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IGU Cold Region Environments Commission Annual Report 2012-13

A. Membership

1) Steering Committee:

The IGU CRE Steering Committee re-organized in 2012 to improve flexibility and performance and is now organized with a Chair (Canada), a Co-chair (Argentina, and representing Central and South America) and Regional Co-chairs reflecting the countries that are hosting future IGU General Assemblies (i.e. 2015 Russia, 2016 China). As well we have established a Secretariat.

It is very important that the IGU email to the Cold Region Environments Commission include all co-chairs whenever possible as the distribution of IGU lists is fundamental to organizing the regional meetings and the Congresses. If all our co-chairs are not included in the official IGU mailing lists it can lead to a lot of problems.

New members have been added from India, Belgium and USA.

As well we have established a Canadian Secretariat with the addition of two honorary members. In this regard, Dr. Mike Pisaric (Brock U) and Dr. Bryan Grimwood (U Waterloo) have signed on as Honorary Members of the CRE Steering Committee and will serve as CRE Secretary General and Young Researcher Advisor.

Details and contact information for Steering Committee members are available in Appendix I.

2) Corresponding Members: 209 in 31 countries, distributed as follows:

Corresponding Members 2013	Total: N=209
Country	
Argentina	7
Australia	2
Austria	1
Bangladesh	1
Britain	19
Canada	20
China	3
Estonia	1
Finland	1
France	6
Germany	37
Hungary	6
India	2
Ireland	1
Israel	1
Italy	2
Japan	5
Mongolia	1
New Zealand	11
Norway	11
Poland	4
Portugal	4
Romania	1
Russia	7
South Africa	3
Spain	1
Sweden	9
Switzerland	19
The Netherlands	6
Ukraine	1
U.S.A.	16

B. Meetings

a. Our commission members organized a number of meetings and participated in many others in 2012-2013, including:

2012 IPY Final Results Meeting, Montreal – 1 paper session, April 2012

2012 IGC Cologne – 2 paper sessions, 40 participants August 2012

2013 IGC Regional Meeting Kyoto – 1 paper session, 16 participants August 2013

2012 IPY Theme: Knowledge to Action: the results conference was the final and biggest meeting with some 7000 delegates. The general agreement of the participants was that we must find political will to act on evidence based science for social change if we are to find paths to sustainability.

2012 IGC Session Theme: Contextualising climate change: methodological, institutional and regional responses

A wide range of studies from a range of cold region scientific domains were presented and discussed, including physical and social change research from the Antarctic, the Arctic and high altitudes.

Introductions and overviews by the co-chairs framed the interrelationships among fields and regions. Discussion was positively in favour of the integration of social and physical sciences.

2013 Session Theme:

The need for integration of studies from different disciplines in order to understand and affect change was emphasized. That change is occurring is well understood but there is frustration in the lack of application of scientific findings in decisions in the world that will improve sustainability.

c. The meetings or other events you plan to hold in 2014 and later years, including locations, dates, and the topics to be addressed.

1) IGU - related

2014 Krakow, Poland Dates: 18-22 August 2014 Theme: "Arctic integrated geographical research and observation networks: Changes, challenges and responsibility" Co-Chairs: T. Vlasova and N. Doubleday

2015 Russia. CRE Session Co-Chairs: T. Vlasova and N. Doubleday

2016 China. CRE Session Co-chairs: X. Yang and N. Doubleday

2) Non-IGU

In 2014 the Canadian Association of Geographers will meet at Brock University and Mike Pisaric has graciously offered to organize a CAG-IGU CRE session. We will also work with CAG to promote collaboration with other IGU Commissions.

C. Networking

a. By email and in person discussions about cross-listing IGU Commission sessions, both in Cologne and in Kyoto, with concern for problems caused by concurrent sessions. Scientific research collaborations exist among many CRE members within their country regions. Strong

international collaboration exists among members as well, between Canada and Russia, China and South Asia, Japan and Europe, as examples.

Collaboration will be advanced with sessions in 2014 and 2015, where joint efforts with Hazard and Risk and Land-use have been discussed.

