Postgraduate studies in Geomatics in Switzerland

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POSTGRADUATE STUDIES IN GEOMATICS IN SWITZERLAND

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ABSTRACT

The paper will first present the current status of postgraduate studies in Switzerland. Then, more specifically opportunities for graduate studies in Geomatics will be presented. The structure and curricula of these studies, the requirements for admission, the language requirements, the procedure for recognition of foreign university graduate degrees, the length and format of studies, the examination procedures, as well as costs will be presented. Possibilities to request and get financial support for such studies will also be presented. Some information on general living conditions, costs, and administrative matters related to entrance in Switzerland and work permits will be given. Information sources for postgraduate studies in Geomatics, especially WEB-based ones, will be given. Since most postgraduate studies in Switzerland lead to a Ph.D., which is generally related to a funded project, the talk will also present the major sources of project funding. Apart from Ph.D. studies, other continuing education courses in Geomatics, like postgraduate courses and postgraduate diplomas, which could be of interest to persons from L. America, will be presented. The talk will close with an outlook and possible new developments.

1 INTRODUCTION

Switzerland is a small country but with one of the highest educational levels in Europe, including higher education. Geomatics has a long tradition and history in this country, with many world-known companies involved in geodesy, surveying and photogrammetry, like Wild and Kern previously, and Leica and LH Systems currently. Cartography has also a long tradition and Swiss maps are considered some of the best in the world. The last decade many small companies have evolved, mainly active in Geomatics and Spatial Information Sciences (SIS), as well as close-range photogrammetry, many of which are innovative and internationally active. Since Switzerland is a small and very well mapped country, with rough terrain and many clouds, Remote Sensing (RS) has been generally of less importance. However, with all these new sensors some RS applications have been developed like in weather and climate, natural hazards and resource management. There are some strong RS research groups, small innovative firms being active especially in radar and larger companies constructing satellite parts, while Switzerland is also member of ESA and EUMETSAT.

Higher education in Switzerland is mainly the responsibility of the Cantons (there are 26), whereby the local governments are responsible for the Universities. The Federal Government has control of the two Federal Institutes of Technology (SFITs) in Zurich (ETHZ) and Lausanne (EPFL), and some Annex Research Institutions (Swiss Federal Institute for Forest, Snow and Landscape Research (WSI), Birmensdorf/Zurich, Swiss Federal Institute for Environmental Science and Technology (EAWAG), Dübendorf/Zurich, Swiss Federal Institutes for Materials Testing and Research (EMPA), Dübendorf/Zurich, St. Gallen and Thun, Paul Scherrer Institute (PSI), Villigen). In addition, ETHZ has the operational responsibility for the Swiss Centre for Scientific Computing (CSCS) in Manno, Ticino. There are 3 Universities in French speaking regions (Geneva, Lausanne, Neuchâtel), 5 Universities in German speaking regions (Basel, Bern, Zurich, Luzern, St. Gallen), one mixed (German and French) in Fribourg and one in the Italian speaking part (Ticino with campuses in Lugano and Mendrisio). There are also Universities of Applied Sciences (Fachhochschule) which are oriented more towards technology and professional practice and are considered regarding science and research as being of lower status than the Universities. There are 53 such Schools, two of which relevant for Geomatics (see below).

The Universities are relatively small (ca. 97,000 students in 2000) with the larger concentration of students in Zurich (ca. 33% in two universities), Lausanne (ca. 16% in two universities) and Geneva (ca. 14%) and the number of students compared to neighbouring countries is low (in 1998, 9% of the 27-year old had a university diploma). Out of the 97,000 students, 19% pursue postgraduate studies. The number of foreign students is high, especially for Ph.D. (the Swiss average for foreign postgraduate students in 2000 was 40% with higher percentage in the technical and natural sciences; at ETHZ it is ca. 44%). 26% of the foreign students come from countries outside the European Union (EU) (at ETHZ 18% of the foreign postgraduate students). Although Switzerland has the fame of a closed country
The four federal annex research institutions do not offer degrees, but can offer research positions which can lead to a Ph.D. whereby the degree is given by an affiliated university, usually one of the two SFITs. Open jobs can be found at their WEB sites. Few of such positions, with the exception of WSL, are related to Geomatics. Geomatics curricula at Universities of Applied Sciences exist at the Engineering School of Canton Vaud, Department of Civil Engineering and Geomatics in Yverdon (French speaking) and the Fachhochschule of both Basel (FHBB), Department of Surveying and Geoinformatics in Muttenz/Basel (German speaking). They offer a first diploma after 6 semesters and a diploma thesis, but currently no postgraduate studies. FHBB has sometimes offered a course for operators of photogrammetric instruments but for a limited number of mostly Swiss participants. Although Fachhochschulen do not offer postgraduate programmes, there is an increasing tendency to offer Master or other postgraduate programmes as in neighbouring Germany.

