

## **Report of the Director**

After the jubilee period 2005 - 2006, the period covered by this report can be marked as “back to normal”. As documented by the individual reports that have been prepared by the respective research groups, the year 2007 was again extremely rich in scientific activity at both sites Jungfrauoch and Gornergrat. Therefore, the main goal of the International Foundation High Altitude Research Stations Jungfrauoch and Gornergrat (HFSJG), i.e. providing infrastructure and support for scientific research of international significance that must be carried out at an altitude of 3000-3500 meters above sea level or for which a high alpine climate and environment are necessary, was successfully pursued.

### **The Foundation HFSJG**

On September 7, 2007, the Board of the Foundation HFSJG met at the Hotel Zermatterhof in Zermatt for its regular meeting. The president, Prof. Hans Balsiger, had the honor to welcome the members of the board, representatives of the Jungfrauoch Commission of the Swiss Academy of Sciences (scnat), of the Astronomic Commission HFSJG, of the Swiss National Science Foundation, and a small number of distinguished guests. Unfortunately, Mr. Balsiger had to excuse the absence of an Italian delegate. The Istituto Nazionale di Astrofisica INAF and the foundation HFSJG are currently in negotiations about INAF’s membership and financial contribution since there are no longer any scientific activities at Gornergrat involving Italian institutions. In the statutory part of the meeting the annual activity report 2006 as well as the statement of accounts for 2006 were approved unanimously and with no abstentions. The scientific part of the board meeting included three highlight talks presented by Prof. H.H. Loosli, Prof. U. Baltensperger, and Prof. J. Stutzki. The extensive and excellent scientific output that resulted from the research at Jungfrauoch and Gornergrat was recognized with great pleasure and satisfaction. The board meeting was followed on the next day by a visit to the Astronomical Observatories at Gornergrat. During the meeting, the warm and benevolent hospitality of the Burgergemeinde Zermatt and its Matterhorn Group was highly appreciated.



**Figure 1:** *Snapshots from the visit to the Astronomical Observatories at Gornergrat on September 8, 2007, after the Meeting of the Board HFSJG in Zermatt.*

The Jungfrauoch Commission of the Swiss Academy of Sciences (scnat), which looks after the interests of Swiss research within the Foundation HFSJG, held one meeting in 2007 in conjunction with the meeting of the Board HFSJG. Prof. C. Fröhlich will leave the Commission by 2008, while Prof. G. Burki, Observatoire de Genève, was elected as a new member. Prof. G.A. Tamman, president of the Commission since 2000, declared his wish to resign. Prof. M.C.E. Huber was elected as the new president of the Jungfrauoch Commission. The position of the Commission within the newly structured organization of the Academy was discussed, and the Commission will join the platform “Mathematics, Astronomy and Physics (MAP)”.

The Astronomic Commission, which acts as a users’ and science advisory committee to strengthen the Foundation’s internal and external communication, had no meetings in 2007.

In the management and administration of the Foundation no changes had to be noted.

The meeting of the Board and the General Assembly of the Sphinx AG took place at Jungfrauoch on May 30, 2007.

### **Additional scientific and public outcome of the events in celebration of the 75<sup>th</sup> anniversary of the High Altitude Research Station Jungfrauoch**

Under the leadership of PD Dr. M. Leuenberger, who acted as guest editor, the proceedings of the Jubilee Conference “Jungfrauoch – Top of Science”, held from September 11-13, 2006, at the Casino-Kursaal in Interlaken, were compiled. A total of 14 refereed contributions will finally be published by ELSEVIER in a special issue of “Science of the Total Environment”.

The work continued on the popular brochure about the scientific station at Jungfrauoch initiated by Prof. H. Balsiger. A limited edition of an updated 2nd version was prepared for the meeting of the board. The final version of “*Top Science at the Top of Europe*” is expected to be ready in 2008.

A popular review paper “75 Jahre Hochalpine Forschungsstation Jungfrauoch” was published by Prof. Hans Balsiger and the Director HFSJG in the 2007 issue of the “Mitteilungen der Naturforschenden Gesellschaft in Bern”.

### **The High Altitude Research Station Jungfrauoch**

As documented by the individual reports and the lists and statistics, the High Altitude Research Station Jungfrauoch continued to be a place of exceptionally lively and exciting research. In 2007, 36 (2006: 35) teams were active at Jungfrauoch. Among a total of 46 (2006: 37) research projects, 22 (2006: 20) were primarily based on automatic measurements around the clock.

With the exception of Austria, all member countries of the Foundation benefited from the excellent research conditions (Figure 2). By number of projects, Germany was again the second largest user after Switzerland.

