck-Institut für Astrophysik (MPA)  
▶ Pontificia Universidad Católica de Chile  
▶ Universidad de Chile

**PARTNER ORGANISATION:**  
National Commission for Scientific and Technological Research (CONICYT) - Proyecto de Investigación Conjunta

**DFG PROGRAMME:** Research Grants

**WEBSITE:** [bit.ly/magnetic-project](http://bit.ly/magnetic-project)

# EarthShape: Earth surface shaping by biota

The overarching research question of this project is how microorganisms, animals, and plants influence the shape and development of the Earth's surface over time scales from the present day to the distant geologic past. These interactions control how soils form, how water flows along the land surface, how



EARTHSHAPE



Number of doctorates:

20

Number of papers published:

16

valleys are lowered and ridges rise, and what vegetation grows in different climate zones.

EarthShape straddles a number of scientific disciplines and includes geoscientists, soil scientists, ecologists, and microbiologists to study this complex question from different viewpoints. Approximately 60 German and 20 Chilean researchers are involved in a diverse range of projects in this Priority Programme.

All study sites are located in the Coastal Cordillera Mountains trending north to south in Chile. These sites stretch from the Atacama Desert in the north to the Araucaria forests approximately 1,300 km to the south. The site selection contains a large ecological and



EARTHSHAPE

climate gradient ranging from very dry to humid climate conditions.

"The project improves our understanding about how biota influence the shape and functioning of the Earth's surface. This is important because it will improve our ability to predict how each surface will respond to future vegetation changes associated with climate and global warming", explains Prof. Todd Alan Ehlers, co-coordinator of the programme at Eberhard Karls Universität Tübingen.

Chilean researchers benefit from the project in a variety of ways, generating more knowledge of their own country, as well as developing new international collaborations and strengthening existing ones.

In 2019, the second phase of EarthShape will start with a kick-off meeting involving a group excursion to the four research sites in Chile. At this meeting, there will be interdisciplinary discussions at the sites and focused discussions on how biological processes influence the Earth's surface.

"With the interdisciplinary nature of EarthShape we are advancing into uncharted scientific territory. This project thus provides not only a substantial challenge, but also a unique opportunity to shape a new field", says Prof. von Blanckenburg, co-coordinator of the project at the Deutsches GeoForschungsZentrum (GFZ). ◀



OVERVIEW

This initiative studies how biological processes form soil, influence topography and impact sedimentation and erosion as a function of time. A diverse range of disciplines from the geo- and life sciences come together in this project in four focus areas in Chile.

DURATION: Since 2015

SCIENTIFIC AREA: Geosciences

PARTICIPATING INSTITUTIONS: Countless, led by Eberhard Karls Universität Tübingen and the Helmholtz-Zentrum Potsdam / Deutsches GeoForschungsZentrum (GFZ)

DFG PROGRAMME: Priority Programme

WEBSITE: [www.earthshape.net](http://www.earthshape.net)

# Humanitarian microwave detection of improvised explosive devices in Colombia (MEDICI)



Number of participants:

14

Colombia is the only country in Latin America where anti-personnel landmines and improvised explosive devices (IED) continue to be laid regularly. At least 10,253 Colombians have fallen victim to these devices between 1990 and 2013. In contrast to conventional landmines, IEDs are fabricated in a nonstandard way with every-day objects, having a variety of shapes, triggering mechanisms and explosive content, and low metal content. This variability reduces the suitability of traditional detection methods. The main goal of MEDICI is the exploration of novel mine detection procedures that are independent of the mine's design.

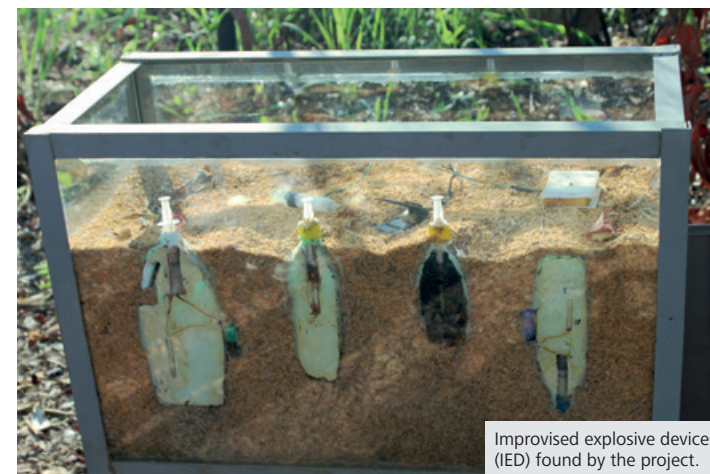
"The starting point of the project was a workshop in Bogotá organised by the DFG in

2012. We discussed the fact that a project regarding landmine detection was not only interesting from a scientific point of view, but also from a humanitarian perspective. MEDICI was also the starting point for the founding of the IEEE Special Interest Group on Humanitarian Technology (SIGHT) Germany Section in 2017, currently based at the Ruhr-Universität Bochum", explains Dr.-Ing. Christoph Baer, one of the German PIs of the project.

