

Initiatives

- GMBA is developing a thematic data portal on mountain biodiversity with GBIF to facilitate searches for species occurrences in mountain regions, with the aim to quantify the regional/global patterns of mountain species distribution and biodiversity;
- In order to increase the amount and quality of geo-referenced data on mountain biodiversity provided online, GMBA encourages mountain biodiversity researchers to share their data within GBIF. We offer a DarwinCore schema specifically adapted for mountain datasets (mail to: gmba@unibas.ch).

Other projects in brief:

- GMBA aims to document the significance of biodiversity and land use for the hydrological catchment value (BioCATCH, Alpine Biodiversity and Catchment value in a land-use context) in the Pyrenees, European Alps, the Caucasus and the Himalayas, with individual field experiments using a common protocol;
- GMBA coordinated the authors of the mountain chapter of the Millennium Ecosystem Assessment and contributed to the chapter with a synthesis of global mountain biodiversity (Körner and Ohsawa 2005);
- GMBA is one of the key organisations in developing and implementing the Programme of Work on Mountains (UNEP/CBD/COP7/4) of the Convention on Biological Diversity (CBD) by synthesizing knowledge about the biological richness of the mountains of the world and changes caused by human influence.

References

Körner, C; Ohsawa, M (2005) *Mountain Systems. In Ecosystems and human well-being. Current state and trends: Findings of the condition and trends working group*. Ecosystems and Human Well-Being, Vol 1, pp 681-716. Island Press, Washington DC, USA

Körner, C; Donoghue, M; Fabbro, T; Häuser, C; Nogués-Bravo, D; Arroyo, M T K; Soberon, J; Speers, L; Spehn, E M; Sun, H; Tribsch, A; Tykarski, P; Zbinden, N (2007) *Creative use of mountain biodiversity databases: The Kazbegi research agenda of GMBA-DIVERSITAS. Mountain Research and Development* 27(3), 276-281.

Spehn, E M; Libermann, M; Körner, C (eds) (2006) *Land use change and mountain biodiversity*. CRC Press/Taylor and Francis, Boca Raton, USA

Spehn, E M; Körner, C (eds) in preparation *Data mining for global trends in mountain biodiversity*. CRC Press/Taylor and Francis, Boca Raton, USA

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Global Change in Mountain Regions: The Mountain Research Initiative

Claudia Drexler



View from Jungfraujoch shows an important part of the cryosphere of the European Alps. Photo: R. Ottersberg.

The Mountain Research Initiative (MRI) promotes and coordinates research on global change in mountain regions around the world. In its seven years of existence it has actively participated in the design of the international research agenda, as noted by the UN Secretary General in his address on Sustainable Development in Mountain Regions in August 2007. MRI's target is interdisciplinary and transdisciplinary research, but, on matters relating to biodiversity in mountain regions, MRI defers to its sister organisation, GMBA.

First milestones

The MRI began in 2001 as a joint project by the International Geosphere-Biosphere Programme (IGBP) and the International Human Dimensions Programme (IHDP).

“Global Change in Mountain Regions - An Overview of Current Knowledge” (Huber et al 2005) was MRI's first major product. This 700 page compendium provides an overview of what is known and what directions research should take in five research areas - paleoenvironmental changes, cryospheric changes, hydrological changes, ecological changes, and human dimensions.

Supported by the EU Framework Programme 6, the MRI and the University of Vienna coordinated the GLOCHAMORE (Global Change in Mountain Regions) project from 2003 to 2005. The GLOCHAMORE Research Strategy (Bjørnsen 2005) is an integrated and implementable research strategy to better understand the causes and consequences of global change. The Strategy is a consensus document developed through consultation with the international community of scientists and Biosphere Reserve managers at 5 workshops and one final conference.

Actions on a regional level: how to fill the scientific gaps?

In 2006 the MRI moved from strategy development to implementation through the initiation and support of regional networks of global change researchers. As MRI works through promotion and coordination, it induces research groups and individual scientists to fill the scientific gaps defined by the GLOCHAMORE strategy.

Thus, four program activities are at MRI's core:

- 1 MRI strives to enlist key scientists who, in their turn, promote inter- and transdisciplinary research through their funding agencies.
- 2 MRI supports the formation of new research partnerships and catalyses groups and individuals to develop project proposals to funding agencies.
- 3 MRI facilitates the development of peer-reviewed papers on key scientific issues. These contributions to the literature focus the community's attention on some of the most important issues in mountain regions.
- 4 MRI distributes relevant information to researchers on global change in mountains. By increasing the flow of information to these researchers, MRI seeks to create additional interaction and a more solid sense of community.