Scientists spent a total of 1273 person-working days at Jungfrauoch. As shown in Figure 3, this number is about 10% higher than in 2006 and is again above the long-term average. Figure 4 illustrates the relative number of person-working days for 2007 by country. Leading in presence at Jungfrauoch were the Centre Hospitalier

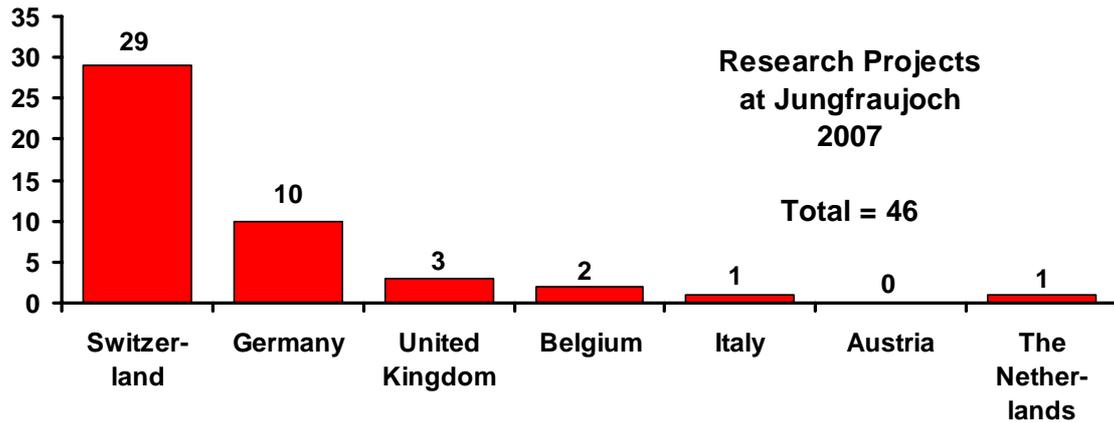


Figure 2: Number of research projects at the High Altitude Research Station Jungfrauoch by country.

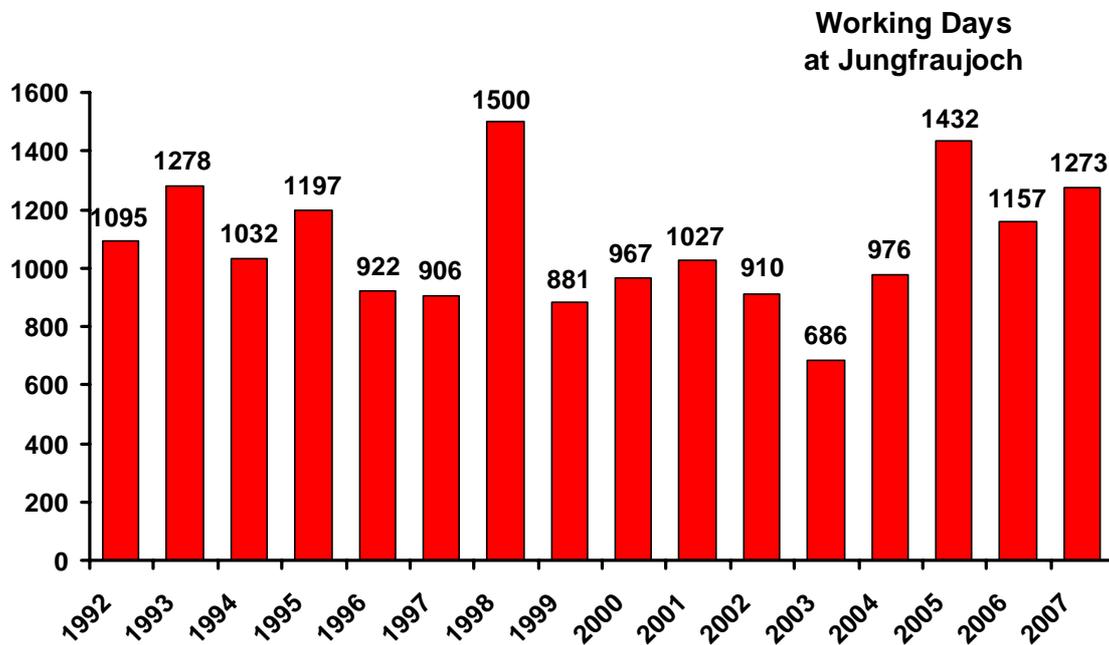


Figure 3: Number of working days spent by scientists at the High Altitude Research Station Jungfrauoch during the past years.