We have just launched a Facebook presence for our web site.

b. Collaboration with other international, intergovernmental, and inter- and multi-disciplinary groups in 2012-2013:

Active involvement with the 2012 IPY results meeting, and the successor bodies to various scientific studies underway formed a key area of collaboration in 2013.

Currently we are engaged in discussions of a co-organized session for the ICASS Conference program in May 2014.

Our Steering Committee members are active in a range of other associations including:

- 1) Xiaoping Yang Elected as Vice President of the IAG (International Association of Geomorphologists, www.geomorph.org) for the period 2013-2017, now in charge of the IAG Working Groups and the society's activities in Asian and Pacific regions.
- 2) Tatiana Vlasova, Councillor of the International Arctic Social Science Association

D. Publications

a. Newsletters, special journal issues, and books published in 2012-2013

Grimwood, B. S. R., & Doubleday, N. C. (2013). Illuminating traces: Enactments of responsibility in practices of Arctic river tourists and inhabitants. *Journal of Ecotourism*, 12(2), 53-74.

Grimwood, B. S. R., & Doubleday, N. C. (2013). From river trails to adaptive co-management: Learning and relating with Inuit inhabitants of the Thelon River, Canada. *Indigenous Policy Journal*, 23(4), 18 pages.

Grimwood, B. S. R., Cuerrier, A., & Doubleday, N. C. (2012). Introduction: Arctic community engagement during the 2007-2008 International Polar Year. *Polar Geography*, 35 (3-4), 189-193.

Grimwood, B. S. R., Cuerrier, Alain, & Doubleday, N. C. (Guest Editors) (2012). Special Issue: Arctic community engagement during 2007-2008 International Polar Year. *Polar Geography*, 35 (3-4), 189-340.

Grimwood, B. S. R., Doubleday, N. C., Laidler, G. J., Donaldson, S. G., & Blangy, S. (2012). Engaged acclimatization: Towards responsible community-based research in Nunavut. *The Canadian Geographer*, 56(2), 211-230

Grimwood, B. S. R. (2012). The social science ontology of environment: Challenges to human exceptionalism. In Holden, A., & Fennell, D. (eds.). *Handbook of tourism and environment* (pp. 19-30). New York, NY: Routledge.

Matsuoka, N., Ikeda, A., Fukui, K., Kumaki, Y. and Koide, H. (2012). Introduction to 'Earth Surface Dynamics in the Cryosphere: Review and Outlook'. *Journal of Geography*, 121, 181–186. (in Japanese with English abstract)

Matsuoka, N. and Ikeda, A. (2012): Research frontier in periglacial processes. *Journal of Geography*, 121, 269–305. (in Japanese with English abstract)

Matsuoka, N. (2013). Cold region geomorphology in Japan. *Geographical Review of Japan*, 86B, 22-32.

Matsuoka, N., Suzuki, K., Ohtsuka, T., Ueno, K., Kumon, F., Sugai, T. and Shikazono, N. (2013). Introduction to 'Changing Natural Environments in the Japanese Alps Region. *Journal of Geography*, 122, 547–552. (in Japanese with English abstract)

Matsuoka, N., Imaizumi, F. and Nishii, R. (2013). Geomorphic dynamics and sediment budget in the southern Japanese Alps: Recent studies and prospects. *Journal of Geography*, 122, 591–614. (in Japanese with English abstract)

Nishii, R. and Matsuoka, N. (2012): Kinematics of an alpine retrogressive rockslide in the Japanese Alps. *Earth Surface Processes and Landforms*, 37, 1641–1650.

Nishii, R., Matsuoka, N., Daimaru, H. and Yasuda, M. (2013): Precursors and triggers of an alpine rockslide in Japan: the 2004 partial collapse during a snow-melting period. *Landslides*, 10, 75–82.

Watanabe, T., Matsuoka, N. and Christiansen, H.H. (2012): Controls on patterned ground variability at a continuous permafrost site, Central Spitsbergen. In: Hinkel, K.M. ed., *Tenth International Conference on Permafrost 1: International Contributions*. The Northern Publisher, Salekhard, Russia, 431–436.