The studies at the Universities follow in the great majority a two-cycle education scheme, i.e. a first diploma after 4-5 years, which in most cases is considered equivalent to M.Sc., and Ph.D. Very few departments offer M.Sc. courses after the first diploma, but this may change (see Section 7). Apart from the Ph.D., various other postgraduate and continuing education activities exist. Many have a short duration (from single lectures to events of one to few days) and are oriented towards Swiss residents. In addition, there are postgraduate courses and postgraduate studies. The postgraduate courses are shorter than the studies (typically 1-12 months, depending on whether full or part-time), focus more on Swiss participants, are mostly in the local language and take place either continuously or in distributed blocks to allow professionals to participate. Thus, they are less attractive for foreigners, especially if not from neighbouring countries. The postgraduate studies have a typical duration of 1-3 years (depending whether full or part-time studies are offered), are more often in English and can be considered a form of M.Sc. For all these courses, a first university diploma is required, and often additional requirements.

2 PH.D. STUDIES

The numbers of Ph.D. diplomas awarded in 1999 was 2732, ca. 39% of which from the two Zurich universities. The usual procedure for a Ph.D. is to contact a group, ask for open positions and eventually get a positive response from the supervisor. After some paperwork with the university and the foreign police, which take 2-4 months, the work can start. Such positions are usually project positions of 2-3 years, which sometimes can be renewed. However, even without renewal, supervisors usually find additional funds until the end of Ph.D., if the performance of the Ph.D. candidate is satisfactory. Assistant positions (at ETHZ for 6 to maximum 8 years) can also lead to Ph.D. but knowledge of local language and contribution to teaching and administration are required, which also leads to longer Ph.D. duration. Project Ph.D. students are also expected to contribute to a small part in teaching and/or administration. Almost all students are paid by the institute that employees them. Assistant positions are usually paid 100%, project positions 50%–100% depending on the project funds. 100% salary for a freshly finished student corresponds to ETHZ to ca. 64,000 SFr.

The beginning of the work is not the official beginning of the Ph.D. Depending on the candidate’s background, knowledge and capabilities, the University often requests some prerequisites to be fulfilled before accepting the candidate as Ph.D. student. This is decided after start of the work. The requirements are usually some courses which must be visited and finished with successful examination. Knowledge of the local language is almost never required but recommended, while universities provide gratis language courses. After acceptance as a Ph.D. candidate, the Ph.D. in some cases should be finished within a maximum number of years (e.g. 6). In the past, the Ph.D. duration was quite long and efforts are made to achieve an average Ph.D. duration of 3 years. During the Ph.D. the students either do not have to visit any courses, or they must collect some credit units, which are however few and can be achieved not just by coursework (e.g. also by preparing and presenting a paper for a conference). The university courses are, however, open to any student who wants to increase his/her knowledge. Thus, the Ph.D. is Switzerland is heavily research oriented with little or no courses. After acceptance of the Ph.D. written work, an open oral examination of short duration before a committee of 2-3 examiners takes place. In case the examination or the written work is not judged acceptable, which is very rare, they can be repeated usually only once and within certain time periods. There are very low fees for Ph.D. (e.g. only when enrolling or being accepted as Ph.D. student). In some cases, a fee must be paid for the oral examination (e.g. at ETHZ 1200 SFr.).

In Geomatics, but also in other fields, there is a considerable shortage of personnel, where research and other positions may stay open even for one year or more, with obvious negative consequences for academic research. This, on the other hand, reveals the chances of foreign students to find an open position in Switzerland.

3 POSTGRADUATE STUDIES IN GEOMATICS

3.1 Development in Geomatics Studies

The last period several important changes took place. Since October 1st 1999, the Department of Geo-
The number of graduate students has generally dropped since 1996, partly due to the change of the curriculum name to Geomatic Engineering at ETHZ, as the substance of this change was not made clear enough to high-school graduates. The professional chances of our students are currently very good but there is a considerable shortage of students and graduates to fill the open positions. Thus, a considerable effort has started by the academic personnel the last period to increase PR and promote our studies and profession towards the society and high-school graduates in particular.

