

## Report

# The 9<sup>th</sup> International Conference on Geomorphology in New Delhi, 2017

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**Abstract:** This report contains short information about the 9<sup>th</sup> International Conference on Geomorphology in New Delhi in 2017 organised by the International Association of Geomorphologists and the Indian Geomorphology Institute.

**Key words:** geomorphology, IAG/AIG, IGI, New Delhi, India

The 9<sup>th</sup> International Conference on Geomorphology of the International Association of Geomorphologists (IAG/AIG) was held in New Delhi from 6 to 11 November 2017. The chief organiser of the conference was the Indian Geomorphology Institute. The leading theme of this meeting was *Geomorphology and Society*. Professors Piotr Migoń, Zofia Rączkowska, Leszek Starkel and Zbigniew Zwoliński represented Poland in the Scientific Committee of the conference. The proceedings during the conference were organised in Vigyan Bhavan, in the centre of New Delhi, which a premier convention centre of the Government of India. The centre has been the venue of national and international conferences, seminars and award ceremonies. It is located in one of the most beautiful environs of Delhi, close to the Connaught Place business district and famous India Gate (Fig. 1).

There were several crucial Polish accents at the Indian conference. During the Opening Ceremony, a publication was presented on scientific research in India since 1968, written by Professor Leszek Starkel and published by the Journal of Indian Geomorphology under the title *Down the Memory Lane: Association of Polish Geomorphologists with India* (Starkel 2017). A letter from Professor Leszek Starkel to the conference participants was read. Prof. Leszek Starkel has been cooperating with Indian geomorphologists for almost 50 years on research on contemporary geomorphological processes in the Himalayas and the Meghalaya Plateau. In his papers, he has put the larg-

est emphasis on the impact of extreme events on the course of fluvial and landslide processes.

Also during the Opening Ceremony, Professor Zbigniew Zwoliński was awarded the Denys Brunsden Medal in recognition of his outstanding service to geomorphology, in accordance with the objectives of the IAG/AIG outlined in its constitution (Fig. 2). The justification indicated his contribution to the development of geomorphology through international cooperation, the promotion of research and development of geomorphology, as well as the



Fig. 1. The India Gate was wrapped in smog, which was so intense throughout New Delhi during a meeting of geomorphologists from around the world, November 6–11, 2017

promotion and distribution of knowledge about geomorphology. Professor Denys Brunsden was the primary initiator of the International Association of Geomorphologists and the first President of IAG/AIG (1989–1993); he became an Honorary Fellow in 1997 and supported the Association throughout his entire career. In his introductory word via Skype, Professor Denys Brunsden also mentioned the merits of Professor Stefan Kozarski and the Association of Polish Geomorphologists for the creation and development of the International Association of Geomorphologists. Professor Zbigniew Zwoliński was a member of the IAG/AIG Executive Committee in the years 1999–2013, acting as a webmaster connecting national and individual members of the global geomorphological community. In 2007 he was the main organizer of the IAG/AIG Regional Conference on Geomorphology *The geodiversity of polar landforms* in Spitsbergen. From then until 2017 he was a member of the Steering Committee of the

IAG/AIG Working Group on the Sediment Budget in Cold Environments SEDIBUD. In 2013, Professor Zwoliński initiated and chairs today the IAG/AIG Working Group on Landform Assessment for Geodiversity. Since 2014, this Working Group has been meeting at annual scientific sessions at the European Geoscience Union in Vienna. This group co-organized the International Conference on Geomorphometry in Poznań in 2015, which brought together scholars from 24 countries around the world. This year, at an Indian International Conference on Geomorphology, Professor Zwoliński was elected as the Vice Chairman of the IAG/AIG Working Group on Denudation and Environmental Change in Different Climatic Zones DENUCHANGE. He is the author of entries in the Encyclopedia of Geomorphology (2004) published by IAG/AIG and edited by Professor Andrew Goudie. Together with Doctor A.A.Beylich (Norway) and Professor J.Dixon (USA), Professor Zwoliński is a co-editor of the monograph entitled *Source-to-Sink Fluxes in Undisturbed Cold Environments* published by Cambridge University Press in 2016, in which he published several author's and co-authored chapters. The medal was presented to Professor Zwoliński by President IAG/AIG Professor Eric Fouache (France, United Arab Emirates) and Secretary General IAG/AIG Professor Sunil De Kumar (India) (Fig. 2).