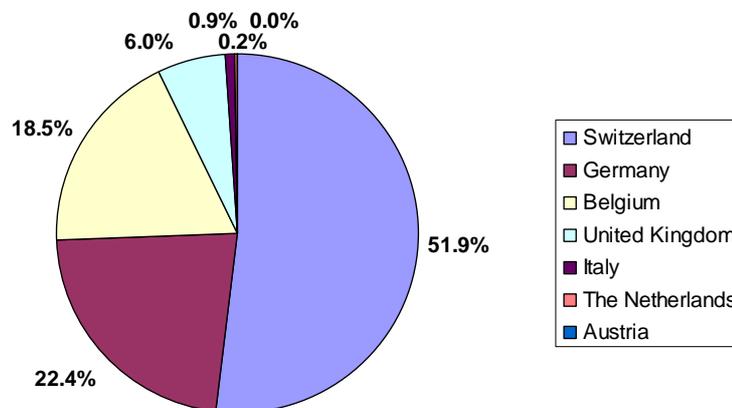


Figure 4: Relative number of person-working days in 2007 at the High Altitude Research Station Jungfrauoch by country.

Universitaire Vaudois (259 person-working days), the Institut d'Astrophysique et Géophysique de l'Université de Liège (234), the Laboratory of Atmospheric Chemistry of the Paul Scherrer Institut, Villigen (134), and the Institute for Atmospheric Physics, University of Mainz, and Max Planck Institute for Chemistry, Mainz (96).

The research conducted at Jungfraujoch resulted in the following output in 2007:

- 47 refereed publications,
- 87 conference presentations / posters,
- 14 data publications and reports,
- 1 chapter in a book on photovoltaic, and
- 4 Ph.D. theses.

At the 2007 General Assembly of the European Geosciences Union in Vienna there were more than 20 presentations with a direct reference to Jungfraujoch either in the title or in the abstract. The special session on "*The Tropospheric Ice Phase*" was a dedicated platform for CLACE results.

Due to the unique location and the unspoiled environment as well as the quality of the scientific work, Jungfraujoch has maintained its role as a leading European center for environmental research. The site plays a significant role in a number of nationally and internationally coordinated research programs, many of them funded by the European Commission. Jungfraujoch is a key station in a number of major networks or projects (please see Table 1 for details). As in previous years, Jungfraujoch environmental measurements again played an important role in the validation/calibration of satellite instruments (e.g. the Canadian ACE-FTS spectrometer onboard SCISAT-1, the Ozone Monitoring Instrument OMI onboard the NASA satellite AURA).

A special highlight in the research activity at Jungfraujoch was the Cloud and Aerosol Characterization Experiment from February 4, to March 24, 2007. The CLACE 6 measurement campaign was the sixth intensive field mission in a long-term series conducted in the past years. For the 2007 experiment more than 40 individual scientists and technicians from nine different research institutions from Germany, the United Kingdom, and Switzerland went to Jungfraujoch, and more than 25 additional instruments were installed in the Sphinx laboratory and on its outside platforms.

For studies on climate change and the consequences of global warming for the high alpine environment in general and in particular for the region of the UNESCO World Heritage Jungfrau-Aletsch-Bietschhorn (JAB), Jungfraujoch has become a research site of utmost importance. Examples illustrating this trend are the recent projects PERMOS (Permafrost Monitoring Switzerland, <http://www.permos.ch/>) and PERMASENSE (<http://cn.cs.unibas.ch/projects/permasense/>). The main objective of the PERMASENSE project is to build and customize a high-tech set of wireless measurement units for use in remote areas with harsh environmental monitoring conditions. The second goal is the gathering of environmental data that helps to understand the processes that connect climate change and rock fall in permafrost areas (Department of Geography, University of Zurich; Swiss Federal Institute for Snow and Avalanche Research SLF).

As in previous years, the High Altitude Research Station Jungfraujoch served again as a base for several scientific expeditions to the glacier area of the Jungfrau region (Paul Scherrer Institute; within the NCCR climate project VIVALDI: Variability in Ice, Vegetation, and Lake Deposits; and ETH Zürich, Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie VAW).

**Table 1:** List of major nationally and internationally coordinated networks and/or research programs where Jungfraujoch is a key station

