

The mountain research focus of the University of Innsbruck

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Roland Psenner & Reinhard Lackner

Alpine Space – Man & Environment

The research focus *Alpine Space – Man & Environment*, established in 2010, is one of the three research foci of the University of Innsbruck besides *Physics* and *Molecular Biosciences*. It comes as no surprise that the University of Innsbruck is focusing on mountain issues. Innsbruck is located in the middle of the Alps and its history, culture and economy are deeply influenced and shaped by mountains. In addition to these local and regional aspects, mountains have a pivotal importance for humans, as outlined, for instance, by Körner & Ohsawa (2005) who state that “half of the human population depends on mountains in one way or another, and mountains cover (depending on the definition) between 12 and 26% of the ice-free terrestrial area. About 20% of the human population live in mountains or their immediate forelands. One third of all protected areas are in mountains and they supply water to nearly one half of the world population”. The

rationale to concentrate on alpine or mountain research lies in the strong position of Austria regarding scientific publications on mountain topics (Tab. 1). If related to the size of the population, Austria comes second after Switzerland in countries active in mountain research. As can be seen from Table 2, the University of Innsbruck is particularly strong among scientific institutions with a record of publications about mountains, the Alps or alpine subjects.

A characteristic aspect of mountain research, however, is the lack of interdisciplinarity or multidisciplinarity (Körner 2009). While geosciences and biology have an almost equal share of 40%+ in ISI-listed papers on

Table 1: Global statistics of ISI publications (1978–2008) on alpine and mountain research. Modified from Körner (2009).

Country	USA	CH	F	I	D	A
Publications	2 899	2 125	1 536	1 410	1 381	1 210
Population (million)	298.5	7.6	65.4	60.4	82.3	8.5
Publications/ million pop.	10	280	23	23	17	142

Table 2: ISI publications (1978–2008) on alpine and mountain research. The first ten institutions are responsible for 21% of all articles (14 226 = 100%). Modified from Körner (2009).

Rank	Institution	Articles	%
1	ETH Zurich	665	4.7
2	University of Bern	366	2.6
3	University of Innsbruck	354	2.5
4	University of Boulder, Colorado	330	2.3
5	University of Basel	239	1.7
6	University of Otago	216	1.5
7	University of Zurich	209	1.5
8	University of Vienna	206	1.4
9	University of Grenoble 1	202	1.4
10	University of Milan	196	1.4



Research at BR Gossenköllesee, Kühtai, Tyrol. Photograph by Lois Lammerhuber.

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mountains, multidisciplinary articles account for only 9% of all publications. Hence, an important objective of the research focus of the University of Innsbruck is to establish stronger links between all disciplines that work in alpine or mountain research, i. e. humanities, social, natural and technical sciences, and to bring together basic research and application, for instance by cooperating with alpS, the Centre for Climate Change and Adaptation Strategies. Other partners of the research focus are the Institute of Mountain Research: Man and Environment (IGF) at the Austrian Academy of Sciences, the European Academy of Bolzano/Bozen (EURAC) and, last but not least, the Alpine Research Station (AFO) of the University of Innsbruck. Figure 1 gives an overview of structure and objectives of the research focus, its research centres and partners. The nine research centres are hosted by eight different faculties (Architecture; Biology; Civil Engineering; Earth and Atmospheric Sciences; Economics and Statistics; Political Science and Sociology; Philosophy and History; Psychology and Sports). The research focus thus covers a wide range of disciplines, from history to agriculture and from biology to socio-economics.

Targets

The research focus is aimed at increasing the quality and quantity of scientific publications, especially interdisciplinary articles, and at organizing interdisciplinary conferences, meetings and workshops. It will actively cooperate with international organizations of mountain research and establish a Long-Term Socio-Ecological Research (LTSER) programme in the Tyrolean Alps. In addition, the research focus will organize an interdisciplinary doctoral college and an international school of mountain research and – last but not least – transfer scientific knowledge to the public, for instance through a series of books that deals with mountain issues of general interest (Tab. 3). Volume 6, for example, *Climate change in Austria. The last 20 000 years... and a look ahead*, brought together people working in different disciplines with the perspective to gain a broader vision of climate change in the Alps. It contains 15 chapters that compare, among other things, instrumental data with archaeological, palaeolimnological and palaeoglaciological findings, recent knowledge about the influence of climate on glaciers and a vision of potential future climates based on modelling approaches. In

Table 3: Publications of the series “Alpine Space – Man & Environment”, iup innsbruck university press.
<http://www.uibk.ac.at/alpinerraum/publications/>

Vol.	Title
1	Die Alpen im Jahr 2020 / The Alps in 2020
2	Politische, kulturelle und wissenschaftliche Perspektiven der nachhaltigen Raumentwicklung in den Alpen / <i>Political, cultural and scientific perspectives of sustainable spatial development in the Alps</i>
3	The Water Balance of the Alps: what do we need to protect the water resources of the Alps?
4	Ist es der Sindtfluss? Kulturelle Strategien & Reflexionen zur Prävention und Bewältigung von Naturgefahren / <i>Is it the deluge? Cultural strategies and reflections on preventing and handling natural risks</i>
5	Über Almen: zwischen Agrikultur und Trashkultur / <i>About mountain pastures: between agriculture and trash culture</i>
6	Klimawandel in Österreich. Die letzten 20 000 Jahre... und ein Blick voraus / <i>Climate change in Austria. The last 20 000 years... and a look ahead</i>
7	Global Change and Sustainable Development in Mountain Regions
9	Die Alpen – Einblicke in die Natur / <i>The Alps – insights into nature</i>
10	Der Biosphärenpark als Leitinstrument / <i>The biosphere reserve as managing instrument</i>
11	Zwei Alpentäler im Klimawandel / <i>A tale of two valleys</i>