The key research topics that lead to highly precise mine detection procedures include the design of a novel, fully free-space calibrated, 8-port polarimetric UWB radar; the development of a real-time, high-precision adjustment and tracking system; the design

Number of papers published:

8



of a full environmental randomised simulator that provides statistical data for IED detection algorithms; and the investigation of highly efficient IED detection algorithms from gathered data.

These research activities are designed to simplify and accelerate the demining process in Colombia. "We are investigating and combining state-of-the-art radar technology in order to do that. However, this work must be done in close collaboration with the demining personnel themselves to increase trust in this novel technique. Technology transfer by itself is not sufficient, which is why I started to offer radar lectures at our collaborating universities to support the education of Colombia's next generation of engineers", adds Dr. Baer.

Beside the technical developments, the project has had a great impact in respect of internationalisation and intercultural understanding. "When we bring researchers together, we connect cultural aspects and people start to think outside the box. It is the perfect opportunity to reduce stereotypes and to connect people all over the globe. Since everything is based on common research, discussions never get boring and our connection has a very solid foundation. We recently submitted follow-up projects and started to work on a broad student exchange programme. Therefore, I am looking forward to a productive and connected common future", concludes the researcher. ◀

## OVERVIEW

The main goal of MEDICI is the exploration of new mine detection procedures that are independent of the mine's design.

**DURATION:** From 2014 to 2017

**SCIENTIFIC AREAS:** Communications, High-Frequency and Network Technology, Theoretical Electrical Engineering

### PARTICIPATING INSTITUTIONS:

- ▶ Ruhr-Universität Bochum (RUB-EST)
- ▶ Technische Universität Ilmenau (TUI)
- ▶ Universidad Nacional de Colombia (UNC)
- ▶ Universidad de los Andes (Uniandes)

### PARTNER ORGANISATION:

Administrative Department of Science, Technology and Innovation (COLCIENCIAS)

**DFG PROGRAMME:** Research Grants

**WEBSITE:** [bit.ly/medici-project](http://bit.ly/medici-project)

# Communication and cognition in bats – a biolinguistic approach

Number of publications:

9



Mirjam Knörnschild and flying bat, *Saccopteryx bilineata*.

CLAUDIA RAHLMEIER

The bat *Saccopteryx bilineata* is a highly interesting species for the study of syntax production and perception because it is one of the few mammals capable of vocal imitation, which constitutes a key component of human language. In this project, funded under the Heisenberg Programme with additional support in the form of a Research Grant, Dr. Mirjam Knörnschild studies syntax ontogeny, regional syntactical differences and syntax flexibility. Using an interdisciplinary approach, she applies techniques originally developed for computational linguistics to study syntax in bat vocalisations.

“I am interested in the communicative and cognitive abilities of bats because they have excellent control over their vocal tract due to their echolocation ability. This makes this taxon very interesting for comparative studies on vocal learning and acoustic communication. My lab is currently studying the occurrence and maintenance of regional bat dialects and their importance for communicating with conspecifics”, explains Dr. Knörnschild.

Within this research, she seeks to establish bats as a mammalian model

to study proximate and ultimate causes of language evolution in a comparative approach. “Some bat species are elaborate singers, comparable to songbirds. Despite their versatile performance, vocal communication in bats is still understudied, but an increasing number of people are beginning to contribute to this field of research. So I am convinced that many more exciting facts about bat communication will be revealed in the coming years”, the researcher enthuses.

The German biologist has been studying bats for over ten years and hopes to find a permanent position as a group leader at a research facility or as a professor at a university, which will be facilitated by the Heisenberg Fellowship. After carrying out her MSc and doctorate research in Costa Rica, she has developed deep connections to this country. “Costa Rica is ideal for long-term behavioural studies because it is politically stable, a safe place to work and has great access to protected areas. The amount of field research in ecology, ethology and conservation in Costa Rica is astounding”, says Dr. Knörnschild. ◀

## OVERVIEW

The project studies syntax production and perception in bats by using different observational, experimental and computational linguistic approaches.