NDACC	Network for the Detection of Atmospheric Composition Change Primary Site ( <a href="http://www.ndsc.ncep.noaa.gov/">http://www.ndsc.ncep.noaa.gov/</a> )
GAW, GAW-CH	Global Atmosphere Watch, Global GAW Station ( <a href="http://www.wmo.int/pages/prog/arep/gaw/gaw_home_en.html">http://www.wmo.int/pages/prog/arep/gaw/gaw_home_en.html</a> and <a href="http://www.meteoschweiz.admin.ch/web/de/klima/klimabeobachtungen/GAW_CH_Allg.html">http://www.meteoschweiz.admin.ch/web/de/klima/klimabeobachtungen/GAW_CH_Allg.html</a> )
SOGE	System for Observation of Halogenated Greenhouse Gases in Europe ( <a href="http://www.nilu.no/soge/">http://www.nilu.no/soge/</a> )
EARLINET-ASOS	European Aerosol Research Lidar Network - Advanced Sustainable Observation System ( <a href="http://www.earlinetasos.org/">http://www.earlinetasos.org/</a> )
GEOMON	Global Earth Observation and Monitoring of the Atmosphere ( <a href="http://geomon.ipsl.jussieu.fr/">http://geomon.ipsl.jussieu.fr/</a> )
HYMN	Hydrogen, Methane and Nitrous oxide: Trend variability, budgets and interactions with the biosphere ( <a href="http://www.knmi.nl/samenw/hymn/">http://www.knmi.nl/samenw/hymn/</a> )
EUROHYDROS	European Network for Atmospheric Hydrogen Observations and Studies ( <a href="http://www.meteor.uni-frankfurt.de/eurohydros/">http://www.meteor.uni-frankfurt.de/eurohydros/</a> )
CarboEuro-IP	Assessment of the European Terrestrial Carbon Balance ( <a href="http://www.carboeurope.org/">http://www.carboeurope.org/</a> )
EUMETNET	Network of European Meteorological Services ( <a href="http://www.eumetnet.eu.org/">http://www.eumetnet.eu.org/</a> )
SwissMetNet	Automatic Measuring Network of MeteoSwiss ( <a href="http://www.meteoschweiz.admin.ch/web/de/forschung/projekte/swissmetnet.html">http://www.meteoschweiz.admin.ch/web/de/forschung/projekte/swissmetnet.html</a> )
RADAIR	Swiss Automatic Network for Air Radioactivity Monitoring ( <a href="http://www.bag.admin.ch/themen/strahlung/00045/02372/02374/index.html?lang=de">http://www.bag.admin.ch/themen/strahlung/00045/02372/02374/index.html?lang=de</a> )
NADAM	Netz für automatische Dosis-Alarmierung und -Meldung ( <a href="https://www.naz.ch/en/aktuell/tagesmittelwerte.shtml#tabelle">https://www.naz.ch/en/aktuell/tagesmittelwerte.shtml#tabelle</a> )
NABEL	Nationales Beobachtungsnetz für Luftfremdstoffe (National Air Pollution Monitoring Network) ( <a href="http://www.empa.ch/plugin/template/empa/699/*/--/l=1">http://www.empa.ch/plugin/template/empa/699/*/--/l=1</a> )
AGNES	Automated GPS Network for Switzerland ( <a href="http://www.swisstopo.admin.ch/swisstopo/geodesy/pnac/html/en/statjujo.html">http://www.swisstopo.admin.ch/swisstopo/geodesy/pnac/html/en/statjujo.html</a> )
NCCR Climate	Swiss Climate Research ( <a href="http://www.nccr-climate.unibe.ch/">http://www.nccr-climate.unibe.ch/</a> )
Environmental research at Jungfraujoch by European research teams was again supported in 2007 through the “Access to Infrastructure” programs by	
ACCENT	Atmospheric Composition Change, The European Network of Excellence ( <a href="http://www.accent-network.org/farcry_accent/">http://www.accent-network.org/farcry_accent/</a> )
EUSAAR	European Supersites for Atmospheric Aerosol Research <a href="http://www.eusaar.net/files/activities/transnat_act.cfm">http://www.eusaar.net/files/activities/transnat_act.cfm</a>

Most of the measurements made at Jungfraujoch are publicly available via the respective databases, many of them almost in real-time.

Jungfrauoch, however, is not only a center for atmospheric and environmental research. Medical research continues to be a major research topic at Jungfrauoch. During the month of October 2007 the Centre Hospitalier Universitaire Vaudois, Lausanne, conducted a study aimed at a better understanding of possible mechanisms predisposing to pulmonary hypertension. Pulmonary-artery pressure response to hypoxia was examined in subgroups of adolescent children who had suffered from specific events during their fetal period that may have resulted in fetal programming of pulmonary hypertension. Fifty adolescent children were involved in this high-altitude study that was completed without any incident. First results are expected in 2008.

Material sciences are a further topic where the high altitude site Jungfrauoch is gaining importance. As in the years before, several experiments were conducted addressing the problem of soft errors on electronic devices due to cosmic rays, e.g. the UK consortium project SPAESRANE (Solutions for the Preservation of Aerospace Electronic Systems Reliability in the Atmospheric Neutron Environment, [http://spaesrane.com/html/articles.php?cat\\_id=1](http://spaesrane.com/html/articles.php?cat_id=1)).

