

## Report on the International Symposium of Mountain Studies, part of the 34<sup>th</sup> International Geographical Congress, Istanbul (16–20 August 2021)

Alexey Gunya & Fausto Sarmiento

### Abstract

The 34<sup>th</sup> International Geographical Congress was held online from 16 to 20 August 2021. Its main themes were strengthening our collective response to global problems and building *bridges between continents*. The International Geographical Union Commission of Mountain Studies (IGU-CMS) organized an International Symposium of Mountain Studies (Istanbul) as part of the congress, with 11 presentations over three different sessions. Three explored the development of mountain research methodology (montology), which underpins the advancement of mountain science. These focused on: montology as applied to mountain conservation; getting to grips with urbanization; and the reality of periglacial geographies. Other topics covered by the presentations included disciplinary methods of ecosystem dynamics, land-use change, transhumance, climate change model simulations of terraced landscapes, conservation of flagship species and mountain responses to extreme weather scenarios. The IGU-CMS also presented its plans for an edited book series on montology and announced the launch of its first volume (*Montology Palimpsest: A Primer of Mountain Geographies*) in time for next year's IGU Paris 2022.

The range of participants and topics at the 34<sup>th</sup> International Geographical Congress reflected the current state of geography, which is influenced by global trends: environmental change under the influence of climate factors, diffusion of digital technologies into all spheres of life, pandemics, migration crises, etc. The overarching themes of the congress were strengthening our collective response to global problems and building *bridges between continents*.

In his keynote lecture, Professor Mike Meadows called geography the “*science of sustainability*”, and the core objective of geography “*the study of the relationship between humans and the environment*”. He argued that, perhaps more than any other scientific discipline, geography makes a significant contribution to understanding human-environment relations, as demonstrated in the following areas: 1) hazard and risk research, 2) human impact studies, 3) Earth system science, 4) remote sensing and GIS, 5) environmental history, 6) landscape studies. This interaction between physical and human geography is evident in the study of mountains. The results of studies in the world's mountain systems were presented in several sessions at the congress. Of particular note was the International Symposium of Mountain Studies, with 11 presentations given over three sessions.

Three presentations explored the development of mountain research methodology (*montology*), which underpins the advancement of mountain science. The presentation by the Chair of the Commission of Mountain Studies, Professor Fausto Sarmiento (USA), focused on aspects of practical montology (*Applied Montology: Critical Biogeography of Andean Treelines and the Humboldtian Paradigm on Satoyama Landscapes*). Montology, as a complex science of mountains, where the issues of the relationship between humans and the mountain landscape with all the ensuing consequences (the transformation of mountain ecosystems, the in-

fluence of natural and destructive processes, the cultural heritage of mountain peoples and civilizations, etc.) are systematically considered, is a vivid expression of modern trends in geography.

The presentation by Andreas Haller and Domenico Branca (Austria) examined the prospects for studying urban areas in mountain regions (*Ideas on Urban Montology: Periurbanization, Verticality, and Ecological Complementarity in the Peruvian Andes*). They proposed a new direction of research – *urban montology*. In contrast to traditional montology, which assumes a homogenous rural landscape, urban montology focuses on the study of dense urban space in the mountains.

Meanwhile, the presentation by Yuri Golubchikov (Russia), *A Holistic Approach to High-Latitude and High-Altitude Regions of the World*, outlined the opportunities for combining studies of high-latitude and high-altitude regions of the world within the framework of a new direction in geography – *periglacial geography*.

Two presentations provided an overview of the state of mountain research at country level (Turkey and China). The Turkish mountains were the focus of the presentation by Neslihan Dal and Barbaros Gönençgil (*Description of Mountains and Mountainous Areas in Turkey*). It was emphasized that Turkey is a mountainous country, characterized by a wide range of mountain landscapes and development problems inherent in mountainous areas. Barbaros Gönençgil was head of the organizing committee for the congress and is an active member of the IGU Commission of Mountain Studies. The review of mountain research in China made by Dunlian Qiu (*Mountain Research in China*) showed that mountain research in China is represented in many universities and academic institutions, including the Chinese Academy of Sciences. Dunlian Qiu is the editor of one of the world's leading journals for mountain research (*Journal of Mountain Science*). It should be noted that in the context of dynamic

changes in the mountains of the world, such reviews of other mountainous countries would be very useful.