**DURATION:** Since 2015

**SUBJECT AREAS:** Sensory and Behavioural Biology

**PARTICIPATING INSTITUTE:** Freie Universität Berlin

**DFG PROGRAMME:** Heisenberg Fellowship + Research Grants

**WEBSITE:** [www.mirjam-knoernschild.org](http://www.mirjam-knoernschild.org)

# Environmental changes in biodiversity hotspot ecosystems of South Ecuador: RESPonse and feedback effects (RESPECT)

This Research Unit (RU) is pursuing a long-term study of biodiversity and interaction with the biogeochemical cycle in the Andes of Ecuador, which started in the late 1990s and continued through several projects funded by the DFG. The main objective of RESPECT is to reveal how ecosystem biomass production and water fluxes in the Tropical Mountain Forest biodiversity hotspot will be affected by future climate and land-use changes through alterations in response and effect traits.

Over almost 20 years of research, the adverse impacts of ongoing environmental change were observed. The pressing task is to calculate future projections on the manner and extent to which the great wealth of biodiversity and ecosystem services (such as production of water for supply and hydro-

power generation) might be impacted by environmental change, and what measures could be taken to mitigate or even prevent adverse effects.

The previous RU “Biodiversity and Sustainable Management of a Mega Diverse Mountain Ecosystem in South Ecuador” pursued the goal of developing sustainable, science-directed land use options in areas where the natural forest was cleared by slash-and-burn activities of the local farmers. In particular, interrelationships between organisms and their abiotic environment were examined in field exploration and ecological experiments to understand the functionality of the natural and utilised compartment of the mountain ecosystem. Models of selected subsystems were developed to test the impact of various land use scenarios before its implementation.

The researchers have established deep, trusting and vigorous cooperation with the leading local universities and their scientists, but also with public and private non-university cooperation partners active in the environmental sector.

“Two ecosystem processes are of high priority for Ecuador: biomass production and water fluxes. Both are influenced by the state of the atmosphere (climate forcing) and the response of the ecosystem to this

Number of doctorates:

39

concluded

42

ongoing



PIs and PhDs during plot establishment on the pasture.

forcing. To give an example: under future drought conditions, vegetation might suffer. The number or size of leaves might reduce, which means reduced biomass production and carbon sequestration, as well as less transpiration, changing the water cycle”, explains Prof. Jörg Bendix, the German spokesperson of the RU.

The research can be used to run through different scenarios for future land

use, leading to watershed rehabilitation and ensuring a robust supply of potable water and hydro-power services of the ecosystems. It is also able to identify the best adapted and sustainable land use systems resistant to climate change. The introduction of those systems would support the long-term welfare of local farmers and the protection of the natural ecosystem with its high biodiversity. ◀

## OVERVIEW

The overall objective of RESPECT is to reveal how ecosystem biomass production and water fluxes are affected by climate and land use changes in the south Ecuadorian Andes.

**DURATION:** The research started in 1997 with a bundle project leading into the RU402, which lasted until 2006; continued in the project FOR816 from 2007 to 2013; then evolved into the programme PAK823-825 in 2013. The latest programme, RU2730, began in 2018.

**SCIENTIFIC AREAS:** Biology, Geosciences and Geomodelling

**PARTICIPATING INSTITUTIONS:** Numerous, led by the Laboratory for Climatology and Remote Sensing of Philipps-Universität Marburg

**DFG PROGRAMME:** Research Unit

**WEBSITE:** [www.tropicalmountainforest.org](http://www.tropicalmountainforest.org)

# Between Spaces – movements, actors and representations of globalisation

Between Spaces was a nine-year-long International Research Training Group (IRTG) which studied globalisation from a new angle, aiming to access the wide range of transcultural, translocal and transregional interactions in interstitial spaces from a transnational perspective.

With its headquarters at the Institute for Latin American Studies of the Freie Universität Berlin and at El Colegio de México and composed of an international network of scholars from the humanities and social sciences, the initiative cooperated with partner institutions in Berlin, Potsdam and Mexico City.

The contemporary globalisation experience has induced both social sciences and humanities to inquire after the movements that form and transform space and spatial orders. Over the centuries, different movements and actors have continually produced new spaces of

action and interaction as well as transnational and transregional interconnections within Latin America, between the Americas and on a global scale. The research programme focused on these movements, actors and representations.

“First, we looked at this phenomenon from a Latin American perspective. Second, we did so taking into account its deep historical roots, which date back to the beginning of European colonialism in the 15th century. We asked: Who were the people active in globalisation processes, who and what moved beyond the borders, and how did people represent these processes in various media?”, explains Prof. Carlos Alba Vega, Mexican PI of the group.