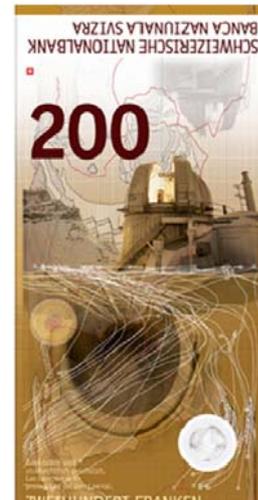
The big spark chamber, built by the Laboratory of High Energy Physics, Physikalisches Institut, University of Bern (Prof. K. Pretzl and Prof. A. Ereditato, and team), in collaboration with CERN, and installed with support by the Jungfraubahn AG in the tourist area of the Sphinx during the Einstein Year, continued operation throughout 2007.

Complementing the automatic meteorological measurements within SwissMetNet, our custodians continued the daily visual weather observations for the Federal Office of Meteorology and Climatology (MeteoSwiss). The custodians also provide the updates for the internet weather report of the Jungfraubahnen.

The Research Station, the scientific activity, and the unique environment of the UNESCO World Heritage Jungfrau-Aletsch-Bietschhorn attracted a number of visitors throughout the year. Several organizations initiated meetings of national and international scientific committees in the Jungfrau region and combined these meetings with an excursion to Jungfrauoch. The research station was also visited by a large number of student groups as part of a lecture or training school. Examples of the more than 75 individual and group visitors in 2007 are:

- Novartis Global Leadership Meeting (Vischer, Merkt & Partner AG, 10.01.2007)
- Prof. D. Rosenfeld, Prof. A. Khain, The Hebrew University, Jerusalem, Israel (Dr. J. Cozic; 20.02.2007)
- Dr. S.K. Sath, Indian Institute of Science, Bangalore, India (Dr. M. Riffler, Dept. of Geography, University of Bern; 21.02.2007)
- Prof. R. Pattrick, SEAES School of Earth, Atmospheric and Environmental Sciences, University of Manchester, UK (CLACE 6; 23.02.2007)
- Delegations of the Max-Planck-Gesellschaft München, and of the Max-Planck-Institut für Chemie, Mainz (CLACE 6; 05.03.2007)
- Prof. Neng-Huei (George) Lin, Prof. Charles J.-L. Wang, Prof. Chung-Te Lee, Delegation of the National Central University of Taiwan / Lulin Atmospheric Background Station LABS ( 2862 m) (06.-09.03.2007)
- Media Delegation Chile (Mr. M. Leitner, Counsellor, Swiss Embassy in Santiago de Chile; 09.05.2007)
- Student Group, University of Padua, Italy (Prof. A. Pitacco; 17.05.2007)
- Studium Generale, Universität Konstanz (Prof. K. Hanselmann; 26.05.2007)

- ACCENT Meeting Interlaken (Prof. E. Schüpbach; 27.06.2007)
- Berner Fachhochschule, Photovoltaik, Burgdorf (Prof. Häberlin; 13.07.2007)
- Student Group, Hokkaido University, Sapporo. Japan (Dr. T. Sueyoshi; 05.09.2007)
- Student Group, Singaporean Youth Competition, Seneko Power Singapur (07.08.2007)
- Dreiländertagung Medizinphysik 2007 (Dr. R. Mini; Dr. E. Born; 29.09.2007)
- Miss R. Cooper, Royal Society, London (25.10.2007)
- Student Group „Angewandte Glaziologie“, ETH Zürich (Prof. M. Funk; 14.11.2007)



**Figure 5:** Award-winning proposition for new CHF 200 bank note with Sphinx Observatory (Manuela Pfrunder, Zürich).

In addition to the large number of request for visits of the Research station at Jungfrauoch, there was an unbroken intense interest by print media and TV, with more than 35 contributions in 2007. The Sphinx Observatory was furthermore selected as a motif on the CHF 200 bill of the award-winning proposition worked out by Manuela Pfrunder, Zürich, for a series of new Swiss bank notes (Figure 5).

In order to provide the researchers with optimal working conditions, continuous effort is made to adapt the infrastructure to the changing needs of the researchers and to adequate standards.

In view of the increasing number of experiment campaigns with large numbers of participants, part of the researchers' floor in the research station was renovated in 2007. The sanitary tract now includes three toilets instead of only one and two showers/bathtubs instead of only one (Figure 5). Unfortunately, during the renovation work, the central telephone switchboard was damaged. It had to be replaced, including all the outdated portable wireless user phones, and a new state-of-the-art telephone system is now installed.

In the Sphinx laboratory a new central uninterruptured power supply (UPS) was installed (Figure 6).



