



# A Scientific Stroll across the Telegrafenberg Potsdam



*Alfred Wegener Institute Helmholtz-Centre for Polar and Marine Research,  
Potsdam Research Unit (AWI)*

*GFZ German Research Centre for Geosciences*

*Potsdam Institute for Climate Impact Research (PIK)*

*Leibniz Institute for Astrophysics Potsdam (AIP)*

*Germany's National Meteorological Service Potsdam (DWD)*



# A warm Welcome

to the „Albert Einstein Science Park“ on the Telegrafenberg in Potsdam, one of the most historic scientific sites in Germany!

For almost 140 years this site has been home to research institutions whose work has a worldwide impact. It was here that the world's first Astrophysical Observatory was built and that the scientific field of geodesy and the systematic measurement of the Earth's magnetic field were established. Moreover, it is also one of the birthplaces of German meteorology.

Up to 1990 the Telegrafenberg was also the site of the Central Institute of Physics of the Earth, which was founded in 1969, and today over 1 400 people are employed here in research institutions with a global standing.

As the national research centre for geosciences and a member of the Helmholtz Association, the GFZ German Research Centre for Geosciences combines all disciplines of Earth sciences including geodesy and geoengineering under one roof. The focus of research at the GFZ is “System Earth”, i.e. the overall understanding of our planet with its interacting component parts as well as the physical, chemical and dynamic processes taking place both within its interior and on its surface. The Potsdam Research Unit of the Alfred Wegener Institute for Polar and Mari-

ne Research (AWI), also a member of the Helmholtz Association, investigates the physical and chemical processes of the polar atmosphere together with the climate history and current environmental changes in permafrost areas in Siberia, North America and the Antarctic.

The Potsdam Institute for Climate Impact Research (PIK) investigates the ecological, economic and societal impacts of global climate change and its risks and opportunities in order to provide society, politicians and economists with sound information for decision making for sustainable development.

These three research institutions form the „Albert Einstein Science Park“.

The Leibniz Institute for Astrophysics Potsdam (AIP) is based in Babelsberg and its key areas of research are cosmic magnetic fields and extragalactic astrophysics. It also develops and builds astronomical instruments and partners international astrophysical observatories and satellites projects.

The AIP is responsible for the historically significant Great Refractor telescope and the Einstein Tower solar observatory on the Telegrafenberg, Finally Germany's National Meteorological Service (DWD) also has a radioactivity measurement station located here.

The Telegrafenberg („Telegraph Hill“) received its name in 1832, when the fourth of a total of 62 stations that comprised the Prussian Semaphore telegraphic communications system between Berlin and Koblenz was erected here. However, this system was rendered obsolete in 1849 by the introduction of electric telegraphy.

The historic buildings on the Telegrafenberg were built from 1874 as scientific buildings based on designs by the architect Paul Emanuel Spieker. Spieker provided the historic functional buildings with many distinctive architectural features including two-tone facade walls, star friezes created from glazed tiles and pillars with Corinthian sandstone capitals. The multicolour facades and their strong structure bear witness to the influence of Karl Friedrich Schinkel and elements of traditional gothic architecture built in bricks.

In the 1990s buildings were erected on the Telegrafenberg that both satisfy the requirements of modern scientific constructions whilst at the same time blend with the historic architecture and the surrounding landscape. Likewise the historic scientific buildings were completely renovated and now house contemporary research infrastructure.

The Telegrafenberg evolved into its current form around 20000 years before present during the Brandenburg stage of the Vistula Ice Age (115000 – 11700 years ago). At that time Scandinavia, the Baltic Sea, parts of northern Germany and the Alps and their northern foothills were covered by glacier masses. A glacier tongue advanced across Potsdam through the Havel alluvial plain to the level of where the village of Ferch stands today. A much wider glacier also lay east of the Brauhausberg and the Telegrafenberg, which piled up stony sand as it advanced to form what is today the Saarmund push moraine with the Telegrafenberg and the Brauhausberg. The ice on both sides of this end moraine was several hundred metres thick. It did not stand still but advanced and retreated, pushing up the deposited sand during advances. Today the Telegrafenberg is 94 metres high and the entrance to the Science Park stands 72 metres above sea level.

We invite you to take a scientific stroll through the „Albert Einstein Science Park“ during which we will inform you about the continuation of the scientific tradition in state-of-the-art research facilities. You will find a map on the back of this brochure.