The objective of the studies conducted was to give people a broader understanding of what globalisation has been and has meant for Latin Americans of different social classes, ethnic groups and genders over the course of five centuries.

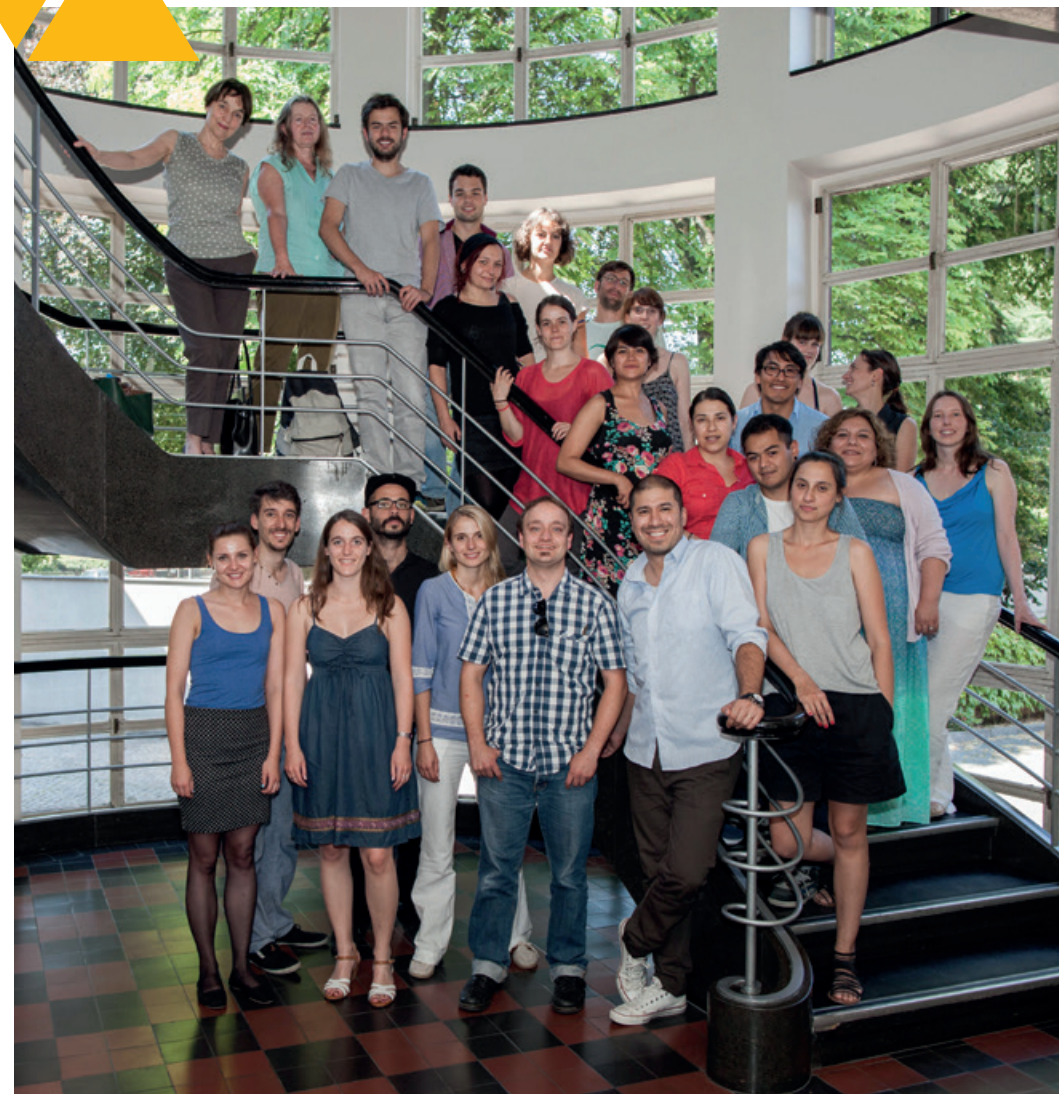
“This project was possible only because of the close cooperation between researchers from around the whole world based at Mexican and German institutions. The spirit of cooperation on equal terms over a relatively long period proved to be highly effective, producing countless publications and more than one hundred doctorates”, says Prof. Stefan Rinke, German PI of the project. ◀

Number of doctorates:

122

Number of papers published:

198



## OVERVIEW

This project aspired to new perspectives in the study of globalisation, seeking to contribute to the reorientation of area studies by means of a dialogue between disciplines in the social sciences and humanities.