**Figure 5:** Part of the new sanitary facilities in the research station: shower room



**Figure 6:** The new central UPS in the Sphinx laboratory

As in previous years, several coordination discussions took place with the management of the Jungfraubahnen. The annual coordination meeting at Jungfrauoch, a platform for the discussion of items of common concern, took place on December 6, 2007, and was attended by the director HFSJG and Mr. Hemund. Prime topics from our point of view were the continued efforts to avoid or minimize disturbances of the scientific measurements by emissions in connection with construction work or by apparatus defects. The concept worked out by a team of specialists together with the Jungfraubahn AG to solve the problem of the frequent situations with too high and too variable temperatures affecting the measurements of EMPA in the Sphinx laboratory could finally be realized and is now in a phase of fine-tuning. A subject of common concern is the increasing risk of falling rocks.

The reorganization of the fire fighting concept for Jungfrauoch was concluded in 2007 with the inauguration on October 11, of the “Alpenfeuerwehr”, the body now also responsible for the High Altitude Research Station Jungfrauoch.

The continuous support by Mr. Andreas Wyss, chief of technical services and maintenance division of the Jungfraubahnen at Jungfrauoch, of Mr. Fritz Jost and Mr. Heinz Schindler in all these matters is gratefully acknowledged.

On October 9, 2007, the entire research infrastructure was inspected by a risk manager of the HELVETIA insurance company. No serious risk factors requiring immediate action were reported, but a number of potentially risky items were identified that will be addressed during 2008 with different priorities.

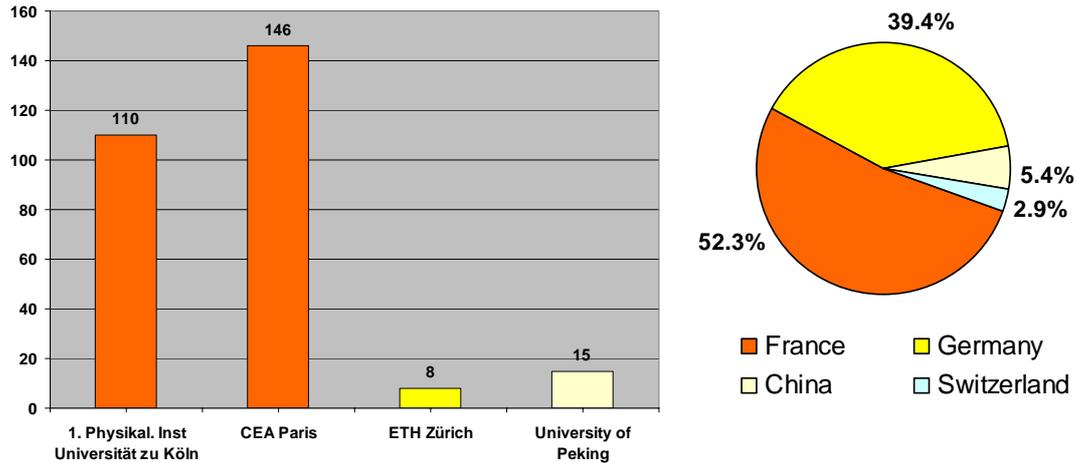
Unfortunately, our main custodians, Mr. and Mrs. Fischer, were not able to work at Jungfrauoch for two months because of illness and an accident. As in the previous year, Mr. and Mrs. Staub, former custodians, were so kind to help out during a limited time period. Much to our regret, Mr. and Mrs. Hemund, our second custodian couple, announced that they would like to resign from their duty in February 2008. We were lucky to find a qualified replacement with Mr. and Mrs. Seiler.

### **The High Altitude Research Station Gornergrat**

Due to its unique location, its clean environment, and the good infrastructure, the High Altitude Research Station Gornergrat, which at present includes the astronomical observatory Gornergrat South and a container laboratory, continues to be an excellent basis for astrophysical research.

The Observatory Gornergrat South is subleased to the Universität zu Köln. Here, the I. Physikalisches Institut der Universität zu Köln has installed the 3m radio telescope KOSMA (Kölner Observatorium für Submillimeter und Millimeter Astronomie). The central topic of the research with KOSMA, conducted jointly with the Radioastronomisches Institut, Universität Bonn, is the spectrally resolved observation of the global distribution of interstellar matter in the Milky Way and nearby external galaxies, using the important mm-, submm-lines of CO, and atomic carbon. The most advanced technical equipment combined with the excellent observing conditions at Gornergrat allows astronomical observations up to the highest frequencies accessible to ground-based instruments.