Die Königlichen Observatorien auf dem Telegrafenberg bei Potsdam.

Tafel XI



Ant. Springer

Wilhelm Ernst & Sohn, Berlin.

Historic map of the Telegrafenberg around 1890

## Station **1**

# Alfred Wegener Institute Helmholtz-Centre for Polar and Marine Research, Potsdam Research Unit (AWI)

Building A43 was inaugurated in 1964 to mark the 75th anniversary of the Potsdam Geomagnetic Institute and was mainly used by the administration and theoretical scientists.

From 1969 the building was used by the Central Institute of Physics of the Earth. In

the 1980s it served as the headquarters of the management of the Earth and Cosmic Sciences research area of the Academy of Sciences of the GDR.

In 1992 the Potsdam Research Unit of the Alfred Wegener Institute moved into the building.



*Alfred Wegener Institute for Polar and Marine Research, Potsdam Research Unit, A43, photo: AWI*

*The pillar forum in front of the main entrance of the GFZ German Research Centre for Geosciences in Potsdam, designed and created by the Kubach-Wilmsen team, House G-B, photo: GFZ*



## Station **2**

# GFZ German Research Centre for Geosciences

As the largest non-university research institution in Brandenburg, the GFZ currently employs around 1180 people. Some 500 employees work in the main building complex while other GFZ scientists are based in other buildings on the Telegrafenberg.

A wide range of experimental research is conducted across 5000 square metres of state-of-the-art laboratory space. In addition, the GFZ avails of over 4500 square metres of office space.

The entire complex comprises of six buildings linked with a glass bridge structure. At the western end a laser satellite observation station measures satellites' orbits. Construction work was completed and the buildings occupied in 1998.

The pillar forum outside the main entrance, designed by the „Architektenpartner Frankfurt“ features different types of rock found in the Earth's continental crust and symbolises the worldwide activities of the GFZ German Research Centre for Geosciences. The characteristic style elements (yellow clinker, red decorative strips, grey roofs) are inspired by construction features of the historic institute buildings. At the same time, the building complex blends into the natural environment: at no point do the eaves rise above the treetops. Just opposite the main entrance is the lecture hall complex, comprised of conference rooms, a canteen and a 300-seat lecture hall.





## Station **3**

*The historic  
Meteorological  
Observatory, A62,  
photo: PIK*

# Süring House, PIK and Climatological-Meteorological Measurement site, DWD

The Royal Meteorological Observatory, as it was then known, was built between 1890 and 1893. Since 1893 meteorological measurements have been continuously performed on an hourly basis here at this site (station 3a, also called the long-term meteorological station). This measurement series is one of the longest in the world taking measurements at such short intervals, some still observed by the eye. The practice of taking measurements of ground temperature at ten different depths between 2 centimetres and 12 metres is unique. In addition to conventional methods, measurements are also taken using an automatic weather station. The Potsdam weather station is one of 12 reference stations operated by the Germany's National Meteorological Service (DWD).

Süring House has been used since 2007 by the Potsdam Institute for Climate Impact Research (PIK) and the DWD, which continues to carry out the meteorological measurements. In addition to the measurement site, the employees here also use a measurement platform on the 32-metre-high tower in the north-west corner of the building. Wind, sunshine duration, visibi-

lity and radiation are measured here. However, environmental scientists from the PIK, in particular from the „Earth System Analysis“ and „Climate Impacts & Vulnerabilities“ research fields, work in most of the rooms in this house. Süring House is named after the former Director of the Meteorological Observatory, Reinhard Süring. Together with his colleague Arthur Benson, the cloud and radiation researcher achieved a record balloon ascent of 10800 metres in 1901. However, it was only possible to prove an ascent of 10500 metres because their recording ink froze so the barograph record was considered unreliable. At 8000 metres, however, the men made a key discovery for research: that from around 8000 metres the air temperature rises again and the atmosphere is divided: The transition between the troposphere and the stratosphere had been discovered.

In a neighbouring building (the former laundry) is a small museum of the history of the Telegrafenberg, Süring House and meteorology in general. Visits to the museum, which evolved from a PIK school project, can be booked in advance by groups and, in particular, by school classes.