**DURATION:** From 2009 to 2018

**SCIENTIFIC AREAS:** History, Social and Cultural Anthropology, Political Sciences, Sociology, Economics, Literary and Cultural Studies

### PARTICIPATING INSTITUTIONS:

- ▶ Freie Universität Berlin
- ▶ Humboldt-Universität zu Berlin
- ▶ Universität Potsdam
- ▶ El Colegio de México (COLMEX)
- ▶ Universidad Nacional Autónoma de México (UNAM)
- ▶ Centro de Investigaciones y Estudios Superiores en Antropología Social (CIESAS)

**PARTNER ORGANISATION:** National Council of Science and Technology (CONACYT) - Programa Internacional de Graduados

**DFG PROGRAMME:** International Research Training Groups (IRTG)

**WEBSITE:** [www.lai.fu-berlin.de/en/entre-espacios/](http://www.lai.fu-berlin.de/en/entre-espacios/)

# Hells Bells – microbially generated underwater speleothems from Yucatán, Mexico

During ongoing investigation into the archaeological and palaeoecological gearchives preserved in the submerged Yucatan cave system, scientists recently discovered a previously unknown type of pendant speleothem, some of which measure at least a metre, in the El Zapote and other sinkholes located west of Puerto Morelos on the Mexican Yucatán Peninsula. Called “Hells Bells” by the local community due to their conical shape, these calcareous structures aroused the researchers’ curiosity due to the enigma of their formation, which – they hypothesise – is related to microbiotic activity.

Hanging speleothems, also called stalactites, result from physicochemical processes in which water high in calcium carbonate dries up. Normally, they rejuvenate and form a tip at the lower end. The formations in El Zapote, however, expand conically downward and are hollow with

round, elliptical cross-sections. Unique in shape and size, these pendant forms grow in a lightless environment near the base of a 36m freshwater unit immediately above a zone of oxygen-depleted and sulphide-rich toxic saltwater. Uranium-thorium dating verifies that these formations must have grown during the past ten thousand years and up until modern times, proving that the Hells Bells must have formed at a time when the deep regions of the cave had already been submerged for thousands of years.

“According to our data, the formation of Hells Bells is clearly tied to specific hydrological and biochemical conditions near the halocline, the layer that separates the freshwater from the underlying saltwater. Bacterial biofilms present on the lower surface of modern individuals are conformed by microbe assemblages different from the surrounding water. If our interpretation proves to be correct and Hells Bells’ growth is conditioned to the precise position of the halocline, we may have an independent new tool to establish the depth position of this layer through time, and thus for precipitation on the northern Yucatan



HELLS BELLS PROJECT

Diver among Hells Bells from El Zapote, between 30 and 35m water depth.

Peninsula”, explains Prof. Wolfgang Stinnesbeck, the German PI of the project.

“This climate register allows us to understand the climate changes that occurred at the end of the Pleistocene (Ice Age) when the ecosystems in North America suffered drastic changes. Our project is part of a larger study under way since 1999 that seeks to determine the arrival of the first humans in this territory and their role in the extinction of more than 70% of mammals that existed in our continent, such as elephants, sabre-tooth cats, camels, and sloths”, adds Dr. Arturo González, the Mexican PI.

“This project has only been possible with binational cooperation. Our Mexican partners showed us the site, eased our way in the local diving community and provided the complex logistics needed to sample in a >50 m deep underwater cave partially conformed by a toxic H<sub>2</sub>S-rich environment. The Heidelberg group provided the lab facilities and comprehensive knowledge on hydro-geochemistry and petrography, while genome sequencing is being provided by the Karlsruher Institut für Technologie”, says Stinnesbeck. ◀

## OVERVIEW

A pioneer study of the Hells Bells, uniquely shaped and sized speleothems from the caves of Yucatán, Mexico, which may reveal the history of local precipitation.

**DURATION:**  
Since 2017

**SUBJECT AREAS:**  
Geology and Palaeontology

**INVOLVED INSTITUTIONS:**  
▶ Naturkundemuseum Karlsruhe  
▶ Universität Heidelberg  
▶ Museo del Desierto Saltillo

**PARTNER ORGANISATION:**  
National Council of Science and Technology (CONACYT) - Proyectos Binacionales de Desarrollo Científico (FONCICYT)

**DFG PROGRAMME:**  
Research Grants

**WEBSITE:** <http://bit.ly/project-hellsbells>

# FUNDING INTERNATIONAL RESEARCH

The DFG enables cross-border cooperation between researchers and supports collaboration with international partners in all its funding programmes. The DFG also launches joint calls for collaborative research projects with partner organisations abroad. Learn more: [www.dfg.de/international](http://www.dfg.de/international)

DFG support for projects with international partners is generally based on the principle of mutual responsibility. Researchers working in Germany apply to the DFG, while their partners abroad apply for funding through their respective partner organisations.

