

**INTERNATIONAL GEOGRAPHICAL UNION
COLD AND HIGH ALTITUDE REGIONS (IGU-CHAR) COMMISSION REPORT 2019-2020**

A. Membership

The structure of the IGU-CHAR current steering committee, including all names and contact details.

Is attached (Attachment 1). Will be confirmed at the IGU Congress postponed to 2021.

The counts of IGU-CHAR corresponding members by country is attached (Attachment 2). Will be confirmed at the IGU Congress postponed to 2021.

B. Meetings

In 2020 the huge work on meetings preparation and reorganization of those postponed for 2021 year due to the COVID-19 pandemic was undertaken by the Commission:

1. 34th INTERNATIONAL GEOGRAPHICAL CONGRESS, 17-21 August, 2021, ISTANBUL;

Four sessions suggested by the IGU-CHAR members were approved by the Congress organizing Committee.

2. The International Congress of Arctic Social Sciences (ICASS X) in June 2021, Archangelsk, Russia;

3. 3-day International Conference on 'Global Environmental Changes and High Mountains' , March 2021, in Nainital, Uttarakhand Himalaya, India organized as the IGU-CHAR event.

4. Preparation for the 2022 International Geographical Congress.

The main theme of the IGU-CHAR commission to be developed further to this 2022 International Geographical Congress is proposed to be “Polar and High Altitude Social-Ecological Systems Resilience and UN Sustainable Development Goals Implementation: the role of diverse geographical disciplines and approaches”. **This theme is tightly connected with the IGU Strategy 2020-2024 document implementation** highlighting and further promoting the work of IGU Commissions in relation to key global initiatives, including the UN Sustainable Development Goals (SDGs), Disaster Risk Reduction, Paris Climate Action and Habitat-III, and ISC Future Earth. This theme can be covered only by geography as a broad discipline that includes the natural sciences, the social sciences and the humanities.

Among meetings IGU-CHAR commission was engaged in, it is important to list the Arctic Circle 2019 Conference in which Wieslaw Ziaja, IGU-CHAR SC member from Poland took part, discussing problems of CHAR (including international collaboration in organization of research activities) during several sessions, including the session organized by the Polish Polar Consortium “*Changes of Glaciers and Their Forefields on Svalbard: Environmental Consequences in the High Arctic*”. His oral presentation was titled *New Landscape of Areas Abandoned by Glaciers in SE*

Spitsbergen after 1900. This conference is the biggest (c. 2000 participants each) scientific-political conference on the Arctic and is being organized every year in Reykjavik in October.

Weislaw also Co-organizing (as a member of the Organizing Committee) of the international conference of the inter- and multi-disciplinary independent scientific company EuroSciCon: 5th World Summit on Climate Change and Global Warming, Theme: Undertaking the Emerging Issues in Climate Change and Global Warming. February 17-18, 2020, Amsterdam, Netherlands.

Professor Prakash C. Tiwari, (IGU-CHAR SC member from India) from the part of the IGU-CHAR Commission participated in following International Meetings and Conferences:

- Sustainable Urban Development under Climate Change, Key Note Speaker, International Conference on 'Sustainability in Current Scenario: Challenges and Solutions', Gyan Vihar University, Jaipur, Rajasthan, India, 05-07 November 2020
- Climate Change Vulnerability Assessment in Himalaya, National Seminar on 'Adaptation & Resilience Building Challenges for the Himalayan Communities: Climate Change and Covid-19', G. B. Pant National Institute of Himalayan Environment (GBP-NIHE), Kosi-Katarmal, Almora, Uttarakhand, India, 04 September 2020
- Climate Change Adaptation Mainstreaming in Himalaya, Science and Technology Research-Policy-Practice Interface for Climate Risk Management, National Institute of Disaster Management [NIDM], New Delhi, 25-27 August 2020
- Climate Change Adaptation under Covid-19 Pandemic, National Workshop on 'Covid-19: Himalayan Environment', Special Centre for Disaster Research [SCDR], Jawaharlal Nehru University [JNU], New Delhi, 10 May 2020

Dr. Dario Trombotto Liaudat (The IGU-CHAR Honorable member from Argentina) participated in late 2019 with several presentations at the SouthCOP in Queenstown, and in the International Permafrost Association (IPA) Rock glacier inventories and kinematics Workshop in Evolène, Switzerland.