Watanabe, T., Matsuoka, N. and Christiansen, H.H. (2012): Mudboil and ice-wedge dynamics investigated by electrical resistivity tomography, ground temperatures and surface movements in Svalbard. *Geografiska Annalar*, 94, 445–457.

Watanabe, T., Matsuoka, N. and Christiansen, H.H. (2013): Ice- and soil-wedge dynamics in the Kapp Linné area, Svalbard, investigated by two and three dimensional ground-penetrating radar and ground thermal and acceleration regimes. *Permafrost Periglacial Processes*, 24, 39–55.

2013 Shiklomanov N.I., Streletskiy, D.A., Little, J.D., and Nelson F.E., *Isotropic Thaw Subsidence in Undisturbed Permafrost Landscapes*, *Geophysical Research Letters* (in press)

2013 Shiklomanov N.I., and Nelson F.E., *Thawing Processes and Thermokarst*. In, *Treatise on Geomorphology*, John F. Shroder (ed.) Volume 8, pp. 354-373. San Diego: Academic Press.

2013 Shiklomanov N.I., and Nelson F.E., *Active Layer and Thaw Processes*. In Elias, S.A. (ed.), *Encyclopedia of Quaternary Science 2nd Edition*, Vol 3., pp 421-429, Amsterdam: Elsevier Scientific Publishers

2012 Anisimov O.A., Anohin Y.A., Lavrov S.A., Malkova G.V., Pavlov A.V., Streletskiy D.A., Shiklomanov N.I. (in alphabetical order): Chapter 8: Continental Permafrost. In Semenov S.M. (ed.) *Modern Methods of climate change assessments in Russia*, C.M. Semenov Editor, Roshydromet, Moscow, Russia, 301-359 (In Russian).

2012 Grebenets V.A., Shiklomanov N.I., Streletskiy D.A., *Hazardous Geotechnical Problems of Arctic Cities*, *Geography, Environment, Sustainability* Vol. 5(3), 104-118

2012 Parente, G., Shiklomanov N.I., Streletskiy, D.A., *Living in the New North: Migration to and from Russian Arctic Cities*, *Focus on Geography* 55(3):77-89

2012 Shiklomanov, N.I., Streletskiy, D.A., Nelson, F.E., *Northern Hemisphere Component of the Global Circumpolar Active Layer Monitoring (CALM) Program*, *Proceedings of the 10th*

International Conference on Permafrost, K.M. Hinkel Editor, The Northern Publisher, Salekhard, Russia, Vol. 1, 377-384.

2012 Shiklomanov N.I., and Streletskiy D.A.: Effect of Cryosphere Changes on Siberian Infrastructure. In P.Y Groisman and G.Gutman (eds.) Environmental Changes in Siberia: Regional Changes and their Global Consequences. Springer Environmental Science and Engineering Series, Springer, New York, London, 155-170.

2012 Nyland K.E., Shiklomanov N.I., Streletskiy, D.A., Klene, A.E., Nelson F.E., Effect of Vegetation on Soil-Surface Temperatures in Northern Alaska, Proceedings of the Effect of Vegetation on Soil-Surface Temperatures in Northern Alaska K.M. Hinkel Editor, The Northern Publisher, Salekhard, Russia, Vol. 1, 295-302.

2012 Klene, A.E., Yoshikawa, K., Streletskiy, D.A., Shiklomanov, N.I., Brown, J., Nelson F.E., Temperature Regimes in Traditional Inupiat Ice Cellars in Barrow, Alaska, USA, Proceedings of the 10th International Conference on Permafrost, K.M. Hinkel Editor, Fort Dialog-Iset', Tymne' Ekaterinburg, Russia, Vol. 4, 268-269

2012 Streletskiy, D.A., Shiklomanov, N.I., Hatleberg E., Infrastructure and a Changing Climate in the Russian Arctic: A geographic Impact Assessment, Proceedings of the 10th International Conference on Permafrost, K.M. Hinkel Editor, The Northern Publisher, Salekhard, Russia, Vol. 1, 407-414.

