Content

Editorial 2
New expertise 3
Growing department 3
Number of publications 4
Interdisciplinary programs 5
Number of student enrollment 5
Extramural funding 7
Main research activities by Divisions in 2012 8
The Department of Geography (GIUZ) continues to grow in terms of the diversity and relevance of the research topics pursued, the range of services provided and its capacity to offer scientific support for policy makers. Student numbers remain high, providing evidence of the sustained attractiveness of geography as a study subject.

This Annual Report 2012 marks a shift in the way we will report about the main activities and developments in our department. Rather than engaging in the traditional “bean counting” and producing a long-winded documentation of each individual publication, lecture or successful grant application we will be more selective and concise, in so doing hoping to be able to produce a text that is a better read. The former, exhaustive style of annual reporting has also been made obsolete by new communication instruments available on our departmental website, such as a news section as well as the quarterly newsletter. A first version of a new style can be obtained from the Annual Report 2011 which was designed in a format presenting exemplary projects and portraits, and which is available at our website: www.geo.uzh.ch/en/department-organization/annual-report. The 2012 Annual Report with an outlook for 2013 is designed to bridge the time until publication of the first full report in the new design. As we are switching to a biannual format, the next report will cover the period 2013/2014.

2012 has been a year of important changes in the Department. Wilfried Haeberli retired as Chair of the 3G Division. With Andreas Vieli we were able to attract a successor with an excellent reputation and visibility who took up his new position in February 2013. The first half of the year 2013 was overshadowed by activities in connection with the evaluation of our department according to UZH rules. As part of the evaluation process, a team of international experts visited GIUZ in October, evaluation results are expected to be available in early 2014. From August 2012 onwards we also implemented a new departmental leadership structure. An Executive Board of three professors, each taking on specific tasks, now shares responsibilities. The new division of labor has already had a very positive effect by improving the managerial decision processes, while at the same time freeing valuable resources for project work between the usual daily commitments. Looking back at the reporting period the new Executive Board expresses its gratitude to all current and former staff members and students for their enthusiasm, their commitment and their continuing efforts.

Robert Weibel, Head of Department
Christian Berndt, Head of Infrastructure and Services
Jan Seibert, Head of Teaching
New expertise at the professorial level

Since 2005, we have welcomed new colleagues at the professorial level to GIUZ almost every year. This continuous stream of new colleagues allows us to further strengthen the Department’s international reputation for excellence. The newest member of our professoriate is Andreas Vieli, who accepted an offer to become the new Division Head of Glaciology and Geomorphodynamics. With his start in February 2013, the search process to replace Wilfried Haeberli was successfully completed.

Andreas Vieli studied Physics at ETH Zurich and completed a PhD (Dr. sc. Nat.) in 2001 at the Institute for Atmospheric and Climate Science and VAW at ETH Zurich. From 2001 to 2005 he worked as a Research Associate at the School of Geographical Science at Bristol University (UK). From 2005 until his move to Zurich he was a Lecturer/Reader at the Department of Geography at Durham University (UK). Andreas Vieli’s research focuses on the dynamics of the Cryosphere, in particular glaciers and ice sheets in the context of climate change and the numerical modeling aspects of it.

In 2012 we also successfully supported a Swiss National Science Foundation (SNSF) professorship application in the field of “Space and Organization” for Martin Müller. Previously holding a position as Assistant Professor at the University of St. Gallen, he joined us in August 2013 to strengthen our competence at the intersection between economic and political geography.

Growing department

With the formation of the GeoComputation Unit in early 2012, following the promotion of Ross Purves to Associate Professor, and the addition of the SNSF professorship in 2013, the Department of Geography now encompasses 14 divisions. Three of these divisions have a special mandate. This includes, first, the Geochronology Division, which offers dating services and was split off in 2012 from the Glaciology and Geomorphodynamics Division. It now forms a separate division, headed by Markus Egli.
The World Glacier Monitoring Service (WGMS), headed by Michael Zemp, is officially embedded in the Department since 2010 as an independent unit. The service has been collecting standardized observations on glacier changes since 1894 from a worldwide network of correspondents, and disseminates these data to researchers, journalists and policy-related UN programs.

The third special mandate concerns the Geography Teacher Training Division, whose task it is to provide specialized training to future and active geography teachers, in collaboration with the UZH Institute of Education and the Zurich University of Teacher Education (PHZH).