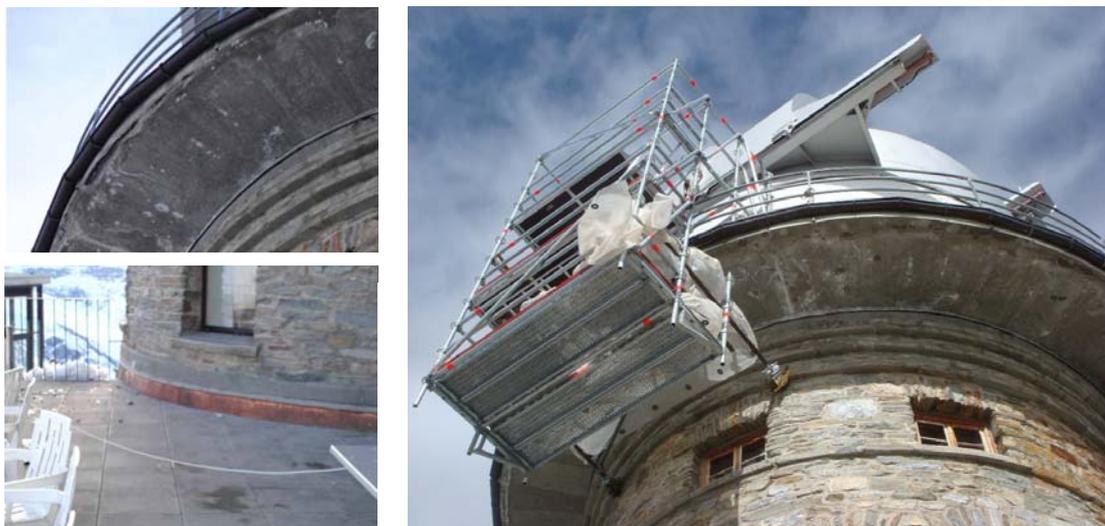
Figure 7 shows the statistics for the use of the Gornergrat South Observatory during 2007. Compared to previous years, the number of 279 working days at Gornergrat was again somewhat smaller, but still remarkable. The Observatory was again used by a significant number of guest observers.



**Figure 7:** Statistics of the person-working days at the Astronomical Observatory Gornergrat South.

The facade of a building at 3100 m asl is exposed to an extremely harsh environment. In 2006 the catwalk around the Gornergrat South Observatory showed severe damage, with pieces of loose concrete falling down to the tourist area (Figure 8). Repair was necessary. Thanks to good weather conditions, this work was completed successfully in 2007. We gratefully acknowledge the lead and the support by the Matterhorn Group in this matter.

As already stated in previous reports, the termination of the TIRGO era by the Italians leaves the future of Gornergrat North open. The Burgergemeinde Zermatt would like the Foundation HFSJG to use Gornergrat North to embed science in public outreach and tourism. The project for a robotic telescope worked out by a team of astronomers under the lead of the president of the Schweizerische Astronomische Gesellschaft, Dr. M. Hubmann, looks very promising. Financing, however, has not yet been solved, and negotiations are still ongoing. In the meantime the Observatory Gornergrat North continues to be used by an experienced amateur astronomer for astrophotography and astronomical lectures to the public.



**Figure 8:** Structural damage and repair on the catwalk at the Observatory Gornergrat South.

Since 1998, the Space Research and Planetary Sciences Division of the University of Bern has been operating a solar neutron telescope (SONTEL) on the Belvedere plateau. This detector is the European cornerstone of a worldwide network initiated by the Solar-Terrestrial Environment Laboratory of the Nagoya University for the study of high-energy neutrons produced in energetic processes at the Sun. During 2007, continuous operation of SONTEL was ongoing.

During the last couple of years the region of the Gorner glacier has become increasingly interesting to the glaciologists of the Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie (VAW) of the Swiss Federal Institute of Technology in Zurich (ETHZ). In 2007, the teams under the leadership of Prof. Martin Funk spent about 300 working days near and at the Gornersee in order to study the processes controlling the drainage of glacier-dammed lakes.

In 2007, eight scientific papers and several conference contributions were published based on work at Gornergrat. Details can be found in the individual reports. Also the Gornergrat site with its observatories was a demanded topic for media reports. A very special opportunity for public outreach was given on October 5, 2007, when the Burgergemeinde Zermatt celebrated the 100<sup>th</sup> anniversary of the Gornergrat Kulm Hotel, with the attendance not only of a large number of distinguished guests but also of federal councillor Doris Leuthard and former federal councillor Adolf Ogi. Astronomical observations at Gornergrat are also addressed in the jubilee book “*100 Jahre im Banne des Monte Rosa*” published in this context by the Burgergemeinde Zermatt.

An extremely important help for the operation of the observatories and the successful scientific work at Gornergrat is the continued support provided by the Burgergemeinde Zermatt as the owner of the Gornergrat Kulm Hotel, by the Gornergrat Bahn, and locally by Mrs. Fabienne Clemenz and Mr. Fernando Clemenz as the directors of the Kulm Hotel, and their crew.