Station **3a**

## Former Servants' Quarters, Airborne Radioactivity Measurement, DWD

In 2010 the radioactivity measuring station of Germany's National Meteorological Service (DWD) was transferred from Berlin Tempelhof Airport, which is now closed, to the Telegrafenberg. The station on the Telegrafenberg is one of 48 DWD weather and aviation weather stations and performs extensive monitoring as a radioactivity measuring station. The station is

housed - next door to the Potsdam long-term meteorological station - in the historic servants' quarters. This building was completely restored by the DWD in accordance with its status as a listed building and transformed into a new laboratory clad in weatherproof structural steel whose brown surface shimmers like a layer of rust accumulated over decades.



*The historic servants' quarters with a modern annex,  
today a GMS airborne radioactivity measuring station, A61, photo: GFZ*

Station **4**

# The former Magnetic Variation House, Laboratory for Paleo- and Rock Magnetism, GFZ

Built in 1988, this building was originally part of the „Potsdam Meteorological Magnetic Observatory“ and was used to measure the Earth’s magnetic field.

Its construction was completely out of keeping with the architectural design concept for the Science Park because for scientific reasons it was not possible to use ferrous materials such as nails, bricks and cement. The magnetic variation house was built with Wefensleben sandstone. The sandstone blocks are cut so that they grip together like a mosaic, while Rüdersdorf lime was used as a binding agent for the joints. The electrification of Potsdam disturbed obser-

vation of the Earth’s magnetic field on the Telegrafenberg to such an extent that in 1907 the variation recordings had to be moved to Seddin and subsequently, in 1930, to Niemegek, where the GFZ continues to operate one of its three magnetic observatories in Germany.

Today this building is used by the GFZ working group on paleomagnetism, which conducts research on the Earth’s magnetic field as documented in rock samples dating back millions of years.



*Paleomagnetic  
laboratory, A58  
photo: GFZ*



*The main building of the Potsdam  
Institute for Climate Impact  
Research, A31,  
photo: PIK*

## Station **5**

# The former Royal Observatory for Astrophysics, Michelson House, Potsdam Institute for Climate Impact Research (PIK)

On the highest point of the Telegrafenberg is the former head office of the Royal Observatory for Astrophysics - the world's first Observatory for Astrophysics -, which came into service in 1879. The building consists of two main wings. The north wing lies with its long axis on a meridian level. The north tower once served as a water tower while the three domes were equipped with telescopes and were mainly used to observe the sun. From a historic perspective, the building is famous above all for one of its directors, the astronomer and physicist Karl Schwarzschild, who, in 1916, found a first approach to the solution of the redshift of light in the gravity field of the sun as demanded by Einstein's theory of relativity. It was named Michelson House in honour of Albert A. Michelson, who carried out his groundbreaking interferometer experiment for the first time in 1881 in the building's basement (see also

the Leibniz Institute for Astrophysics Potsdam). The experimental design has been reconstructed on the original site in the basement of the building. It was also in this building that the scientist Ernst Rebeur-Paschwitz made the world's first record of a distant Earthquake in 1889. In 1992 the Institute for Astrophysics Potsdam (AIP) was established here. Following the transfer of its headquarters to Babelsberg the building underwent extensive restoration. In the autumn of 2001 the Potsdam Institute for Climate Impact Research (PIK) moved in. An underground annex was built next to the main entrance which houses the Institute's supercomputer, whose surplus heat is used to warm the building in winter. The PIK addresses crucial scientific and societal questions in the fields of global change, climate impacts and sustainable development.



Station **5a**

## Small Refractor, PIK

In 1887 Potsdam's astronomers agreed to take part in the production of the „Carte du Ciel“, a comprehensive photographic map of the sky. The sky above Potsdam was photographed using a double telescope in the purpose-built „Small Refractor“; the map of the stars, however, was never completed. In 1945 the telescope was taken to Pulkowa in Russia and the building fell

into disrepair until it was renovated in accordance with listed monument requirements in 2011 by the PIK. Today the building is used for scientific and artistic events.

Next door to this building you can view a reproduction of an optical telegraph (p. 3/4).







Station **6**

*The Great Refractor,  
A27, photo: AIP*

## The Great Refractor, Leibniz Institute for Astrophysics Potsdam (AIP)

The Great Refractor was inaugurated in 1899 in the presence of the Emperor Wilhelm and today belongs to the Leibniz Institute for Astrophysics Potsdam. It remains the fourth-largest lens telescope in the world and bears witness to the mechanical capabilities of the time and the astrophysical research that was taking place - in particular in the field of spectroscopy.