Considerable number of publications and media coverage

One of the Department’s key strategic assets is its combination of breadth and depth in research: Our research groups collectively cover a wide range of topics, but they also achieve a level of specialization and depth that enables them to compete on the international research front in their respective areas. As evidenced by the outstanding research grant income and the successful bids for very large projects, this strategy is highly successful.

Our research staff is represented on the editorial boards of the leading journals of their fields and on the program committees of the key international conferences. 470 publications were registered for 2012. Among others, the Department is represented on the SNSF Research Council and it hosts two lead authors of the Fifth Assessment Report of the IPCC. Furthermore our research continues to address key societal and political issues, and thus has received considerable media coverage, particularly in the areas of glaciology and climate impact research, remote sensing, and political geography, notably through the sotomo research group, headed by Michael Hermann, which is linked to the Department.
Strong involvement in interdisciplinary programs

Researchers of the Department were very successful in the current round of interdisciplinary University Research Priority Programs (URPP). Besides the URPP “Global Change and Biodiversity”, where GIUZ is the lead Department, we are also represented in the URPP “Language and Space”. These URPPs are now in the early phase of development. Well established is the URPP Asia and Europe with participation of the Human Geography Division.

The Innovation Pool, a pool funded by Department resources providing seed money to projects pursued between at least two divisions, has successfully lived through its second year of existence, with several projects, among which a workshop on “Uncertainty in decision making in a changing climate” with speakers from academia, industry and government.

First year students on the rise

Overall student numbers in geography have remained stable and high. In the fall semester of 2012, 622 students were enrolled as geography majors. The number of first semester students majoring in geography steadily increased from the previous years (2011: 108 students; 2012: 110; 2013: 128). For the first time, more than half of them are women. Almost one third (93) of all Science Faculty Bachelor students graduated with a degree in geography. 67 Master students and 7 Diploma students completed their degrees. The new BSc in Earth System Science (ESS) started in the fall term of 2012 with 11 students and replaced the former BSc in Earth Sciences (Erdwissenschaften). A first step towards impro-
ved coordination of Bachelor modules was taken by defining learning outcomes for the entire Bachelor curriculum, which have been published on our website. At the undergraduate level, the process of harmonization of the curriculum will continue. Most prominently, a new series of modules will be introduced to practice literature appraisal in small group settings.

The Zurich Graduate School in Geography is now an integral part of our teaching and career development strategy, and one of the key cross-linking elements. Some of its courses and events are not only relevant for PhD students, but also for young postdoctoral researchers. Transferable skills courses are organized in collaboration with the UZH Graduate Campus. 71 PhD students are currently enrolled at the Department.

The academic staff of the Department explore and use a variety of innovative teaching methods, such as e-learning, blended learning, interactive forms of tutoring and project-based teaching. In terms of curriculum development, first steps towards implementation of Specialized Masters programs have been taken. Plans expect to start in fall 2013 with specialized Master programs in Physical Geography, followed in fall 2014 by new programs in Human Geography and Geographic Information Science.

At the graduate level, the main focus will be on developing new, specialized Master by Research curricula in order to complement the existing consecutive Master in Geography, and attract highly talented, research-oriented students, including larger shares of international students.
Increasing extramural funding

The Department provides various scientific services to third parties and internal users, such as the National Point of Contact (NPOC) for Swisstopo; and the Geochronology Laboratory, which offers radiocarbon dating and exposure dating.

In 2012 our Department was particularly successful in attracting extramural funding (2011: CHF 5.4 Mio.; 2012: CHF 6.4 Mio.), which comprises 37 % of the overall budget (“Betriebsergebnis 3”, incl. UZH and extramural funds). Crucially, extramural funding also allows the Department to have more flexibility in times of stagnating base funding from the University. Many of the grants are of considerable volume, some in the multi-million francs range.
Main research activities by Divisions in 2012

Glaciology, Geomorphodynamics and Geochronology (3G) – Andreas Vieli
After 17 years leading the 3G Division, Wilfried Haeberli retired end of January 2012, but continued with teaching support. In his honor, an international symposium on «The mountain cryosphere – a holistic view on processes and their interactions» was held. Andreas Vieli was appointed as successor and started in February 2013. With Prof. Vieli, a stronger focus will be placed on glacier physics. During the vacancy on the 3G chair position, Markus Egli acted as interim chair. Meanwhile, the Division continued to work in large collaborative projects, both national and international. Andreas Hasler received the best PhD award of NCCR MICS and Samuel Weber the Science Faculty award for his Master thesis. PD Michael Zemp was elected as member of the Terrestrial Observation Panel for Climate. He is also the Director of the World Glacier Monitoring Service, which now forms an independent unit. In the reporting period, the Geochronology group was split off from 3G too, with Prof. Markus Egli as group leader.