Fig. 2. President of the IAG/AIG Professor Eric Fouache awarded the Denys Brunsden Medal to Professor Zbigniew Zwoliński. The ceremony was accompanied by Professor Sunil Kumar De – main convener of the 9<sup>th</sup> International Conference on Geomorphology in New Delhi, November 6, 2017

Moreover, during the Opening Ceremony new Honorary Fellows of the IAG/AIG were presented: Professor Michael Crozier (New Zealand), Professor Morgan De Dapper (Belgium), Professor Paola Fredi (Italy), Professor Mateo Gutierrez (Spain), Professor Jean-Pierre Peulvast (France) and Professor Savindra Singh (India) (Fig. 3).

Over 500 people from 44 countries took part in the conference (Fig. 4). Poland was represented by 21 researchers from the academic centres of Gdańsk, Kraków, Łódź, Poznań, Rzeszów, Sosnowiec and Wrocław (Fig. 5). The participants of the conference had the opportunity to present the results of their sci-



Fig. 3. IAG/AIG Honorary Fellows in 2017 (from right): Professor Jean-Pierre Peulvast (France), Professor Morgan De Dapper (Belgium), Professor Michael Crozier (New Zealand), Professor Savindra Singh (India), Professor Paola Fredi (Italy), and Professor Francisco Gutierrez (Spain; the son of the recipient of the Medal – Professor Mateo Gutierrez). On the left end is Professor Zbigniew Zwoliński



Fig. 4. Foyer of the Vigyan Bhavan – a premier convention centre of the Government of India



Fig. 5. Polish participants in the 9<sup>th</sup> International Conference on Geomorphology in New Delhi (from left): Aleksandra Michniewicz (Wrocław), Łukasz Pawlik (Wrocław), Agnieszka Latocha (Wrocław), Lucyna Wachecka-Kotkowska (Łódź), Zbigniew Zwoliński (Poznań), Zofia Rączkowska (Kraków), Adam Łajczak (Kraków), Kazimierz Szeffler (Gdańsk), Małgorzata Mazurek (Poznań), Małgorzata Wistuba (Sosnowiec), Małgorzata KijowskaStrugała (Kraków/Szymbark), Jiri Chlachula (Poznań), Piotr Migoń (Wrocław), Paweł Prokop (Kraków), Ireneusz Malik (Sosnowiec), Filip Duszyński (Wrocław), Miłena Różycka (Wrocław), Jolanta Czerniawska (Poznań), Piotr Gębica (Rzeszów), Mateusz Strzelecki (Wrocław), Zuzanna Świrad (Wrocław/Durham, Wielka Brytania)

entific research in the form of oral presentations and posters, and participate in discussions during several thematic sessions covering various research fields on a local, regional and global scale (ICG 2017):

- S1 Theoretical Geomorphology
- S2 Applied Geomorphology
- S3 Geomorphic processes in coupled human and natural systems
- S4 Geomorphological Resources
- S5 Volcanic Geomorphology
- S6 Karst Geomorphology
- S7 Anthropocene Geomorphology
- S8 Geomorphological Outreach
- S9 Bio-geomorphology
- S10 Weathering, Soils and Regolith on different time scales
- S11 Hillslope Processes and Mass Movements
- S12 Palaeohydrology and Fluvial Archives – hydrological extreme and critical events
- S13 Fluvial process and landforms
- S14 Large Rivers
- S15 Integrated River Management
- S16 Coastal Geomorphology and Management
- S17 Arid and Semi-arid Geomorphology
- S18 Tropical Geomorphology
- S19 Glacial and Periglacial Geomorphology