## SPECIAL PROGRAMMES

### Initiation of International Collaboration

In order to initiate and foster future bilateral projects, the DFG provides funding for preparatory trips, including research visits and guest stays, as well as workshops through this programme.

The researcher based in Germany may submit proposals at any time. The proposals must, however, be received no later than three months before the measures are implemented. The funding remains available for a maximum of 12 months after the approval date and the trips abroad or guest stays in Germany may last for up to 3 months.

**MORE INFORMATION:** [www.dfg.de/international\\_collaboration](http://www.dfg.de/international_collaboration)

## INDIVIDUAL GRANTS PROGRAMMES

Under these programmes, any researcher holding a doctorate is eligible to apply for funding to carry out a research project at a German institution.

### Research Grants Programme

This program enables scientists to research a specific topic within a limited time period of three years, renewable for a further three years. It is the most flexible grants programme and has no proposal deadline. It may provide funding for:

- ▶ Project costs: research staff, equipment, travel and publications;
- ▶ Temporary Position for Principal Investigators: funding for the leading investigator of the project;
- ▶ Mercator Fellow: an intensive, long-term collaboration with researchers in Germany and abroad. More at: [www.dfg.de/en/mercator/](http://www.dfg.de/en/mercator/)

In many cases, the Research Grants Programme can be used to fund the German side of an international collaboration project.

**MORE INFORMATION:** [www.dfg.de/research\\_grants/](http://www.dfg.de/research_grants/)

### Emmy Noether Programme

This program enables outstanding early career researchers with two to four years of postdoctoral experience to rapidly qualify for leading positions in science or for a university teaching career by heading an independent junior research group, generally for six years. Applicants from abroad are expected to continue their research careers in Germany after the funding comes to an end.

**MORE INFORMATION:** [www.dfg.de/emmy\\_noether/en](http://www.dfg.de/emmy_noether/en)

### Heisenberg Programme

The objective of this programme is to support outstanding researchers who are eligible for appointment to a long-term professorship to prepare for a senior academic role while continuing their research. It is intended for German researchers as well as appropriately qualified foreign researchers looking to pursue careers in Germany.

Once accepted into the Heisenberg Programme, researchers can choose from four types of funding or combine them as needed:

- ▶ A Heisenberg position covers your salary and provides flexible research funds.
- ▶ A Heisenberg temporary substitute position for clinicians covers a substitute to perform your normal duties and provides flexible research funds.
- ▶ A Heisenberg professorship provides funding for a temporary professorship (W2 or W3) at a German university as well as flexible research funds.
- ▶ The Heisenberg fellowship provides fixed funding per month that can be used to conduct research at an academic institution in Germany or another country. The rights and obligations at the selected institution must be negotiated and agreed individually.

- ▶ Funding is initially awarded for a three-year period and may be offered for another two years. Proposals may be submitted at any time and must conform to the relevant instructions.

**MORE INFORMATION:** [www.dfg.de/heisenberg/en](http://www.dfg.de/heisenberg/en)

## COORDINATED PROGRAMMES

These programmes offer funding for collaborative and long-term research projects involving a large group of scientists and more than one PI.

### International Research Training Groups (IRTG)

International Research Training Groups are bilateral doctoral programmes run by German universities in conjunction with universities or research institutions abroad. They promote systematic cooperation through joint research and qualification programmes, joint supervision and longer-term reciprocal research stays by doctoral researchers at the respective partner institution. IRTGs are set up by 5–10 faculty members per institution and support consecutive cohorts of 10–15 doctoral researchers from each side. IRTGs are funded for up to 9 years (divided into two funding periods of 4.5 years):

**MORE INFORMATION:** [www.dfg.de/gk/en/](http://www.dfg.de/gk/en/)

### Collaborative Research Centres (CRC)

CRCs are long-term university-based research centres, established for up to 12 years, in which researchers work together within a multidisciplinary research programme. CRCs enable researchers to pursue an outstanding research programme across discipline, institute, department and faculty boundaries, drawing together a number of individual projects.

Collaborative Research Centres consist of a large number of projects. The number and scope of these projects depend on the research programme. Individual projects are led by one researcher or jointly by several researchers. The programme aims at excellent research within the group; the development of priority areas and structural development at the applicant university/universities, interdisciplinary cooperation, support of early career researchers and equal opportunity for women and men in research. Project-specific funding as well as funding for international exchange, Mercator fellowships, networking, guest researchers and other funding pertinent to the objectives may be provided.