In 2020 several meetings devoted to the mentioned above Sustainability theme, due to the pandemic were organized online by the commission members. Andrey Petrov organized and Tatiana Vlasova made an Introductory video presentation at the Arctic Council Sustainable Development Working Group (SDWG) Arctic Resilience Forum's session entitled "Working Together in the Arctic: Respecting Indigenous Engagement, Equity and Sustainability of Knowledge Systems to Support Resilience in the Arctic", held on December 16, 2020.

The **geographical education meetings and activities** (among students and early career scientists) supported by the IGU-CHAR commission members should be specially underlined. Among the educational initiatives of the IGU-CHAR it is important to name - the Arctic-FROST

Annual Meeting and Early Career Workshop, which was held on October 16-20, 2019 in Cedar Falls, IOWA, USA. Andrey Petrov IGU-CHAR SC member from the USA is the leader of this project. Its theme in 2019 was Reuniting for Sustainability: Advancing Frontiers of Sustainability Science in the Arctic across Disciplines and Generations. Three IGU-CHAR SC and Honorable members (Andrey Petrov, Tatiana Vlasova and Nikolay Shiklomanov) took active part in it. During the meeting a Field Trip along the high bluffs and lowlands of the Upper Mississippi River Valley and the Effigy Mounds National Monument with the opportunity to see remarkable evidence of mounds been found in the shape of animal effigies. The place preserves many examples of pre-contact American Indian mounds that provide Woodland period American Indian mound building culture. As one of the results of this workshop it has been decided to make an Arctic Sustainability Knowledge Survey and produce a Sustainability Knowledge Geographical Map putting on it all themes and case study regions of Investigations of the Arctic Frost Early Career scientists.

All such wide in area and countries educational activities of the IGU-CHAR commission points on the importance of cooperation with the IGU Education commission which could be interesting for both commissions.

C. Networking

Taking into account the integrative role of Geography, especially IGU-CHAR commission in sustainability research and in building resilient Arctic socially-ecological systems, it is especially needed to point on our commission participation in international Networking projects, uniting activities of several countries, such as:

- 'Sustainable Natural Resource Use in Arctic and High Mountainous Areas' with twelve institutions from Europe, Russia and India (Professor Prakash C. Tiwari)
- 'Urban Growth, Land-Use Change, and Growing Vulnerability in the Greater Himalaya Mountain Range Across India, Nepal, and Bhutan' with Yale University, New Haven, USA; University of British Columbia, Vancouver, Canada and ICIMOD, Kathmandu, Nepal. Project funded by NASA, USA (Professor Prakash C. Tiwari)
- 'Climate Smart Agriculture in South Asia' with New Castle University, Newcastle, UK and University of Paradanya, Kandy, Sri Lanka. Project funded by Royal Society, UK (Professor Prakash C. Tiwari).
- "Arctic Sustainability: Synthesis of Knowledge" supported by the Belmont Forum, the world's largest consortium of transdisciplinary global change and sustainability research funders? Uniting researchers from 7 Arctic States (Andrey Petrov – Principle investigator, Tatiana Vlasova- Co-principle investigator).

One of the IGU-CHAR Commission priorities (as it was underlined in the previous IGU-

CHAR commission reports), is to provide institutional and intellectual support for interdisciplinary, international connectivity through active cooperation with professional associations belonging to Arctic Council observers, such as International Arctic Social Science Association (IASSA), International Permafrost Association (IPA), International Arctic Science Committee (IASC), University of the Arctic, Association of Polar Early Career Scientists (APECS). Mechanisms of network cooperation include cooperative agreements, co-organized conferences and shared networks. IASSA and IASC are members of the International Science Council (ISC)

The IASSA cooperation with our IGU-CHAR commission has a long history. The USA IGU-CHAR SC member Andrey Petrov is the president of IASSA and the IGU-CHAR Chair Tatiana Vlasova is the Councilor of IASSA. Nowadays this cooperation is especially important due to the rapid process of the new Arctic Sustainability Science development..