### **Summary and Acknowledgements**

As documented by the individual activity reports, the large number of publications, and the feedback from meetings, scientific work at the High Altitude Research Stations Jungfrauoch and Gornergrat during the report period 2007 continued to be extensive and of high international standard. Due to the unique observational and measuring conditions, the Jungfrauoch station has maintained its position as a key station in a number of European and global measuring networks for climate and environmental studies. For the same reasons, even after termination of the Italian activity, Gornergrat continues to be a center for astronomical and astrophysical research. The Foundation HFSJG confirmed its role as a provider of excellent research infrastructure. The hard work and the efforts of all who contributed to this success are highly appreciated and gratefully acknowledged. We also thank all members of the Foundation and their representatives for their support. In particular, we thank the Swiss National Science Foundation for the most significant funding of the Swiss contribution, and in particular Prof. Christian Leumann (President Div. II), Dr. Paul Burkhard (Head secretariat Division II), and Dr. Jean-Bernard Weber (Deputy Director; Head Interdivisional Coordination), for the excellent and benevolent collaboration.

Operation of the High Altitude Research Stations Jungfrauoch and Gornergrat would not be possible without the help and support of many individuals and organizations.

For the Research Station Jungfrauoch, our thanks go to our custodians, Mr. and Mrs. Fischer, and Mr. and Mrs. Hemund, as well as to Mr. and Mrs. Staub. With their devotion to duty, their competence, and their ability to create a comfortable atmosphere in the station, they are providing the basis for all scientists to do good research work. Special thanks goes to the Jungfrau Railway Holding Ltd and to the Jungfrau Railways. Without their goodwill and their substantial support the Research Station at Jungfrauoch could hardly be operated. The Board of the Jungfrau Railway Holding Ltd under its president Prof. Thomas Bieger, as well as the management and personnel of the Jungfraubahnen under Chief Executive Officer Walter Steuri, are always open and positive toward our needs, which quite often conflict with touristic objectives. We gratefully acknowledge the generous direct and indirect support and appreciate the continued interest in the research activity and the scientific output. At Jungfrauoch we are particularly grateful to Mr. Andreas Wyss, chief of technical services and maintenance, and his team, and to Mr. Fritz Jost, chief Zugförderung und Werkstätte (ZfW). Our thanks also include Mr. Urs Zumbrunn, and the personnel of the Restaurant Top of Europe.

The great efforts of all these individuals and institutions would, however, be worthless if the research facilities would not be used adequately. We therefore would like to express our sincere gratitude to all scientists for their dedicated work and good collaboration, demonstrating through the excellence of their research that the High Altitude Research Station Jungfrauoch continues to fulfill an undisputed need of the scientific community.

In this sense, for Gornergrat our thanks go first to all the scientists of the I. Physikalisches Institut der Universität zu Köln (Prof. Juergen Stutzki, Dr. Martin Miller), and to the MPI for Radio Astronomy in Bonn, of the University of Bern, and of all collaborating institutions. We are also grateful to the scientists of the Versuchsanstalt für Wasserbau, Hydrologie und Glaziologie (VAW) of the Swiss Federal Institute of Technology in Zurich (ETHZ). We then thank the Brig-Visp-Zermatt Bahn (BVZ Holding AG) and, in particular, its member of the board, Mr. René Bayard. The substantial continuous support provided by the Gornergrat Bahn, by its Chief Executive Officer Hans-Rudolf Mooser as well as the entire crew, has been essential for the success of the scientific work. Finally, we are extremely grateful to the Burgergemeinde Zermatt under the presidency of Mr. Andreas Biner, the members of the Burgerrat, and to Mr. Fernando Clemenz, director of the Matterhorn Group Holding AG and of the Kulm-Hotel Gornergrat. Without their goodwill and support it would not be possible to operate a world-famous astrophysical observatory at Gornergrat.

At the administrative office in Bern I would like to thank Dr. Urs Jenzer, the technical assistant HFSJG for electronics and computers, for his proficient work. Continued assistance by the Informatikdienste of the University of Bern in networking and data transfer is also gratefully acknowledged. We have greatly appreciated the competent services of our treasurer, Mr. Karl Martin Wyss, the knowledgeable support and bookkeeping by Mr. Christian Gasser, and the professional auditing by Treuhand Cotting AG, Bern (Mr. H. Lüdi). Last, but not least, I would like to thank our president, Prof. Hans Balsiger, and our secretary, Mrs. Louise Wilson. Once again it was to a great deal due to her competence and kindness in the daily contacts with staff and scientists, to her excellency in running all the administrative affairs, and to her

devotion to the Foundation HFSJG that we could successfully pursue our goal in supporting top-level research.



Bern, February 26, 2008

Erwin O. Flückiger