

Managing Alpine Future – an introduction

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The pope's vehicle is to be converted to solar energy – one of the many measures the Vatican is taking to reduce the production of CO₂. The church state wants to show the world how to face climate change. These news, published in the world's leading newspapers in 2008, indicate that even the pope is aware of the profane problems of our contemporary world.

For several decades scientists all over the globe have been studying the phenomenon of global warming. Nowadays global warming is discussed even outside the ivory towers of science. The term "climate hazard" is being bandied about. The mountains of the world, including the Alps, are severely affected, as average temperatures there rise even faster than in the lowlands. Melting glaciers, thawing permafrost, crumbling peaks, landslides and floods are threatening not only mountaineers and the mountain population, but – because of their effects on adjacent regions – have become a major concern of many more people.

There is an urgent need for research on the causes, effects and on possible solutions. Scientists should come together to exchange their findings, their experiences and their ideas on how to face the challenges of global warming in mountain regions, and they should do this by crossing the traditional boundaries of disciplines. Global change is a highly complex phenomenon. The combined expertise of scientists from disciplines as varied as glaciology, climatology, biology, geography, pedology, hydrology, sociology, political science, psychology, medicine, and law, among others, has to be linked with the experiences of practitioners and the programmes of politicians for evaluating the processes and developing scenarios and adaptation strategies in order to stabilise the life chances of future generations under conditions of global change in mountain regions.

There are feasible counter-strategies, though. They must take into account global change as a whole, i.e. both climate change and globalisation. Scientists on their own have no chance of success. Only a joint effort of researchers, policy-makers and planners can result in solutions that enable sustainable regional development, even in mountainous areas.

The conference took place on October 15–17, 2007, at the Congress Innsbruck and was organised by alpS (Centre for Natural Hazards Management), the Austrian Academy of Sciences (Research Centre for Mountain Research: Man and the Environment, IGF) and the University of Innsbruck (Institute for Geography) with the support of the federal province of Tyrol plus numerous national and international partners. It had set itself an ambitious goal.

Representatives from academia, the economy and from public bodies were to look at the current situation as well as the expected impact of global change on eight key areas, present approaches, strategies and solutions for handling such dynamic processes and initiate transnational debates. The conference culminated in a declaration of principle that was unanimously adopted.

Further objectives included:

1. Bringing together all involved parties. Setting up a communication platform that cuts across disciplinary, institutional and national boundaries and involves the public.
2. Encouraging international solidarity as a basis for future joint activities of all decision-makers in politics, administration (authorities), sciences and the social partners.
3. Presenting undisputed knowledge plus experiences of the climate change within the Alps in concise and results-oriented form. Deepening our knowledge of the interactions between climate and socio-economic change and their repercussions on natural and cultural spaces. Identifying risks and opportunities (development potential).
4. Debating and defining the requirements for holistic regional adaptation strategies within the Alpine space (society – environment).
5. Supporting the future development of implementation-oriented, active strategies for handling the effects of climate and socio-economic change in the Alps.

More than 400 researchers, practitioners and politicians from 32 countries took part in the conference. It was opened by the then provincial governor of Tyrol, DDr. Herwig van Staa, the President of the Austrian Academy of Sciences, Prof. Dr. Peter Schuster, and the Vice-rector for Research at the University of Innsbruck, Prof. Dr. Tilmann Märk. Keynotes, talks and posters were of exceptional quality and were translated simultaneously into German and English respectively. Printed media in Europe, the US (including the Herald Tribune and the Washington Post), Russia (Pravda and others) and Asia (including the Teheran Times) carried articles on the conference. It was also reported on Austrian TV and Austrian radio station Ö1 made an almost one hour long programme about it. Following on immediately from this conference, the Mountain Research Initiative (MRI, Berne) organised a back-to-back conference on Global Change in Mountain Regions with the help of the Research Centre for Mountain Research: Man and the Environment, of the Austrian Academy of Sciences, to explore individual themes in more detail and to create research consortia, leveraging valuable synergies.

Many who were at the conference will recall what the president of the Swiss Council of States, Mr Plattner, said in the panel discussion: “This congress is taking place in Innsbruck and not in Switzerland”. This was meant as a compliment but also acknowledged the fact that in recent years Innsbruck has grown into a leading Alpine centre of research on mountains, climate change and climate effects. What is it about Innsbruck that gives it this pole position? As this conference made clear, it is the congenial cooperation between university, academy institute and alpS in the joint search for solutions for our region and the close links with politicians and the public that can indeed create added value.

While this conference has added such value, the numerous expert debates have shown up some gaps in our knowledge that still remain. Maybe we still reduce global change too often to climate change, as we did in the impressive panel discussion, but political, economic and cultural globalisation are triggering processes of change within the Alpine space that are just as fundamental. Take Philippe Bourdeau, for example, who showed convincingly that post-modern structures and attitudes, a globalised economy and climate change, taken together, have much more dramatic consequences than any one of these factors on its own. It is therefore all the more important to continue the trans- and interdisciplinary discourse started in Innsbruck.

The conceptual basis for all talks was the paradigm of sustainable regional development in the Alps. In order to provide a sustained resonance for the conference papers and to trigger further research into what can make the Alps future-proof, the organisers of the conference decided to collect the key contributions in this conference volume. The manuscripts were put to a double-blind peer review.

The conference volume is organised on similar lines to the actual conference. The articles on the posters chosen by the evaluators for publication follow in a separate chapter after the scientific articles. However, not all contributions passed the peer reviews. We have only included those articles that were unanimously approved by all reviewers. They stem from various disciplines with greatly differing publishing conventions. This meant an arduous effort to harmonise the manuscripts and bibliographies, sometimes with less than perfect results for which we ask you to make allowances. We particularly regret that we did not always succeed in completing the references, even though Falk Borsdorf (IGF) who also edited the volume, did his best to fill any gaps by trawling available bibliographies. Astrid Björnsen-Gurung (IGF) took on the English language editing – no mean feat either. Kati Heinrich (IGF) did the layout. Many thanks are due to all of them for their commitment and attention to detail.

Most of all we want to thank all speakers and presenters of posters for reworking their presentations into articles and adapting them to the standards required of scientific publications. We would also like to thank the peer reviewers for taking on the painstaking but, we hope, also inspiring task of reading the texts with a critical eye.

The conference organisers could count on the support of an organizing and a scientific committee (listed in the appendix). Many thanks to all colleagues for their advice and help!

All participants of the conference praised the pleasant atmosphere and the perfect organisation. This was due to the efforts not just of the organisers, but also of alpS – Centre for Natural Hazard Management (Michiko Hama [IGF], Gesine Sahlfeld, Barbara Hechenleitner [both alpS]). We are sure all participants of the conference share our gratitude to you!

The conference would not have been possible without the support of many institutions. Apart from the organisers, this includes the federal province of Tyrol, Tiroler Wasserkraft AG, the city of Innsbruck, Tiroler Zukunftsstiftung, the Federal Ministry for Transport, Innovation and Technology (BMVIT) as well as the Tyrol section of the Federation of Austrian Industry. Congress Innsbruck kindly agreed a special rate for providing the rooms and the technical infrastructure. We are very pleased at this support from a variety of sources and we see it also as confirmation of great public interest in the results of this conference. With this volume we want to make a small contribution to repaying this interest!

Last but not least we thank all speakers and participants of the discussion. Their involvement has made this conference an inspiring event that encourages us all to continue in our efforts for shaping the future of the Alpine space.

We wish you a fascinating, insightful and inspiring read!

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