IGU-CHAR works closely with IASC and its Working Groups to foster interdisciplinary collaboration among Arctic countries. IGU-CHAR SC member- Andrey Petrov a chair of Social and Human Sciences Working Group of IASC in 2019 provided a strong link to that organization. IGU-CHAR also supports the IASC International Science Initiative in the Russian Arctic (ISIRA) which chair is Arkadiy Tishkov who is also the IGU-CHAR corresponding member. ISIRA is well known as an IASC group helping to stimulate international scientific cooperation between Arctic States.

Cooperative efforts of the IGU-CHAR commission with IASSA and IASC are very productive. We have a number of common interests and a solid history of working together in arranging workshops, conferences, and reports on topics of mutual scientific interest. The agreement will also help the communication of scientific output to students and the general public.

It is important to list other numerous polar organizations with which IGU-CHAR is continuing and establishing collaboration. Among them are International Association of Cryospheric Sciences (IACS)- Muci D., American Geophysical Union, American Association of Geographers (AAG)-Petrov A. and Dario Trombotto from Argentina presented the IGU-CHAR Commission as a member in the Climate and Cryosphere (CLIC) Scientific Steering Group(Dario Trombotto).

D. Publications

Arctic Sustainability, Key Methodologies and Knowledge Domains. A Synthesis of Knowledge 1st Edition. 2020. Routledge (*Editors: Andrey N. Petrov, Jessica K. Graybil*) 1st Edition. Routledge,150 pages. DOI [10.4324/9780429277016](https://doi.org/10.4324/9780429277016)
Tatiana Vlasova, Andrey Petrov. Geography in the Arctic sustainability investigation through international cooperation: the case of IASSA and the IGU-CHAR commission collaboration. Northern Notes. Issue 52. 2020 -P.24

Vlasova, T.; Petrov, A.N.; Volkov, S. Rethinking Sustainability Monitoring in the Arctic by Linking Resilience and Sustainable Development in Socially-Oriented Observations: A Perspective. *Sustainability* 2021, 13, 177. <https://doi.org/10.3390/su13010177>

Special issue of the scientific monography on the Polish national programme of polar research: Lewandowski M., Polkowska Z., Ziaja W., Bialik R., Ewertowski M., Głowacki P., Gotlib D., Goździk A., Grabiec M., Jankowska K., Luks B., Łuszczuk M., Majewski W., Migala K., Nawrocki J., Przybylak R., Pabis K., Sobota I., Strzelecki M., Walczowski W., and Węgrzyn M., **2020**. *Polish Polar Research: Green-and-White Paper under the aegis of the Polish Polar Consortium (PPC)*. Publications of the Institute of Geophysics, Polish Academy of Sciences, Geophysical Data Bases, Processing and Instrumentation, 431 (P-2), Monographic Volume, 144 pp., DOI: 10.25171/InstGeoph_PAS_Publs-2020-006.

Maciejowski W., Osyczka P., Smykla J., Ziaja W., Ostafin K., Krzewicka B. Diversity and distribution of lichens in recently deglaciated areas of southeastern Spitsbergen. *Acta Societatis Botanicorum Poloniae*, 87 (4): p.18. DOI 10.5586/asbp.3596

Szymański W., Maciejowski W., Ostafin K., Ziaja W., Sobucki M., 2019. Impact of parent material, vegetation cover, and site wetness on variability of soil properties in proglacial areas of small glaciers along the northeastern coast of Sørkappland (SE Spitsbergen). *Catena*, 183: 104209. <https://www.sciencedirect.com/science/article/pii/S0341816219303510>