- S20 Mountain Geomorphology
- S21 Application of Remote Sensing and Geographical Information System in Geomorphology
- S22 Quantitative Geomorphology and Modelling
- S23 Geomorphological Mapping
- S24 Geomorphology and Allied Disciplines: Mutual Contributions for the Progress of Integrated Environmental and Disaster Studies
- S25 Future Earth: Research for Global Sustainability
- S26 Connectivity in Geomorphology
- S27 Sediment Budgets
- S28 Tropical Rivers
- S29 Geomorphology of Rocky Coasts
- S30 Submarine Geomorphology
- S31 Landform Assessment for Geodiversity: General Geomorphology, Geodiversity, Geoconservation
- S32 Planetary Geomorphology
- S33 Tectonic Geomorphology
- S33a Tectonic Geomorphology of Kachchh Basin
- S34 Geoarchaeology
- S35 Geomorphological Hazards and Risks: risk mitigation through new techniques under the challenges of environmental changes
- S36 Geomorphosites and Geotourism
- S37 Danxia Geomorphology
- S38 Extreme Events in Geomorphology



Fig. 6. The meeting room of one of the thematic sessions during the 9<sup>th</sup> International Conference on Geomorphology in New Delhi, November 6–11, 2017

S39 Land degradation and hazards in a changing environment

S40 Young Geomorphologists' Session.

In total, 477 lectures were delivered in 41 thematic sessions (Fig. 6), and 263 posters were presented. Among the co-chairmen of the session, Poland was represented by Professors Piotr Migoń, Paweł Prokop and Zbigniew Zwoliński.

Professor Zbigniew Zwoliński together with Professor Marco Giardino (Italy) chaired the thematic session S31: Landform Assessment for Geodiversity: General Geomorphology, Geodiversity, Geoconservation. *Subject of the session:* A broad spectrum of issues relating to the diversity of ancient and modern morphogenetic processes and landforms created by these processes is covered by this session proposed by the IAG/AIG WG on Landform Assessment for Geodiversity. Its aims are: to find, to describe, to analyse and to interpret typical, classical areas of varying morphology, morphogenesis and morphochronology. These can enhance: the assessment of past and present landforms, the recognition of geodiversity hotspots at various spatial scales, the awareness on the importance of the geomorphological parts of geoecosystems, either for theoretical or practical reasons. Even an apparently simple geomorphological landscape can show its great complexity expressed by polygenesis during different periods of formation. Assessment methods for complex geomorphological landscapes are varied, but a comprehensive approach to their diversity should also serve as a basis for comparative studies of different types of landforms and morphoclimatic zones of the world. Comparative studies are guideposts for a landforms hierarchy on the Earth's surface, as well as to build ontologies for geomorphological mapping, useful for proper land use and planning. We invite presenters from all over the world to participate in the session and to present various examples of complex types of landforms from the local case study to the vast geomorphological regions, from a single landform to entire continents. Varied spatial and temporal scales for the description and evaluation of landforms are extremely useful when assessing their geodiversity. In turn, the assessment methods of landforms for geodiversity

are useful in identifying those areas that have exceptional and unique qualities, which are worthy of protection and preservation in the form of national or landscape parks or geoparks. Relationships between landform geodiversity and local cultures are a tool for understanding peculiar attitudes towards natural phenomena, useful for improving nature conservation and resilience of our society.

Professor Piotr Migoń with professor Peng Hua (China) chaired the thematic session S37: Danxia Geomorphology. *Subject of the session:* This session aims to bring together geomorphologists working on landforms and processes shaping erosional landscapes in continental clastic deposits, especially conglomerates and sandstones. These landscapes, which range from plateaus through dissected terrains to plains with residual hills, are known in China as Danxia, but have equivalents in other countries, in various environmental settings. Danxia rock landscapes are often immensely scenic, but insufficiently understood scientifically. Processes operating at different temporal and spatial scales will be of interest, from weathering to complex landform evolution. Likewise, we welcome studies based on different approaches, from field observations to geomorphometric studies and modelling. Contributions from areas underlain by clastic deposits of non-continental origin are also welcome as they will help to analyse similarities and differences between erosional landscapes on clastic rocks of different origin.