3.2 Non-Ph.D. Studies

The following, non-Ph.D., postgraduate studies may be of interest:

- Postgraduate Course “Spatial Information Systems” ETHZ (see details at www.photogrammetry.ethz.ch/ndk/ndk.html)
- Postgraduate Course and Studies “Co-operation for Development”, ETHZ (interdisciplinary, see more details at www.nadel.ethz.ch/)
- Master in Advanced Studies: Environmental Sciences, University of Zurich (in preparation)
- Postgraduate Cycle “Technology and sustainable development, innovative and integrated approaches in emerging countries”, EPFL in co-operation with the IIT University in Madras (held in Madras, interdisciplinary, in English, 4 months duration, 2,600 SFr. costs). More details at www.epfl.ch/POSTFORMATION/12.html
- Postgraduate Course “Virtual reality and multimodal interaction”, EPFL (1 year duration but in blocks, in English, 2200 SFr. costs, little relation to Geomatics). More details at www.epfl.ch/POSTFORMATION761.HTML

3.3 Ph.D. Studies

Ph.D. studies in Geomatics are primarily possible at ETHZ, Department of Civil, Environmental and Geomatic Engineering and EPFL, Département de Génie Rural. ETHZ has a comprehensive teaching and research programme and very good international reputation. In 1997, the then Department of Geodetic Sciences, ETHZ was evaluated by an international peer-review committee with the summarising statement “The Department is internationally recognised for its leading-edge research in geodesy, photogrammetry and cartography”. Photogrammetry, both close-range and aerial are extensively covered, while RS focuses more on geometric aspects (rather than thematic) and more optical sensors. SIS is covered by various groups and was strengthened by a new professor in 2000. Since 1982, 43% of the Ph.D. diplomas at the Institute of Geodesy and Photogrammetry were awarded to foreign students). EPFL has research activities on navigation, mobile mapping, GPS/INS and sensor integration, aerial photogrammetry, rational and efficient use of GIS for the various activities of land management and planning, evaluation and development of methods for GIS planning, design and implementation.

There are however a number of other institutions which are selectively active in either satellite remote sensing, image analysis, computer vision, machine vision, robot vision and related areas. Among those are:

- Department of Geography, University of Zurich
- Institute of Geography, University of Bern
- Institute of Applied Physics, University of Bern
- Department of Geography, University of Basel
- Geomatics Group, Institute of Geography, University of Fribourg
- Computer Vision Group, Institute of Communications Technology (ICT), ETHZ
- Institute of Scientific Computing, ETHZ
- Institute of Theoretical Computer Science, ETHZ
- Institute of Information Systems, ETHZ
- Multi-Media Laboratory, Computer Science Institute, University of Zurich
- Database Technology Group, Computer Science Institute, University of Zurich
- Institute of Computer Science and Applied Mathematics, University of Bern
- Institute of Microtechnology, University of Neuchâtel
- Institute of Mathematics and Computer Science, University of Neuchâtel
- Computer Graphics Lab, EPF Lausanne
- Centre of Computer Science, University of Genève

A large group, particularly active in RS and SIS, is at the Geography Department, University of Zurich. It has broad activities on RS and SIS, in the groups Remote Sensing Laboratories, GI analysis, GIS and to a lesser extent Physical Geography. Topics of research in remote sensing include: SAR data processing, SAR interferometry, SAR geocoding, differential SAR interferometry, landscape visualisation, snow cover mapping and hazard studies, natural resources studies, airborne imaging spectrometry, land-use and land-cover estimation, field and laboratory goniometry,
airborne PRISM experiment and spectroradiometry, use of RS for glaciology and geomorphodynamics. SIS related research topics include: digital terrain modelling, cartographic visualisation, environmental data management, issues of scale, uncertainty and temporal aspects, and methods of spatial analysis, statistics, cartography and GIS and their applications to social sciences and economics. The research activities of the Remote Sensing Group, University of Bern concentrate on the application and real time processing of medium resolution sensors (NOAA-AVHRR, IRS-WIFS or RESURS) for environmental monitoring of the Alps (snow cover, land surface temperature, vegetation indices, classification) as well as natural hazard monitoring in Central America (Honduras, Nicaragua). The Institute of Applied Physics, University of Bern has RS research on environmental monitoring, climate and atmospheric physics. Other groups can be found at the Universities of Basel (focus on meteorology, climatology and environmental RS) and Fribourg (RS and image processing, GIS). The ICT, ETHZ also has a small group performing research on scene understanding by model-based interpretation techniques and in remote sensing: snowmelt runoff modelling, content-based image retrieval, model-based snow segmentation, and remote sensing application to environmental aspects of ski regions. However, these activities are scaled down, and the group focuses more on pure close-range computer vision.