Soil Science and Biogeochemistry (2B) – Michael W.I. Schmidt
The 2B Division seeks to understand how global change affects the multiple interactions of vegetation and soil, especially the cycling of soil organic matter. In 2012, we focused on fire-derived organic matter produced during wildfires, suspected to be the most persistent organic component in soils. Another focus was on the role of plant roots and their role in carbon cycling. The Division organized, together with colleagues from Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Agroscope (ART) and ETH, the “5th International Workshop on Soil and Sedimentary Organic Matter Stabilization and Destabilization”. About 100 scientists joint for a cutting-edge discussion on global biogeochemical cycling of organic matter in soil, river and marine environments. Conradin Burga and co-authors completed a book about Oswald Heer (1809-1883), famous palaeobotanist and first professor of botany and entomology of the University and ETH Zurich. After 34 years at GIUZ, Conradin Burga retired, two senior scientists – Samuel Abiven and Guido Wiesenberg - started new positions as Oberassistants, and two PhD students – Stefanie Meyer and David Hiltbrunner - successfully defended their thesis.

Hydrology and Climate (H2K) – Jan Seibert
Research activity in the Hydrology and Climate (H2K) Division has two foci, experimental work on runoff generation processes and modeling of climate impacts on hydrology. Ongoing research projects include experimental work in the Alptal catchments, where our observation network complements long-term measurements by WSL and streamflow stations in the Rietholzbach catchment. A main project in the area of climate impacts is
the Project Drought-CH of the National Research Program 61 on Sustainable Water Management where we investigate controls on low flow conditions in Switzerland including the collection of isotope time series for several Swiss streams. The SNSF project on “Hydrological modelling for climate-change impact assessment based on Regional Climate Model results” started last year. In 2012 two new projects got funded: “Intelligent sampling of hydrological events” (funded by SNSF) and “Runoff amounts from snow and glacial melts in the Rhine river and its tributaries against the background of climate change” (funded by Kraftwerke Hinterrhein).

**Human Geography (HGG) – Ulrike Müller-Böker**

The Division conducts research in Asia, East-Africa and Switzerland on (i) challenges of rural livelihoods and the politics of development, (ii) migration, asylum seeking, multilocality and development, and (iii) social and spatial conflicts. The NCCR North-South is in its final year. The challenge is to complete the various research projects and initiate simultaneously follow-up projects and structures. The International Graduate School North-South serves as anchor point of the Swiss-South research and education network. The Regional Coordination Office in Nepal was converted into an independent nonprofit research company, and projects with old and new partners are envisaged. The Development Study Group Zurich, with its expertise of research on livelihoods and institutions, plans to additionally focus on employment and mobility. A new focus on Geographies of youth and education was initiated and the research on nature conservation was expanded.

**Political Geography (PGG) – Benedikt Korf**

The research of the Political Geography Division focuses on violent conflict, politics, territory and the state. It is interdisciplinary in scope, drawing on the fields of geography, anthropology, political ecology and international relations. The research conducted is empirical and qualitative and is executed in different parts of the world, principally in South and Southeast Asia (Nepal, Sri Lanka, Malaysia), Africa (Ethiopia, DR Congo) and Switzerland, as well as in transnational contexts of migration and humanitarian aid. 2012 was a dynamic year for the political geography division. Two new PhD projects were started, one focusing on the eastern part of the Democratic Republic Congo (Stephan Hochleithner) and one focusing on East Malaysia (Jennifer Bartmess; part of the URPP on Global Change and Biodiversity). In the meantime, Bart Klem completed his PhD research on post-war transition in eastern Sri Lanka.
Economic Geography (WGG) – Christian Berndt
The Economic Geography Division contributes to the growing body of research that seeks to offer alternatives to orthodox conceptualizations of the space economy. Our work currently focuses on the geographies of marketization in the global south (e.g. value chain integration, agricultural risk management, privatization of border management) and urban labor markets in the global north (e.g. private care and creative work, commercial cleaning, voluntary work). In 2012 the group further consolidated its expertise in these research areas. Two successful applications for the UZH Forschungskredit (Leigh Johnson, Johanna Herrigel) provide the financial means for in-depth research in the area of market-based development. In September Shahzeeb Akhtar completed and successfully defended his PhD thesis on the socio-spatial organization of global IT-service production networks.