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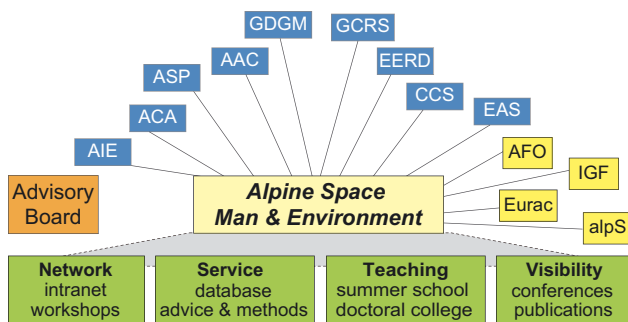


Fig. 1: Structure and objectives of the research focus with its research centres (blue) and partners (yellow). AAC: Alpine Agriculture; ACA: Alpine Culture and Architecture; AIE: Alpine Infrastructure Engineering; ASP: Alpine Sports; CCS: Climate and Cryosphere; EAS: Ecology of the Alpine Space; EERD: Environmental Economics and Regional Development; GCRS: Global Change – Regional Sustainability; GDGM: Geodynamics – Geomaterials; AFO: Alpine Research Station Obergurgl; alpS – Centre for Climate Change and Adaptation Strategies; Eurac: European Academy of Bolzano/Bozen; IGF: Institute for Mountain Research: Man and Environment of the Austrian Academy of Sciences.

contrast with volume 6 with its focus on earth sciences, informatics, mathematics and biology, volume 4 (*Is it the deluge? Cultural strategies and reflections on preventing and handling natural risks*) portrays differences in the perception of natural catastrophes by mountain (and other) populations and shows how people were dealing with risks and disasters in historical times.

If mountain research is to achieve better visibility and higher impact (Fig. 2), one of the overarching aims of the research focus, we need to establish several institutions and programmes, some of which are outlined in the paragraphs below.

- We must develop programmes with a global budget and corresponding personal and financial endowment to conduct long-term research. Special attention must be given to interdisciplinary projects focusing on the relation between humans and the environment. One clue to the success in long-term research is the commitment of the relevant governmental and non-governmental organizations. International visibility is fostered by joining international activities and programmes like LTSER. As a first step, it is necessary to enhance international

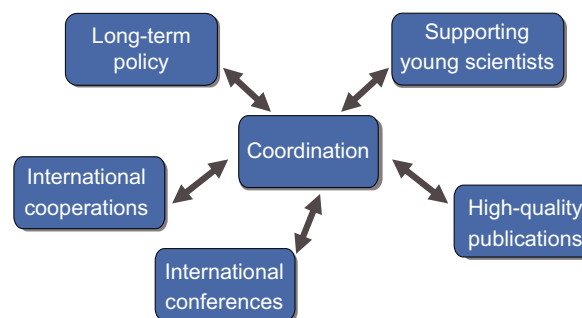


Fig. 2: Beacons and cornerstones for the visibility of Austrian mountain research.

cooperations of scientists engaged in LTER (Long-Term Ecological Research). The Austrian Academy of Sciences supports mountain research in several programmes.

- Focusing on a single institution or on new foundations, however, is not the answer. Innovation is pivotal to progress but we rely on a bottom-up process to coordinate and integrate research activities, a process that certainly needs additional funding. The agenda for mountain research should be hosted by established institutions in Vienna, Graz and Innsbruck.
- Nevertheless, we need a central organization that guarantees the coordination between the partners involved in joint efforts, projects, programmes and cooperations. We envision a network that coordinates research activities in an Alpine Research Innovation Centre and transfers research findings to users, private industry and the public. This virtual – or better real – “house” keeps databases of ongoing and past (!) research projects for researchers, administrations and the public, for instance by producing audio-visual presentations based on web 2.0. Such a “House of Mountain Research” will function as both clearing house and social network.
- Mountain research will flourish only if we can attract young scientists, therefore we need to focus on capacity building. This is accomplished by doctoral and post-doc programmes, international courses and the development of teaching aids. These ac-

tivities – some of them supported by the Alpine Research Innovation Centre – will strengthen the position of the universities and academies involved and enhance international visibility.

- International cooperation of Austrian scientists and institutions involved in mountain research is one of the most important activities of the Austrian Academy of Sciences. This cooperation is supported through ISCAR (International Scientific Committee for Research in the Alps) and bilateral agreements. The contacts between Austria and Switzerland are especially promising and should be intensified.
- International conferences are a touchstone for the visibility of research. Several localities offer excellent background, good service and attractive surroundings for conferences on mountain research. In general, publicity is not a core competence of scientists but it is a requirement for science and scientists. Research institutions should, therefore, consider supporting scientists with public relations professionals.
- Most members of the scientific community rate their visibility within the scientific literature as more important than their contribution to a conference. As outlined above (Tab. 2), Austrian institutions have a considerable share of mountain-specific publications but interdisciplinary articles are scarce and their visibility is lower than that attributed to any individual discipline. This is true for Austrian contributions as well as for most other countries. Journals like *Revue de Géographie Alpine* now accept articles in English as does the newly established journal *eco.mont* which focuses on research in protected areas. Both journals, however, apply thematic restrictions, even though “geography” and “protected areas” can be interpreted as open to other disciplines. There is no journal on mountain research, however, that is equally acceptable and – more importantly – attractive to all disciplines. Filling this gap requires financial input and probably a lot of patience.

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Zoologisch-Botanische Datenbank/Zoological-Botanical Database

Digitale Literatur/Digital Literature

Zeitschrift/Journal: [Sonderbände Institut für Interdisziplinäre Gebirgsforschung \(Institute of Mountain Research\)](#)

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