The telescope is a double refractor with two telescopes fixed securely together on a parallactic mount. The larger tube has an 80 centimetres objective and a focal length of 12.2 metres. The smaller tube, intended for visual observations, has an objective diameter of 50 centimetres and a focal length of 12.5 metres. The diameter of the 200-ton rotating dome is 21 metres.

A scientific highlight was the discovery of in-

terstellar matter by Johannes Hartmann. Hartmann concluded from the analysis of spectra of binary stars that the space between the stars is not empty, but permeated by gas and dust.

The Great Refractor was damaged in an air raid in 1945 and restored in 1953 before scientific research using the equipment ceased completely in 1968. It was only thanks to the efforts of the Great Refractor Appreciation Association („Förderverein Großer Refraktor Potsdam e.V.“), which was founded in 1997, and generous donations, that an extensive restoration project was carried out and a fully-functional listed telescope was finally unveiled in 2006. Today the Great Refractor is regularly open for tours and observation nights.

The lower floor of the dome building today houses the GFZ's school lab.

## Station **7**

# Einstein Tower, AIP

The Einstein Tower is the first major building designed by the architect Erich Mendelsohn and was erected between 1919 and 1924 in partnership with the physicist Albert Einstein and the astronomer Erwin Finlay Freundlich. The solar observatory is a functional building that until World War II was the most scientifically important solar telescope in Europe. The opening of the Einstein Tower in 1924 marked the start of a new era of solar research in Potsdam and Germany.

The Einstein Tower was originally built to measure the redshift of spectral lines in the sun's gravitational field, as predicted by Einstein in his General Theory of Relativity. However, solar convection resulted in a corresponding blues-

hift, interfering with the predicted effect, so experimental confirmation of Einstein's theory only came much later. In 1999 the Einstein Tower underwent a comprehensive renovation with the support of the Wüstenrot Foundation. It is still used by AIP researchers for scientific purposes today, principally for the testing of instruments that will be used in modern solar telescopes on Tenerife.

The tower telescope with a 63 centimetre aperture and spectrograph with a long focal length still comprise a very effective solar research facility and are housed in the underground laboratories. Sunlight is captured by the two mirrors - coelostats - installed in the rotating dome. A third mirror in the basement then redirects the light horizontally into the spectrographs.



*The Einstein Tower,  
A22, Foto: R. Hanna*



## Station **8**

# The former Geodetic Institute, Helmert House, GFZ

This brick building in the neo-classical style was inaugurated in 1892 as the main building of the former Geodetic Institute. It was designed as a purpose-built science building, constructed on an individual foundation, with thermally adjustable measuring rooms (to prevent alteration of the length of the gravity pendulums through thermal expansion), and separate offices, workshop rooms and conference rooms.

Under its Director, Friedrich Robert Helmert (1843–1917), the Institute swiftly gained a worldwide reputation.

Helmert, who worked out a formula for the nor-

mal distribution of gravitational forces on the surface of the Earth's ellipsoid, can be regarded as the founder of geodetic science. Today a memorial to Helmert stands north of the building on the Helmertweg.

The Potsdam value for the gravitational force of the Earth, the „Potsdam gravity value“, was measured in the Geodetic Institute from 1898 to 1904 and was the international reference value from 1909 to 1971.

Today the building houses the GFZ Satellite working group and the joint library of the „Albert Einstein Science Park“.





*Helmert Tower, with the busts of Sigmund Jähn and Valeri Bykovski in the foreground, A7-10, photo: GFZ*

## Station **9**

# The Helmert Tower and Meridian House

Built in 1892/93, the „Observatory for Geodetic-Astronomical Angle Measurements” consists of the Helmert Tower, the Meridian House and the Instrument House. These were the measurement buildings of the Geodetic Institute.

The Helmert Tower with its rotating dome was used for the remote measurement of geodetic angles and was the zero point in the Prussian Geodetic Network.

Only one of the two Meridian houses that stood here still remains today. These small corrugated iron buildings on a precise north-south axis

contained pillars for horizontal and zenith telescopes. These were calibrated with the assistance of mirare houses (small corrugated iron buildings used to adjust the meridian circle).