2012 Streletskiy, D.A., Shiklomanov, N.I., Nelson F.E., Spatial variability of permafrost active-layer thickness under contemporary and projected climate in Northern Alaska, Polar Geography 1-22 DOI: 10.1080/1088937X.2012.680204

2012 Streletskiy, D.A., Shiklomanov, N.I., Nelson F.E. Permafrost Infrastructure and Climate Change: A GIS-based landscape approach, Arctic, Antarctic, and Alpine Research 44(3) DOI: 10.1657/1938-4246-44.3

2012 Shiklomanov, N.I., Non-Climatic Factors and Long-Term, Continental-Scale Changes in Seasonally Frozen Ground, Environmental Research Letters, 7: doi:10.1088/1748-9326/7/1/011003

2012 Streletskiy, D.A., Shiklomanov, N.I., Grebenetz V.A. Climate Warming-induced Changed in Bearing Capacity of Permafrost in the North of West Siberia, Earth Cryosphere, XVI(1): 22-32 (in Russian).

Vlasova Tatiana (leading author of two chapters in monograph). Arctic Resilience Interim Report 2013. Arctic Council (2013). Stockholm Environment Institute and Stockholm Resilience Centre, Stockholm. 117pp. ISBN 978-91-86125-42-4 (print) ISBN 978-91-86125-43-1 (PDF)

Tatiana Vlasova and Sergey Volkov (2013). Methodology of socially-oriented observations and the possibilities of their implementation in the Arctic resilience assessment. Polar Record, Cambridge University Press. 49, pp 248-253. doi:10.1017/S0032247413000119. ISSN 0032-2474.

Vlasova T.K., Volkov S.G. Local and traditional knowledge for observations and assessment of Arctic socio-ecological systems resilience // IGU Kyoto Regional Conference. Online book of abstracts. - Kyoto, August 4-9, 2013.

Vlasova T.K. Multi-scaled Socially-oriented Observations for Responses to Arctic Changes. International Conference «In the Spirit of the Rovaniemi Process. Arctic Cities, Global Processes and Local Realities».

2013. pp. 20-21.

Vlasova T.K. Interlinking Aims for Improving Arctic People's Quality of Life and Achieving Global Environment Sustainability as a Principle for Collective Action. *Northern Notes*. Issue 39. Spring/Summer. 2013. p.14

Tatiana K. Vlasova, Nancy C. Doubleday IGU Cold Regions Environments Commission Activities: Russia Cooperation. *Geography, environment, sustainability*, Russian Geographical Society, Faculty of Geography of Lomonosov Moscow State University and Institute of Geography of the Russian Academy of Sciences. ISSN: 2071-9388. 2012: Vol. 5, No. 3, pp. 120-124.

Yang, X., Wang, X., Liu, Z., Li, H., Ren, X., Zhang, D., Ma, Z., Rioual, P., Jin X. and Scuderi, L. (2013): Initiation and variation of the dune fields in semi-arid northern China - with a special reference to the Hunshandake Sandy Land, Inner Mongolia. *Quaternary Science Reviews* 78, 369 – 380.

Rioual, P., Lu, Y., Yang, H., Scuderi, L., Chu, G., Holmes, J., Zhu, B. and Yang, X. (2013): Diatom-environment relationships and a transfer function for conductivity in lakes of the Badain Jaran Desert, Inner Mongolia, China. *Journal of Paleolimnology* 50, 207 – 229.

Liu, Z. and Yang, X. (2013): Geochemical-geomorphological evidence for the provenance of aeolian sands and sedimentary environments in the Hunshandake Sandy Land, eastern Inner Mongolia, China. *Acta Geologica Sinica (English Edition)* 87, 871 – 884.

Lancaster, N., Yang X. and Thomas, D (2013): Spatial and Temporal Complexity in Quaternary Desert Datasets: Implications for Interpreting Past Dryland Dynamics and Understanding Potential Future Changes. *Quaternary Science Reviews* 78, 301-302.