Lynn Resler (USA) explored a classic theme in mountain geography (*Phytotopographic Interactions in Three Mountain Environments and Potential Pathways for Ecosystem Development*). She explained how a study focusing on various regions of the United States demonstrated significant variability in alpine vegetation across different mountain environments. It should be noted that such studies are still central to mountain geography, with links to Carl Troll's mountain geocology. Another study in a similar vein, *Current Trends of Landscape/Land Cover Change of Protected Areas of North Caucasus (Case Study of Alanya National Park)* (N. Alekseeva, A. Cherkasova, Russia) was presented. The presentation emphasized that the main changes in the middle mountains are related to land use transformation, and in the high mountains to climate change.

Transhumance and mountain terrace farming are typical mountain practices. It should be noted that their relevance continues to be significant. This is evidenced by the announcement of a special issue of the journal *Mountain Research and Development* on transhumance. A. Gunya presented a report (co-authors I. Kerimov, U. Gairabekov, H. Zaburaeva, Z. Gagayeva, Y. Karaev) entitled *Contemporary Transhumance in the North Caucasus: Chances and Risks for Sustainable Development*, focusing on an assessment of the migration of livestock between high-altitude zones. It was noted that the scale of transhumance has declined sharply over the past thirty years. Modern transhumance is based on family associations and tribal alliances, with grazing regulated by traditional institutions and market relations.

A report on arable mountain terraces in the Caucasus Mountains (*Caucasus Mountain Agricultural Terraces*) was presented by Idris Idrisov (co-authors N. Ryabogina, A. Borisov, Russia). The speaker noted that agricultural terraces are most widespread in the Eastern Caucasus. They are highly resilient parts of the landscape and can be used in modern environmental model simulations.

The survival of high-altitude communities that rely on niche biological products was discussed in Sanjeev Poudel's (Australia) presentation on *Community-Based Management of "Himalayan Gold" (Caterpillar Fungus) in Remote Landscapes of Dhorpatan Hunting Reserve, Nepal*. Local communities, in order to prevent people from outside the area collecting caterpillar fungus, have developed their own rules for access to the mountain environments concerned. This ensures that revenues from the sale of the caterpillar fungus are guaranteed and pressure on mountain ecosystems is reduced.

An important aspect of mountain research related to extreme weather events was discussed in a presentation by Kenichi Ueno (Japan) entitled *Perspectives of Mountain Studies in the Coming World of Extreme Weather*. Significant climate change is accompanied by a decrease in the ability of the world's population to withstand impending risks. The way out of this predicament is education and training, not only using conventional approaches, but also by developing adaptation strategies.

The International Symposium of Mountain Studies demonstrated that in modern conditions we must pursue new approaches, and develop existing ones, for studying mountainous countries. At the meeting of the IGU Commission of Mountain Studies, held immediately after the symposium, it was noted that there is a need for analysis to provide an overview of the state of mountain research globally. It was also agreed that a similar symposium should be organized for the IGU Centennial Congress Paris 2022 to maintain the momentum and drive mountain geography forwards. The IGU-CMS has also signed a contract with Springer Nature Switzerland for the publication of an edited book series on montology, which will help take the message worldwide. Several volumes will be published with the first, entitled *Montology Palimpsest: A Primer of Mountain Geographies*, scheduled for release next year. The intention is that this volume will constitute an updated textbook of mountain geography almost a decade after Price et al. (2013).

## Reference

Price, M.F., A.C. Byers, D.A. Friend, T. Kohler & L.W. Price 2013. *Mountain Geography: Physical and Human Dimensions*.

## Authors

### Alexey Gunya

is full professor at the Institute of Geography of the Russian Academy of Sciences, and Co-Chair of the Commission of Mountain Studies of the International Geographical Union.

### Fausto Sarmiento

is full professor at the Department of Geography at the University of Georgia, USA, and Chair of the Commission of Mountain Studies of the International Geographical Union. E-mail: fsarmien@uga.edu