Remote Sensing Laboratories (RSL) – Michael Schaepman
The RSL Division continues to focus its activities increasingly on coupling measurements with products for policy impact. In this respect, several substantial projects were acquired during the reporting period. First, a URPP on Global Change and Biodiversity was awarded under the co-leadership of RSL. From 2013 onwards, 14 senior scientists will lead this effort for 4+4+4 years, on integrating mechanisms of feedback and scale for global change and biodiversity research. Second, a project named Swiss Earth Observatory Network (SEON) funded by the Swiss University Conference was awarded to RSL, jointly with the Univ. Fribourg, ETHZ, EMPA, and EAWAG, integrating observational approaches and modeling for Earth system science. Third, the continuation of the National Point of Contact for satellite images was negotiated successfully and will continue in 2013-2016 at RSL. Finally, several airborne campaigns involving LiDAR, SAR and spectrometers were carried out successfully. Members of RSL contributed substantially to fostering the use of Earth observation at local governments (Canton Berne, Aargau, etc.), federal departments (VBS, EDA, BAFU, SBF, etc.) and internationally.

Geographic Information Visualization and Analysis (GIVA) – Sara Fabrikant
Scientific activities in the GIVA Division are centered around three research threads: 1) spatio-temporal analytics (i.e., relevance modeling, moving object representations, spatialization, human navigation, etc.), 2) interface design of large and small interactive displays (i.e., mobile cartography and location-based services, 3D stereoscopic wall displays, dynamic and interactive exploratory visualization tools, etc.), and 3) fundamental empirical evaluations of displays based on theoretical underpinnings from geography, psychology and cognitive science (i.e., eye tracking studies and other human-subjects expe-
riments). The GIVA division is currently responsible for various research projects along above-mentioned topical foci, funded from various sources including extramural (SNSF, KTI, etc.) and internal UZH/Canton of Zurich funding.

**Geographic Information Systems (GIS) – Robert Weibel**

2012 was the first year of the GIS Division after the formation of Ross Purves’ independent Geocomputation Division. The GIS Division now consists of two groups, the Digital Cartography and Mobile Systems Group, and the Environmental Geoinformatics Group. The Division develops and applies computational methods that help extracting geographically relevant information from raw spatio-temporal data, with the aim of generating knowledge that may lead to a better understanding of geographic patterns and processes. The methods draw from an interdisciplinary range of fields, including spatial analysis and spatial statistics, spatial algorithms development, and data mining and agent-based modeling. The key research topics currently pursued include automated map generalization and multiple representations in the context of mobile computing, movement analysis for applications of movement ecology, and the usage of GIS methods for environmental monitoring and ecosystem services, protected areas, and linguistics.

**Geocomputation – Ross Purves**

2012 was the first year of existence for the Geocomputation Division as an independent entity. A key aim of our research is to make geographic information both more useful and more accessible to society in general. In seeking to reach this goal we apply a diverse range of research methods, ranging from the development of algorithms to process and analyse unstructured text, through the analysis of Digital Elevation Models and consideration of uncertainty therein, to ethnographic approaches seeking to explore how indigenous groups describe the space in which they live. These diverse, but interlinked, themes are reflected in the work of group members, with Flurina Wartmann spending time exploring the landscapes of the Bolivian rainforest, Curdin Derungs continuing to develop methods to analyse the Swiss Alpine Club’s yearbooks and Damien Palacio implementing an end-to-end geographic information retrieval system. We were also joined during the year by Jochen Veitinger and Irene Vontobel. Both of whom are exploring the geomorphometric properties of avalanches. A highlight of the year for the group was a joint retreat with Professor David Mark of the State University of New York, where we discussed geographic semantics related to landscapes, and particularly with respect to mountains and their parts.
Geography Teacher Training (GTT) – Max Maisch

The GTT Division is responsible for the educational programs for geography teacher students (at secondary levels I and II). Within the modules addressing mainly PHZH students (Pädagogische Hochschule Zürich) the physical as well as the specific human geography issues are to be evenly covered, with a strong link to ongoing research performed by the members of GTT. GTT also accounts for the mandatory geography courses required for teachers at high schools (Lehrdiplom für Maturitätsschulen). The curriculum is enriched by a close cooperation with the UZH Institut of Education (IfE) and the corresponding representatives of geography didactics. As part of the “HSGYM Hochschultag” in February 2012 the GTT Division organized a symposium for high school teachers under the aspect of “coming home”, which successfully built a bridge between the outcomes of recent research projects and the requirements for teaching at high school level.

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