Regarding SIS, apart from the Geomatics groups at the two SFITs, and the Geography Department, University of Zurich, several computer science groups at ETH and University of Zurich, do research on certain aspects like computer graphics and visualisation, image compression, spatial databases (spatiotemporal, object-oriented, object-relational, active), federated databases, data warehousing, DBMS-architectures, terrain visualisation, geometric algorithms and data structures, distributed data structures, Voronoi diagrams, image analysis and retrieval, export of database functionality etc. Some of these groups perform very good research but their relation to geo-problems is in most cases weak.

The greatest concentration of Geomatics activities is in Zurich. The "Inter-University Partnership in Earth Observation and Geoinformatics" group (IPEG), founded in 1994, which consists of several Institutes and individuals from the University of Zurich and ETHZ, has the common aim to support and co-ordinate research and teaching activities in the areas of RS and GIS. IPEG also supports co-operation between IPEG members for formulation of common research projects. At its WEB page, the members and their research interests can be found.

Details about the research projects and open positions of the above groups can be found at their respective WEB pages. During the last years, all academic and research institutions have updated their equipment with new computing facilities and state-of-the-art software packages in the fields of digital photogrammetry, remote sensing, GIS, CAD, image processing/analysis and visualisation. Other infrastructure important for Ph.D. studies, like instrumentation, libraries and electronic databases are generally at a high level.

4 PROJECT FUNDING

The two SFITs have own research budgets to finance internal projects. There are deadlines 2-3 times a year for such proposals. Their number is increasing, while projects are approved generally for 2-3 years and almost always only for 50% positions.

The Swiss National Science Foundation (SNSF) is another major project sponsor. Also there the project proposals are increasing and the positions are usually 50%. Apart from the normal project proposals, there is project support within three other means with longer duration (up to 10 years), higher funding and involving many groups, namely: National Research Programmes, Swiss Priority Programmes and National Centres of Competence in Research.

Another important federal sponsor is the Commission for Technology and Innovation. In such projects, 50% is paid by the federation and 50% by a private company. The aim is to support Swiss industries, especially small and middle, by developing pre-commercial products through co-operation of universities and firms. Such positions can be funded up to 100%.

There are various other federal or local organisations that provide limited funds for projects (e.g. Federal Office of Topography, Federal Office for Environment, Forest and Landscape etc.), sometimes in dedicated sectors. Sponsors include also private firms, e.g. Geomatics industries.

International sponsors include mostly the EU. Switzerland although not an EU member, can participate in such projects, and since recently with full rights. Swiss participation in EU projects is increasing and also wished from the EU side, because of the good research level in Switzerland and the funding of the Swiss partners from the local government, not the EU. Funding by the EU is usually for more than 50% positions, often up to 100%. ESA and EUMETSAT are sponsors in RS projects. Other space agencies (NASA, German Aerospace Agency, Canadian Space Agency, NASDA) and the Joint Research Centre, EU have been project partners.

There is practically no restriction in project funding, thus foreign firms or public organisations can also support projects.

The administrative effort for the projects is
reasonable with the exception of the EU projects, where administration overhead is horrible and increasing.

Open positions are often posted on the WEB page of the respective groups. There are also job offer servers like at ETHZ (www.telejob.ethz.ch).

5 SCHOLARSHIPS

5.1 Swiss National Science Foundation (SNSF)

To strengthen scientific co-operation at an international level, SNSF offers the possibility of individual short visits in the context of scientist exchange programmes. This applies to all countries. In addition, direct agreements have been concluded with international partner organisations. Such exchanges are only for research with a duration of 7 days – 3 months.

The availability of scientific skills in developing countries is of vital significance to solving their urgent development problems. SNSF has been committed to such issues for decades. This commitment takes the form, inter alia, of the following two promotion instruments:

- Research partnerships with developing countries
- International Foundation for Science (IFS)

5.2 Swiss Agency for Development and Co-operation (SDC), Ministry of Foreign Affairs

The bilateral co-operation for development concentrates on 17 priority countries and 4 special programmes in Africa, Asia and Latin America. Ca. 800 projects are currently on-going. Among the 17 priority countries are Bolivia, Ecuador, Peru and Nicaragua/Central America. SDC also works multilaterally, especially with UN organisations, the World Bank and regional development banks (Asian, African, Interamerican).