Scientific networks and their outputs

A large part of MRI's activities occurs through four regional networks: MRI Africa, MRI American Cordillera, MRI Europe, and MRI Carpathians, with plans to expand into Asia by 2010. Within these regional networks MRI attempts to catalyse research on global change. It does so principally through the development of new funding proposals, but also through the engagement of regional leaders and the development of regional-specific communication products such as websites, newsflashes, and database subsets.

The MRI in 2009 and 2010

During 2009-10, MRI intends to initiate:

Open funding proposals:

- Proposal for an International Scientific Seminar: Towards Sustainable Fine Resolution Hydro-Ecological Observatories in Southern African Mountains.
- Mountain Trip: Mountain Sustainability: Transforming Research into Practice (co-operation with 5 partners from Austria, Poland, France, Germany, and UK).

Peer-reviewed papers:

- Mountain Waters: Translation of Climate Change Scenarios into Water Resource Management Approaches (partner:

Hydrology Group, University of Bern, Switzerland)

- Food Security: Climate Change Impacts on Food Security Issues, Their Causes and Potential Adaptation Measures in Mountain Regions in Developing Nations (partner: Centre for Development and Environment, University of Bern).

Workshops and conferences:

- MRI Workshop on Global Change in Mountain Regions, 18 April 2009, Vienna, Austria.
- Securing the Sustainable Provision of Ecosystem Services in the Alps and the Carpathians. Proposal Development Workshop, 9 June 2009, Bratislava, Slovakia (in collaboration with 6 European partners).
- Conference on Glacier Hazards, Permafrost Hazards and GLOFs in Mountain Areas (in collaboration with 3 European partners).
- Conference entitled "Perth 2010 - 5 years after Perth I" as a follow-up to the 2005 Open Science Conference "Global Change in Mountain Regions" (partner: Centre for Mountain Studies, Perth College).
- A "Forum Carpathicum" in September 2010, the first international and interdisciplinary meeting on global change topics in the Carpathians.

The history of MRI is a move from abstract ideas towards concrete activities. Whereas the compilation of the GLOCHAMORE Research Strategy was an intellectual challenge - defining and evaluating compelling global change research topics - the challenges now are much more human and entrepreneurial. How can we build active and growing communities, and how can we make sure that their members turn out the products that we need?



Small-scale agricultural structures in the hills of Rwanda. Photo: Bob Nakileza.

Initiatives

References:

Björnsen Gurung, A., ed. 2005. Global Change and Mountain Regions Research Strategy, Zürich

Huber, U., Bugmann, H., and Reasoner, M., eds. 2005. Global Change and Mountain Regions. An overview of current knowledge. Advances in Global Change Research, Springer

Weblinks:

<http://mri.scnatweb.ch>

<http://mri.scnatweb.ch/networks/mri-africa/>

<http://mri.scnatweb.ch/networks/mri-american-cordillera/>

<http://mri.scnatweb.ch/networks/mri-europe/>

<http://mri.scnatweb.ch/networks/mri-carpathians/>

<http://mri.scnatweb.ch/projects/glochamore/>

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ICIMOD's International Conference and Workshops on Mountain Biodiversity

Bandana Shakya

The International Conference on Biodiversity Conservation and Management for Enhanced Ecosystem Services: Responding to the Challenges of Global Change was held from 16-18



Professor Bruno Messerli giving key note speech at the inaugural session. Photo: ICIMOD.



Participants at the opening of IMBC. Photo: ICIMOD.

November 2008 at the ICIMOD Headquarters in Khumalatar, Lalitpur. The Conference was accompanied by two pre-conference workshops on Mountain Transboundary Protected Areas (10-14 November 2008), Linking Geodata with Biodiversity Information (15-16 November 2008), and a post-conference workshop on a Research Strategy on Global Change in Mountain Biosphere Reserves (19 November 2008).

ICIMOD brought together 12 global institutions and 75 experts and representatives from 20 countries involved in mountain biodiversity conservation and management to develop future alliances to jointly meet the emerging challenges of climate change in the mountains. Climate change, especially in the mountains, is expected to adversely affect mountain biodiversity and the lives and livelihoods of communities, not just living in the mountains but living downstream and beyond. The participants included representatives of global programmes, international and regional professionals, and representatives from government officials of the eight ICIMOD regional member countries. The conference allowed an open exchange of ideas and fruitful discussion on various thematic elements such as climate change and its implication for mountain biodiversity, biodiversity management for economic goods and ecosystem services, and institutionalising long term continuity in mountain research programmes.

The conference produced many concrete results including on the transect approach, the initiation of many bilateral agreements, and the production of a framework on transboundary protected areas. The transect approach on long term monitoring and research for representative HKH systems presented by ICIMOD was well received by the participants; the global programme also showed their enthusiasm and eagerness to support this initiative. Similarly, a framework for large scale ICIMOD protected areas and connectivity management was discussed; ICIMOD partners from China, Myanmar, and Pakistan