On the lawn between the Helmert Tower and the Helmertweg is a stele bearing the inscription: „Together on Earth and in Space.“ The busts of the first German in space, Sigmund Jähn, and his Russian colleague, Valeri Bykovski, commemorate their joint space flight (1978).



Station **10**

## Laboratory Building of the AWI Potsdam

The laboratory building of the Potsdam Research Unit of the Alfred Wegener Institute Helmholtz-Centre for Polar and Marine Research (AWI) was opened on 3 October 1999. It was designed by the architect firm Ungers & Partner.

The four-storey, semi-circular, reinforced concrete construction boasts 1119 square metres of floor space and state-of-the-art working facilities for around 50 scientists and technicians.

It houses the physical-technical and geochemical laboratories of the Atmospheric Research and Periglacial Research working groups. Notable architectural features include the central lobby, which has a separate glass roof. The rest of the roof area is greened, with excess rainwater from the roof and open areas channelled into a full drainage system, thereby easing pressure on the municipal sewage system.



*The laboratory building of the Alfred Wegener Institute, A45, photo: AWI*

## Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI)

### Potsdam Research Unit

Polar research was first conducted in Potsdam in the 19th century and is closely associated with the development of the observatories on the Telegrafenberg.

The Meteorological-Geomagnetic Observatory and the Geodetic Institute played a key role in providing advice and technical support, for example, to the Antarctic expeditions of Robert F. Scott (1910–1912), to the north-east Greenland expedition (1906–1908) of Alfred Wegener and to Roald Amundsen's polar voyage through the North-West Passage on the „Gjøa“ (1903–1907).

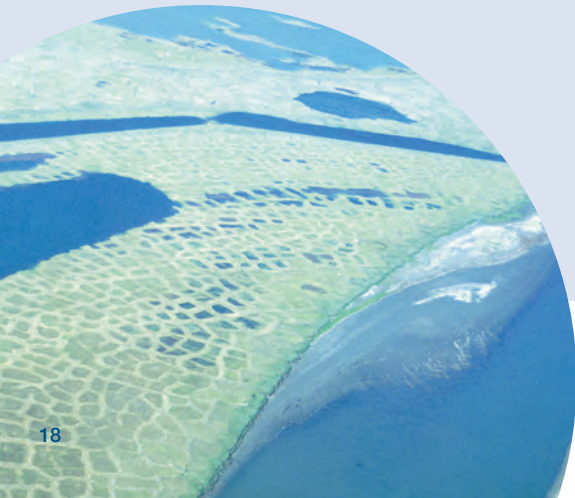
Founded in 1992, the Potsdam Research Unit of the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (AWI) pools the experience of east German polar researchers who previously were mainly active in Antarctica with the research spectrum of the Alfred Wegener Institute, which is focused on the Antarctic and Arctic. The scientific work of the approximately 140 employees, student

trainees and guests at the Potsdam Research Unit is mainly focused on analysing and modelling the role of the polar regions in the global climate system.

The polar regions play a key role in the development of the global environment and climate in the Earth System:

The polar regions with their immense ice caps, vast sea ice areas, and terrestrial permafrost regions are particularly sensitive to atmospheric alterations.

The **Atmospheric Research working group** uses the polar atmosphere as an early warning system for global changes. The main objective of the projects is to measure and model the key physical and chemical processes of the polar atmosphere in the atmosphere-ocean-ice system and assess their role in the development of the global environment and climate. The **Periglacial Research working group** uses the deposits in the permafrost regions of Siberia and the North American Arctic as an archive of long-term climate change over the last 200 years. The main focus is the monitoring and assessment of present-day environmental change caused by climate warming as evidenced by the increased thawing of permafrost terrain and the associated release of climate-relevant trace gases.



*Permafrost landscape in the Lena Delta, Siberia, photo: H. Meyer, AWI*

## Helmholtz Centre Potsdam

# GFZ German Research Centre for Geosciences

Potsdam has a tradition in geosciences stretching back over 100 years. By the end of the 19th century the city already enjoyed a global reputation in the fields of geodesy and gravity research and the work of the GFZ is in keeping with this tradition. The object of research at the GFZ is the Earth System – our planet, on and from which we live.