5.3 Swiss Commission for Research Partnership with Developing Countries

The Swiss Commission for Research Partnership with Developing Countries (KFPE) is a Commission of the Council of the Swiss Scientific Academies (CASS). The Swiss Government offers, via the Federal Commission for Scholarships for foreign students (FCS), a certain number of scholarships to foreign students wishing to study at a Swiss university (see Section 5.4). KFPE's overall aim is to contribute to sustainable development at the global level through research partnerships. KFPE arranges contacts, disseminates information, and compiles documentation. It provides advice to grant applicants and assessing agencies that seek help when planning or assessing research projects involving partnerships. KFPE organises and participates in lecture series, seminars and other events aiming to raise public consciousness of the value and importance of co-operation between the North and the South in the field of research.

5.4 Federal Commission for Scholarships for foreign students (FCS)

The FCS scholarships are offered to postgraduate students. They are intended to enable grantees either to further their education in Switzerland or to undertake research work in the fields in which the Swiss universities are particularly interested.

The scholarships are generally offered to foreign governments. Therefore, the applications are submitted to the Swiss diplomatic representative by the national institution responsible for scholarships in the country of origin. The Federal Department of Home Affairs then awards scholarships on the advice of the FCS. For information on what scholarships include, requirements, obligations and application procedure see the respective WEB page. The scholarships are for 1-2 years, and only in exceptional cases scholarship extension towards a Ph.D. is granted. The scholarship amount is 1650 SFr. monthly and additionally fee exemption is
provided. Candidates must be under 35 years of age at the time of recommendation. Proficient German, French or Italian or agreement to visit preparatory courses is required.

5.5 Swiss Centre for Scientific Computing (CSCS)

The CSCS has projects on environment (Global and Regional Climate Modelling, Global Climate Change: Modelling Atmosphere/Ocean Variability on Decadal Time Scales, Management and Visualization of Microclimatic Data, Modelling Alpine Heavy Precipitation with a High-performance Non-hydrostatic Model and Swiss National Remote Sensing Image Archive (RSIA)). It has a program (VRP) to support researchers (also foreign ones) with a period of stay up to 3 months, during which the invited applicant is expected to carry out a specific project in close collaboration with CSCS staff. Candidates may choose to work on projects proposed by CSCS in the following areas: Computational Modelling, Graphics and Visualization, Software Engineering, Information Processing, Systems, Network & Infrastructure. Alternatively, applicants may propose their own projects in the above topic areas, which if accepted may be pursued during the program.

5.6 Other Sources

Each University has some scholarships for foreign students, funded by persons, foundations, contributions from students and personnel etc. Generally, these scholarships are limited and their amount is not sufficient to fully cover living expenses. Details on such scholarships can be found at the WEB site of each university.

Other scholarships may exist based on bilateral agreements between Switzerland and single countries. Thus, the Swiss embassy in each country should be consulted on the possible existence of such scholarships.

6 SOCIAL ASPECTS

Although the study costs are low, Switzerland has high living costs, especially regarding house rent, insurances, food and entertainment. Social contributions and taxes are relatively low though, accounting for ca. 25% of the brutto 100% Ph.D. salary. A 50% salary is sufficient for one person, and just tight for a couple. Although knowledge of the local language is not necessary at the university and in spite of the great ability of the Swiss people with languages (quite a lot speak Spanish too), it is highly recommended to visit language courses since this makes everyday life and communications easier. The possibility to bring the family along depends on regulations that vary from Canton to Canton. For example in Zurich, this was made possible only recently after much political pressure, also from ETHZ. Foreign students have a stay permit which must be renewed every year, while after 5-10 years (depending on nationality, with EU countries favoured) they can become permanent residents and apply for any work. For a new student, the main starting difficulty, apart from ones due to differences in climate, food, culture, mentality and language, is to find accommodation, especially in Zurich and Geneva.