**MORE INFORMATION:** [www.dfg.de/sfb/en/](http://www.dfg.de/sfb/en/)

### Research Units

A Research Unit is made up of a team of researchers working together on a research project which extends beyond the funding options available under the Individual Grants Programme in terms of thematic focus, duration and finances. Research Units provide the staff and material resources required for carrying out intensive, medium-term cooperative projects (generally for six years) and often contribute to establishing new research directions. Funding opportunities for Research Units are subject to the same principles as research grants, and a budget for setting up the research group as well as national and international networking is also provided.

A Research Unit consists of various programme modules combined in accordance with the requirements of the subject matter. This allows the

research network to be designed in a relatively flexible way, providing opportunities for junior research groups and strengthening collaboration with partners outside universities or abroad.

**MORE INFORMATION:** [www.dfg.de/for/en](http://www.dfg.de/for/en)

## MORE OPPORTUNITIES

The programmes outlined in this brochure are just a few of the DFG's many funding opportunities.

Find more: [www.dfg.de/en/research\\_funding/](http://www.dfg.de/en/research_funding/)

- ▶ To identify a German counterpart, access the GERIT database, where you will find information on over 25,500 research institutes in Germany: <http://www.gerit.org/en>
- ▶ Apart from carrying out a research project in collaboration with researchers based in Germany through a bilateral project, foreign researchers may also apply for open positions in projects that already have been funded by the DFG. Check all projects supported by the DFG at: [gepris.dfg.de/en](http://gepris.dfg.de/en)

# RESEARCH MARKETING AND PROMOTION

In addition to its liaison activities and the promotion of scientific collaboration between German and Latin American researchers, our office in São Paulo also fosters awareness of research opportunities in Germany. This includes the communication of particularly interesting outcomes of projects funded by the DFG and information on funding opportunities for collaboration with German researchers.

## PROMOTING COLLABORATION

The DFG Office Latin America regularly participates in national and international conferences and accompanies activities associated with funded projects in various fields of research. It organises and promotes information events and workshops presenting research and funding opportunities in Germany, while collaborating extensively with German and foreign research and funding organisations in the process. The establishment of strategic scientific events is another important avenue for discovering potential and promoting new and promising research collaborations.

## LEIBNIZ LECTURES

Since 2009, the DFG has been presenting international lectures to foster dialogue between laureates of Germany's most prestigious science award – the Gottfried Wilhelm Leibniz Prize – the scientific community and the public in general. At least once a year since 2014, the DFG Office in São Paulo has invited Leibniz Prize laureates to give lectures and participate in related events in Latin America:

- **2018 – Prof. Dr. Gerhard Wörner**, from Georg-August-Universität Göttingen, lectured on volcanism in Buenos Aires and Santiago.
- **2018 – Prof. Dr. Michael Brecht**, from the Bernstein Centre for Computational Neuroscience Berlin and Humboldt-Universität zu Berlin, presented lectures on neurophysiology and cellular neuroscience in São Paulo and Rio de Janeiro.
- **2016 – Prof. Dr. Frank Allgöwer**, director of the Institute for Systems Theory and Automatic Control of the Universität Stuttgart and Vice-President of the DFG, lectured on cybernetics, smart energy distribution and Industry 4.0 in São Paulo.
- **2015 – Prof. Dr. Frank Kirchhoff**, from the Universität Ulm, gave a lecture on virology and the AIDS pandemic in São Paulo and Rio de Janeiro.
- **2014 – Prof. Dr. Günter M. Ziegler**, from the Freie Universität Berlin, presented a lecture on geometry and physics in São Paulo.
- **2014 – Prof. Dr. Onur Güntürkün**, from Ruhr-Universität Bochum, lectured on neuroscience in São Paulo and Rio de Janeiro.

## RESEARCH IN GERMANY

The initiative “Research in Germany – Land of Ideas” was launched by the German Federal Ministry of Education and Research (BMBF) in 2006 to promote Germany worldwide as an outstanding research location. Together with the German Academic Exchange Service (DAAD), the Fraunhofer-Gesellschaft and, originally, the Alexander von Humboldt Foundation (AvH), the DFG conducts a wide range of activities, many of them subject-specific, in Germany and around the world. This includes participation in international conferences, organisation of information events and workshops, and development and distribution of information material for a variety of target groups. These measures are designed to:

- showcase the German research landscape;
- increase the international visibility of cutting-edge research in Germany;
- increase interest in international mobility and encourage collaboration;
- improve and unlock potential for innovation.