Yang, X., Li, H. and Conacher, A. (2012): Large-scale controls on the development of sand seas in northern China. *Quaternary International* 250, 74-83.

Yang, X. (2012): Chapter 31 – Environmental change in arid and semi-arid regions. In: *The Handbook of Environmental Change*, Ed. Matthews, J., Bartlein, P., Briffa, K., Dawson, A., de Vernal, A., Denham, T., Fritz, S. and Oldfield, F. (London: Sage Publications) Volume II, 141-162.

E. 2012-2013 Presentations

N. Doubleday, *Social-Cultural-Ecological Systems Perspectives on Cold Region Environments and the Changes Affecting These Regions and the Peoples Who Inhabit the Cold Regions*. Discussion Paper presented to Interactive Session Hosted by Cold Region Environments Commission, International Geographical Union, Cologne, Germany. August 24-30, 2012

N. Doubleday, *Social-Cultural-Ecological Systems Perspectives on Cold Region Environments and the Changes Affecting These Regions and the Peoples Who Inhabit the Cold Regions*. Discussion Paper presented to Interactive Session Hosted by Cold Region Environments Commission, International Geographical Union, Cologne, Germany. August 24-30, 2012.

Doubleday, N.C. “Transforming Knowledge and Forming Understanding: the Importance of the Earth's Cold Regions to Our Collective Future”. Invited Public Lecture, Swiss Academy of Sciences Annual Congress, (SCNAT 2012), Interlaken, Switzerland. October 23, 2012.

Murray, M., Eicken, H., Bock, N., Epstein, H., Evengård, B., Gearheard, S., Gerlach, C.,

Graben, S., Grimwood, B., Juillet, C., Karcher, M., Labonte, D., McLennan, D., Pletnikoff, K., Schlosser, P., Scott, N., Sommercorn, M., Starkweather, S., Vardy, M., Vitale, V., Wagner, I., & Wandel, J. (2012). Science for society in the Arctic and beyond: Responding to Arctic environmental change. Poster 2089, Session 2C Governance Across Scales: Earth Stewardship. Planet Under Pressure 2012: New Knowledge Towards Solutions. March 26-29, London.

Grimwood, B. S. R., Doubleday, N. C., Donaldson, S. G., & Ip, M. (2012). Mobilizing Arctic knowledge for capacity and care through community-based, participatory, and visual research methodologies. Poster presentation at the 2012 International Polar Year Conference, Montreal, QC.

Doubleday, N. C., Ip, M., Donaldson, S. G., Grimwood, B. S. R., Charette, D., Ekidlak, C., Kattuk, E., Kavik, D., & Tookalook, L. M. (2012). Photos and plants through time: Knowledge of the impacts of a changing treeline through community-based research. Paper presentation at the 2012 International Polar Year Conference, Montreal, QC.

Grimwood, B. S. R. (2012). Six P's for enacting relational ethics: Recursive patterns in community-based participatory research of an Arctic riverscape. Panel presentation at the 2012 Conference for the Canadian Association of Geographers, Wilfred Laurier University.

Dunkin, J., & Grimwood, B. S. R. (2012). Mobile habitations of canoescapes. Paper presentation at the 2012 Conference for the Canadian Association of Geographers, Wilfred Laurier University.

Grimwood, B. S. R. (2013). Nature-culture values in Arctic riverscape tourism and inhabitation. Paper presentation at the Association of American Geographers Conference (special session on Re-framing Sustainable Tourism), Los Angeles, CA.

Muldoon, M., Qiu, J., Yudina, O., & Grimwood, B. S. R. (2013). A postcolonial reading of responsible nature-based tourism in Sub-Arctic Canada. Paper presentation at the 2013 International Critical Tourism Studies Conference V, Sarajevo, Bosnia-Herzegovina.