7 A LOOK IN THE FUTURE

EU countries signed in 1999 the Bologna declaration. The aim was to create a European Higher Education Space, promote mobility of students and researchers and simplify the recognition of education cycles and higher education diplomas. Within the frame of this declaration, the majority of the involved parts are favouring a three-cycle educational scheme, involving Bachelor, Master and Ph.D. Although Switzerland is not EU-member, the federal government tries to coordinate its actions with those of the EU. Thus, Switzerland also considers the possibility of introducing Bachelor and Master degrees, instead of the one current degree, according to the lines of the Bologna declaration. Such a development, will increase the opportunities for foreign students by including in addition to the Ph.D. the shorter duration Master degree, whereby a seriously discussed proposal to give all Master courses in English will also contribute to easier and higher foreign student inflow. Although the Federal government seems to support this development, the decision on whether Master will be introduced depends on many bodies (local governments, involved universities etc.). Some Departments (e.g. at ETHZ) have already introduced Master courses and support the ECTS (European Credit Transfer System). The Department of Civil, Environmental and Geomatic Engineering, ETHZ will most probably introduce the Bachelor/Master scheme (the earliest in the winter semester 2003/2004). The Master courses will be, partly or totally, in English.

8 SUMMARY

Switzerland offers postgraduate studies mostly on the Ph.D. level, but Master courses, many in English, are expected to be introduced soon. There are quite some active research groups in the fields of photogrammetry, RS and SIS with worldwide reputation. Language requirements are loose (a local language and/or English are generally sufficient), while almost all Ph.D. students are financed with relatively high salaries. The research level is quite high and requires intensive student work to finish a Ph.D. in 3 years, which is generally the target. The provided infrastructure (computer facilities, instrumentation, libraries) as well as number and quality of personnel are at a high level. Universities are open and internationally oriented, thus making studies by foreign students easier.
9 BIBLIOGRAPHIC REFERENCES


10 APPENDIX: SOME RELEVANT WEB HOMEPAGES

- Continuing Education in Switzerland: http://www.switch.ch/edu/continued.html
- Département de Génie Rural, EPF Lausanne: http://dgrwww.epfl.ch/
- Dept. of Geography, University of Zurich: http://www.geo.unizh.ch/
- Dept. of Surveying and Geoinformation, University of Applied Sciences of both Basel, Muttenz: http://www.fibbb.ch/vermess/
- Federal Office for Education and Science, Bern: http://www.admin.ch/bhw/
- Geodetic Sciences, ETHZ: http://www.geod.baug.ethz.ch
- Geomatic Engineering, ETHZ: http://www.geomatik.ethz.ch/
- Geomatics Group, University of Fribourg: http://www.unifr.ch/sguf/
- Geomatics Section, Engineering School of Canton Vaud: http://www.einev.ch/geomatique/default.htm
- Geomatics Switzerland: http://www.vermessungschweiz.ch
- Institute of Applied Physics, University of Bern: http://ubex01.unibe.ch:8081/
- Institute of Communication Technology, Computer Vision Group, ETHZ: http://www.vision.ee.ethz.ch/
- International Foundation for Science (IFS): http://www.ifse
- Interuniversity Partnership ETHZ and University Zurich: http://www.ipeg.ethz.ch/
- Paul Scherrer Institute (PSI): http://www.psi.ch
- Postgraduate Course “Virtual reality and multimodal interaction”, EPFL: http://www.epfl.ch/POSTFORMATION/61.html
- Postgraduate Course and Studies “Co-operation for Development”, ETHZ: http://www.nadel.ethz.ch/
- Remote Sensing Group, University of Bern: http://saturn.unibe.ch/rsbern/
- Research projects in Switzerland: http://www.ch-forschung.ch/
- Scholarships (from FCS): http://www.admin.ch/bbw/e/bildung/eskas.html
- Swiss Centre for Scientific Computing (SCSC): http://www.cscs.ch/
- Swiss Commission for Research Partnerships with Developing Countries: http://www.kfpc.unibe.ch/
- Swiss Education and Research: http://www.switch.ch/edu/
- Swiss Federal Institute for Environmental Science and Technology (EAWAG): http://www.eawag.ch
- Swiss Federal Research Institute for Forest, Snow and Landscape: http://www.wsl.ch
- Swiss Federal Office of Topography: http://www.swisstopo.ch
- Swiss National Science Foundation: http://www.snf.ch/
- Swiss Organisation for Geoinformation: http://www.sogi.ch
- Swiss research teams index (see also research reports of universities): http://www.switch.ch/edu/research_index.html
- Swiss Society for Photogrammetry, Remote Sensing and Image Analysis: http://www.geod.baug.ethz.ch/sgpbf
- Swiss Society of Surveying and Rural Engineering: http://www.svvk.ch
- Telejob, electronic job exchange board of ETHZ and EPFL: www.telejob.ethz.ch
- Swiss Federal Office of Topography: http://www.swisstopo.ch
- Swiss National Science Foundation: http://www.snf.ch/
- Swiss Organisation for Geoinformation: http://www.sogi.ch
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