Professor Paweł Prokop together with Professors Kate Rowntree (South Africa) and Owen Graham (Australia) chaired the thematic session S39: Land Degradation and Hazards in a Changing Environment (session co-organised with the International Geographical Union Commission on Land Degradation and Desertification). *Subject of the session:* It is almost certain that global environmental change is affecting the frequency and severity of natural hazards. Human activities can cause or increase their effects, as well as reducing the mitigating effects of natural ecosystems. Both natural and human induced hazards can lead to land degradation. Understanding and managing linkages and common feedbacks between them, within a changing environment, is one of the greatest challenges of our time. The IGU Commissions on Land Degradation and Desertification as well as Hazard and Risk welcome contributions on a range of topics related to the consequences of human intervention in environment i.e. dynamics of natural hazards, land degradation, desertification, soil erosion, climate change, and environmental management and policy. We seek papers that examine the interrelationship between hazard and land degradation within a variety of subfields that utilize a diverse range of approaches (field, modelling, historic, process, etc.). We also welcome presentations on resil-



Fig. 7. Professor Takashi Oguchi (Japan) gives a plenary lecture: Applications of Geospatial Technology in Geomorphology: Historical Review and Future Perspectives

ience studies for natural disaster, disaster sciences and risk communication studies.

Thematic sessions were accompanied by the following plenary lectures:

- Michael Crozier (New Zealand): Geomorphology and Society,
- Takashi Oguchi (Japan): Applications of Geospatial Technology in Geomorphology: Historical Review and Future Perspectives (Fig. 7),
- Morgan De Dapper (Belgium): Geomorphology: My Way,
- Francisco Gutierrez (Spain): Applied Geomorphological Investigations Using the Trenching Technique. Sinkholes, Faults, Landslides, Floods,
- Gerald C. Nanson (Australia): Equilibrium Theory, Evolution and Least Action Principle; Factors Determining Self-Adjustment in Geomorphology and Earth's Fluvial Stratigraphic Record,
- Savindra Singh (India): Indian Geomorphology: Past, Present and Future,
- Avijit Gupta (Singapur): Rivers in the Humid Tropics,
- Irasema Alcantara Ayala (Mexico): Geomorphology, Disaster Risk Reduction and Policy Making: On the Road to Sendai.

The conference participants could choose from a number of excursions: two before the conference

(A1: Deccan Plateau, A2: Kerala Laterites); three during the conference (M1: Geomorphology of Delhi and its surroundings, M2: Agra Fort and Taj Mahal, M8: Neemrana Fort Palace); and five after the conference (B3: Darjeeling Himalaya, B4: Kashmir Himalaya, B6: Semi-arid Gujarat, B8: Thar Desert, B9: Nepal Himalaya), as well as workshops for young geomorphologists, including field training (B10).

In the new four-year term of 2017–2021, the Working Group on Landform Assessment for Geodiversity will continue to operate under the guidance of Professor Zbigniew Zwoliński. The conference also brought to life a new Working Group on Denudation and Environmental Changes in Different Morphoclimatic Zones (DENUCHANGE). Dr Achim Beylich (Norway) was appointed its head, while Professors Luca Mao (Chile) and Zbigniew Zwoliński were appointed its vice-chairs.

During the two meetings of the IAG/AIG Council, it was decided that the next 10<sup>th</sup> International Conference on Geomorphology, under the leading theme of *Geomorphology and global change*, will be held in Coimbra (Portugal) in 2021, while two regional conferences on geomorphology will be held in Greece in 2019 and Iran in 2020. Prof. Mauro Soldati (Italy) was elected the new President of the IAG/AIG, and Prof. Piotr Migoń was again co-opted as a member of the IAG/AIG Executive Committee.

The following pages of this volume of Landform Analysis will present short reports on pre- (A2) and post-conference field trips (B4, B6, B9), in which participants from Poland took part.

## References

- ICG [International Conference on Geomorphology], 2017. Programme of the 9<sup>th</sup> International Conference on Geomorphology, New Delhi, India, November 6–11, 2017.
- Starkel L., 2017. Down the Memory Lane: Association of Polish Geomorphologists with India. *Journal of Indian Geomorphology* 5: 3–56.