Ziaja W., 2019. Geographical investigations in the management of the Svalbard environment. *Quaestiones Geographicae* 38(3), 51–57. <https://doi.org/10.2478/quageo-2019-0028>

Ziaja W., Ostafin K., 2019, *Origin and location of new Arctic islands and straits due to glacial recession*, *AMBIO*, 48(1): 25–34. <https://doi.org/10.1007/s13280-018-1041-z>

Tiwari, P. C. and Joshi, B. [2020]: Challenges of Urban Growth in Himalaya with Reference to Climate Change and Disaster Risk Mitigation: A Case of Nainital Town in Kumaon Middle Himalaya, India, in Dimri, A.P., Bookhagen, B., Stoffel, M., Yasunari, T. (Eds.) *Himalayan Weather and Climate and their Impact on the Environment*, Springer, pp.473-491

Heath, Lance C.; Tiwari, P. C.; Sadhukhan, B.; Tiwari, S.; Chapagain, P.; Xu, T.; Li, G.; Ailikum; Joshi, B. and Yan, Z. [2020], Building Climate Change Resilience by Using A Versatile Toolkit for Local Governments and Communities in Rural Himalaya, *Environmental Research*, <https://doi.org/10.1016/j.envres.2020.109636>

F. Acknowledgements

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Attachment 1
IGU COMMISSION: Cold and High Altitude Regions (IGU-CHAR)
2019-2020

Steering Committee	Full name	Gender	Country	Insitution
Chairperson	Tatiana Vlasova	F	Russia	Institute of Geography, Russian Academy of Science
Vice-Chair	Marie-Jeanne Royer	F	UK	Department of Geography & Earth Sciences, Aberystwyth University, Aberystwyth SY23 3DB UK
Steering committee member 1	Christian Schlüchter	M	Switzerland	Institut für Geologie, Universität Bern, Switzerland
Steering committee member 2	Wieslaw Ziaja	M	Poland	Institute of Geography and Spatial Management of the Jagiellonian University, Krakow, Poland
Steering committee member 3	Prakash Chandra Tiwari	M	India	Department of Geography, Kumaon University, India
Steering committee member 4	Andrey Petrov	M	USA	Department of Geography, University of Northern Iowa, Cedar Falls IA USA
Steering committee member 5	Dana Micu	F	Romania	Institute of Geography of the Romanian Academy
Steering Committee member 6	David William Hedding	M	South Africa	Depertment of Geography, University of South Africa
Steering committee member 7	Sophie Hou	F	France	Ecole Normale Supérieure de Lyon, Lyon, France

Note: maximum steering committee size should not normally exceed 11 members

Honorary Members	Full name	Gender	Country	Insitution
Honorary member 1	Nancy Doubleday	F	Canada	Department of Philosophy, McMaster University, Canada
Honorary member 2	Dario Trombotto	M	Argentina	Ianigla - CCT Mendoza – Conicet. Casilla de Correo 330 5500 Mendoza, Argentina
Honorary member 3	Nikolay I. Shiklomanov	M	USA	Department of Geography, George Washington University 1922 F St. NW Washington, DC 20052 USA
Honorary member 4	Jef Vandenberghe	M	Netherlands	Dept. Of Earth Sciences VU University De Boelelaan Amsterdam. The Netherlands

Attachment 2.**CHAR-IGU 2017-2019 Corresponding Members-Total by Country**

Will be confirmed at the IGU Congress postponed to 2021.

Argentina	22
Australia	2
Austria	1
Bangladesh	1
Britain	19
Canada	20
China	4
Estonia	1
Finland	1
France	6
Germany	37
Georgia	1
Hungary	6
India	3
Ireland	1
Israel	1
Italy	2
Japan	5
Mongolia	1
New Zealand	11
Norway	11
Poland	4
Portugal	4
Romania	6
Russia	17
South Africa	3
Spain	1
Sweden	9
Switzerland	19
The Netherlands	6
Ukraine	1
U.S.A.	16
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