### More information:

[www.research-in-germany.org](http://www.research-in-germany.org)



Leibniz Lecture with neuroscientist Prof. Michael Brecht.



Leibniz Lecture with mathematician Prof. Günter M. Ziegler.

## LIAISON SCIENTISTS IN LATIN AMERICA

The DFG Office Latin America, based in São Paulo, also collaborates with liaison scientists located in Mexico and Chile. They serve as contact persons and representatives for the DFG, thereby connecting it with the major local research institutions and partner organisations. They provide information about our funding activities and support the DFG in identifying the most outstanding research groups and early career researchers.



### Prof. Christina Siebe

Our Liaison Scientist in Mexico

**PROF. DR. CHRISTINA SIEBE** has been a faculty member of the Geological Institute of the Universidad Nacional Autónoma de México (UNAM) since 1993. The daughter of German parents who emigrated to Mexico in the late 1950s, she was born there and attended a German school. After graduation, she went to Stuttgart to study Agricultural Sciences at the Universität Hohenheim, where she had her first experience with international collaboration, carrying out the fieldwork for her thesis in Mexico and laboratory analysis in Germany.

“While I was doing my thesis, I really enjoyed the research. So six years later, when I got my degree, I wanted to continue researching, and completed a doctorate, which I also did partly in Mexico and partly in Germany. After that, I came back to Mexico to work at UNAM, where I’ve mainly been researching soil and pollution, and began to arrange student exchanges with the professors I’d met in Stuttgart”, Prof. Siebe explains. Through these exchange experiences, she established connections with researchers at other German universities, which led them to form a group and propose a bilateral project to the DFG and the CONACYT in 2009.

The project “Environmental dissemination and accumulation of antibiotic pharmaceuticals, pathogens, and resistance determinants as caused by wastewater irrigation” was accepted and began in 2010. “In the same year, I was invited by the DFG to become a Liaison Scientist”, says Prof. Siebe. Since then, she has been providing advice to local researchers interested in collaborating with German partners, maintaining contacts with local DFG partner organisations and coordinating scientific events. Through these activities, Prof. Siebe helps increase Mexico’s awareness of Germany as an excellent research location. ◀

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### Prof. Gudrun Kausel

Our Liaison Scientist in Chile

**PROF. DR. GUDRUN KAUSEL** is an associate professor at the Department of Biochemistry and Microbiology of the Universidad Austral de Chile (UACH) in the city of Valdivia, on Isla Teja, a fluvial island surrounded by the Calle-Calle and Cruces rivers. In 2006, she took up her post as the first DFG Liaison Scientist in Chile.

Born in Germany, Prof. Kausel completed a degree in biology and earned her doctorate at Ludwig-Maximilians-Universität München. She then started out on her international academic career by researching and teaching in Botswana, Belgium, Germany and France, before moving to Chile. In her research projects at the UACH, the professor is particularly interested in studying the effects of the environment on gene expression.

“Being a Liaison Scientist is a fascinating adventure. It makes me learn about different areas of science, such as astronomy and astrophysics, which is increasingly important for Chile and makes the country known worldwide. Indeed, Chile is a natural laboratory for those studies, because it spans for more than 4,200 km across different climate zones”, says Prof. Kausel.

“In my work for the DFG, I also focus a great deal on early career scientists. In my experience, the most powerful tools to support them internationally are Summer Schools. Lots of incredible projects and

collaborations have been conceived at these encounters. It’s the perfect platform for early career scientists trained in Germany to present their work in Chile and make themselves and their fields of research known here”, she explains.

The UACH is located in an area colonised by German immigrants in 1850. That is why the university’s connection with Germany is so strong; today it encompasses agreements with 26 institutions and double-degree doctoral programmes. The German influence is also strong in the local community: Chile’s first brewery was established in Valdivia in 1851. Nowadays, beer has also become a subject of academic research in a project coordinated by Prof. Kausel and Dr. Anita Behn (UACH), which seeks to improve the quality of beer production in the area.

Another of the UACH’s bilateral projects is the Research Center for Dynamics of High Latitude Marine Ecosystems (IDEAL). In collaboration with the Alfred-Wegener-Institut (AWI) in Bremerhaven, UACH researchers are investigating and measuring the impact of global changes on the Antarctic and Sub-Antarctic regions. ◀

#### CONTACT

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## WEB

English



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Spanish



[www.dfg.de/es](http://www.dfg.de/es)

## IMPRINT

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