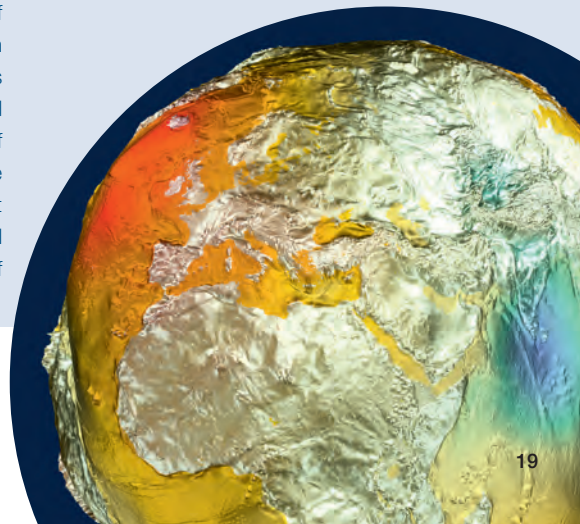
The GFZ studies the history of the Earth and its characteristics, as well as the processes which occur on its surface and within its interior. It also investigates the many interactions which exist between the various parts of the system, the geosphere, the hydrosphere, the atmosphere and the biosphere. The GFZ, which currently has a staff of approximately 1 180 employees including 380 scientists and 130 doctoral candidates, is the National Research Centre for Earth Sciences in Germany.

The GFZ, as a Helmholtz Centre, covers all disciplines of geosciences, from geodesy to geo-engineering, working in close interdisciplinary union with the associated sciences of physics, mathematics and chemistry, and with associated disciplines in engineering such as rock mechanics, hydraulic engineering and seismological engineering. GFZ's core areas of expertise lie in developing and applying satellite technologies and space-based measurement procedures; in operating geodetic-geophysical measurement networks; in the tomography of

the Earth, using geophysical deep-sounding techniques; in undertaking research drilling; in laboratory and experimental technology; in modelling geo-processes and in developing early warning systems for geo hazards.

GFZ's long-term aim is to understand the highly complex, non-linear system of the Earth and its interactive natural subsystems with their overlapping cycles and widely ramified chains of cause and effect, to comprehend the extent of global change and its regional effects, and to evaluate the influence of human activity on the "System Earth." Only on this basis, using a thorough understanding of systems and processes, will it be possible to develop strategies and demonstrate options, e.g. to preserve natural resources and to exploit them in a sustainable way, to guard against natural disasters and to reduce their risks, to sustainably utilise our habitat, both above and below the ground, and to cope with changes to the climate and the environment.

*An unusual view: the gravity field of our planet,  
15,000-fold magnification - the „Potsdam  
Gravity potato“, photo: GFZ*



## Potsdam Institute for Climate Impact Research (PIK)

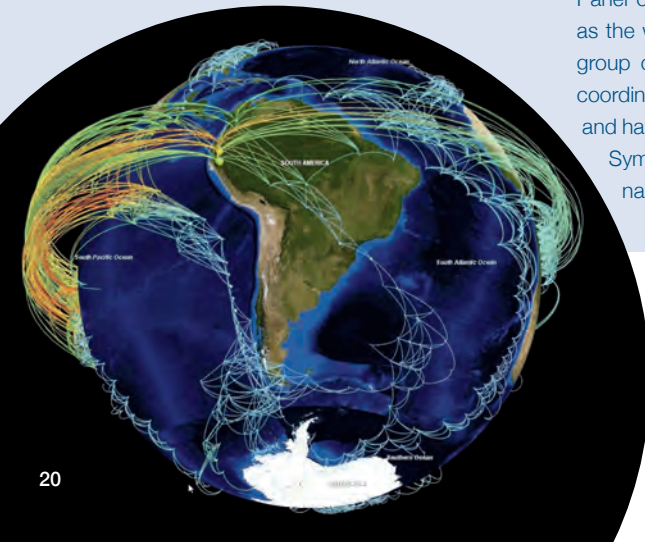
The Potsdam Institute for Climate Impact Research (PIK) was founded in 1992 and currently has a staff of around 300 members. At PIK, researchers in the natural and social sciences from all over the world work together to study global change and its impacts on ecological, economic and social systems. This Interdisciplinary approach is a distinctive characteristic of the institute. Researchers examine the Earth System's capacity for withstanding human interventions and devise strategies and options for a sustainable development of humankind and nature. This solution-oriented approach is a second distinctive characteristic.

Research at PIK is organised in four Research Domains: Earth System Analysis, Climate Impacts and Vulnerabilities, Sustainable Solutions and Transdisciplinary Concepts & Methods.

PIK generates fundamental knowledge for sustainable development primarily through data analysis and computer simulations of the dy-

namic processes in the Earth system, but also of social processes. PIK members publish their research findings in professional journals and advise policymakers in Germany and abroad. In addition to the Federal Government of Germany, the European Commission and a number of other governments, international organisations such as the World Bank also benefit from the institute's expertise. Through institutions like the Climate-KIC (Knowledge and Innovation Community) of the European Institute of Innovation and Technology (EIT), whose German branch was founded with PIK support, the institute is in continuous exchange with the business community. Understanding climate change and its impacts is a huge task that no institution or country can tackle alone. PIK is part of a global network of scientific and academic institutions working on questions of global environmental change. PIK plays an active role in activities such as the Intergovernmental Panel on Climate Change (IPCC), also known as the world's climate council, whose working group on the mitigation of climate change is coordinated by PIK researchers. PIK initiated and has co-hosted the biennial Nobel Laureate Symposium on questions of global sustainability since 2007.

*PIK investigates complex networks and dynamic processes in natural and social systems, chart: Norbert Maiwan*





## The Leibniz Institute for Astrophysics Potsdam (AIP)

The Leibniz Institute for Astrophysics Potsdam is one of Germany's leading astrophysical research institutions and its key areas of research are cosmic magnetic fields and extragalactic astrophysics. These fields are closely connected through the application of related mathematical and physical methods as well as joint instrumentation projects. A considerable part of the institute's work is devoted to the development of research technology in the fields of spectroscopy, robotic telescopes, and e-science.

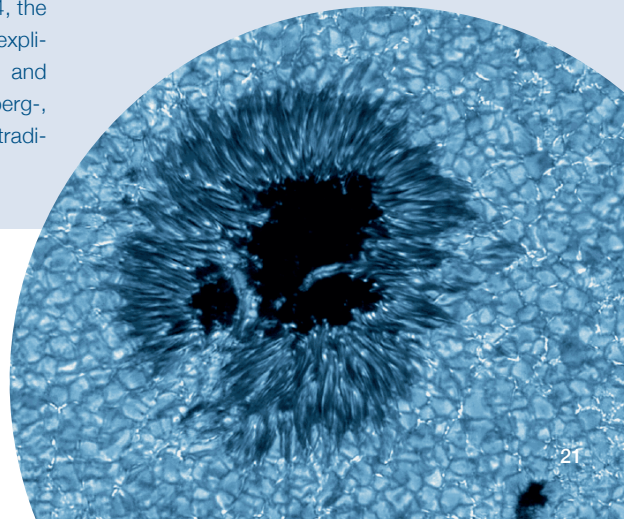
The AIP is partnering the world's largest optical telescope project, the Large Binocular Telescope in Arizona. Robotic telescopes developed by the AIP on Tenerife permit automated observation with self-learning instruments. With its computer resources the Institute is involved in e-science activities nationally and internationally.

As the successor of the Berlin Observatory founded in 1700 and of the Astrophysical Observatory of Potsdam founded in 1874, the world's first observatory to emphasize explicitly the research area of astrophysics and which was situated on the Telegrafenberg-, the AIP looks back on a long-standing tradi-

tion in Potsdam. The Institute was founded in 1992 as the Astrophysical Institute Potsdam and became part of the Leibniz Association. In 2011 the AIP was renamed to the „Leibniz Institute for Astrophysics Potsdam.

In 1881 Albert A. Michelson performed for the first time his interferometer experiment at the AOP that was of pivotal importance for Albert Einstein's Special Theory of Relativity. In 1904 Johannes Hartmann recorded stellar spectra using the Great Refractor, an achievement that led to the discovery of interstellar matter. In 1916 Karl Schwarzschild provided the first exact solution to the field equations of the general theory of relativity, today referred to as „Schwarzschild Solution.“

*Complex sunspot observed with the GREGOR solar telescope on Tenerife in July 214, photo: AIP*



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**Leibniz Institute for Astrophysics Potsdam (AIP)**  
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**Germany's National Meteorological Service (DWD)**

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Einstein Tower (model sketches by E. Mendelsohn)

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# A Scientific Stroll across the „Albert Einstein Science Park“ Telegrafenberg Potsdam