Shiklomanov N.I., Streletskiy D.A., and Nelson F.E., Isotropic Thaw Subsidence in Undisturbed Permafrost Landscapes. Annual Meeting of the American Geophysical Union, San Francisco, December 2013

Shiklomanov N.I. and Streletskiy D.A., Circumpolar Active Layer Monitoring (CALM) program: The Past Present and Future of Long-Term Active Layer and Near-Surface Permafrost Observations. International conference on Earth Cryology, Pushchino, Russia, October 2013.

2013 Shiklomanov N.I., Active Layer: Data availability and Analysis, World Meteorological Organization, Global Terrestrial Network on Permafrost, Geneva, Switzerland, May 2013

Shiklomanov N.I., Streletskiy D.A., Orttung R, Laruelle M., Building a Research Network for Promoting Arctic Urban Sustainability in Russia, Annual Meeting of the Association of American Geographers, Los Angeles, CA, April 2013

Shiklomanov N.I. and Streletskiy D.A., Climate Change and Infrastructure development in the Russian Arctic, Arctic Frontiers, Tromso, Norway, January 2013.

Shiklomanov N.I., Streletskiy D.A. , Nelson F.E., Active layer thickness and thaw subsidence in permafrost terrain: results from long-term observations near Barrow, Alaska, Annual Meeting of the American Geophysical Union, Invited presentation, San Francisco, December 2012

Shiklomanov N.I. and Streletskiy D.A., Arctic Urban Development and Climate Change: Past, Present, and Future of Russian Urban Infrastructure in permafrost regions, First Arctic Urbanisation Conference, Nuuk, Greenland, September 2012.

Shiklomanov, N.I., Urban Sustainability and Climatic Changes: Past, Present, and Future of the Russian Arctic Cities. Invited speaker for The Rutgers Initiative on Climate and Society lecture series, Rutgers University, New Jersey, October 19th

Shiklomanov, N.I., Streletskiy, D.A., Nelson, F.E., Northern Hemisphere Component of the Global Circumpolar Active Layer Monitoring (CALM), Tenth International Conference on Permafrost, June 25-29, Salekhard, Russia.

Shiklomanov N.I., Streletskiy D.A., and Nelson F.E., Circumpolar Active Layer Monitoring Program: Results of Long-term Observations in Alaskan and Russian Arctic, International Polar Year 2012 conference, Montreal, Canada, April 2012

Shiklomanov N.I. and Raiser C., From Prominence to Collapse to Sustainable Development: The past, Present, and Future of the city of Igarka, Annual Meeting of the Association of American Geographers, New-York, NY, March 2012.

Shiklomanov N.I. and Streletskiy D.A., Change in permafrost across the Northern Eurasia and its possible effect on infrastructure. NASA Regional Workshop on Hydrological consequences of changes in climate and land cover across Northern Eurasia, St. Petersburg, Russia, February 2012.

Yang, X. (2013): Geomorphology and palaeoenvironmental changes in arid Asia. Abstracts of the Eighth International Congress on Geomorphology at Paris, France, August 2013, 132 (one of the five plenary lectures).

Yang, X. (2012): Holocene climate changes and recharge of the inter-dune lakes in the Badain Jaran Desert, western China. Abstracts of 2012 GSC's (Geographical Society of China) Scientific Conference at Kaifeng, China, October 2012, 163 (in Chinese).

Yang, X., Scuderi, L., Liu, Z., Li, H., Ren, X., Zhang, D. and Rioual, P. (2012): Present understanding of deserts in China. Abstracts of International Workshop on Desert Dune System: Past Dynamics and Chronology at Ahmedabad, India, March 2012, 28-29 (Keynote Talk).

Scuderi, L., Weissmann, G., Kindilien, P., Lane, T. and Yang, X. (2012): Database creation in support of an atlas of global dune system: approaches, problems and analytical promise. Abstracts of International Workshop on Desert Dune System: Past Dynamics and Chronology at Ahmedabad, India, March 2012, 28-29.

Liu, Z. and Yang, X. (2012): Provenances of aeolian deposits in the Hunshandake Sandy Lands. Abstracts of 2012 GSC's (Geographical Society of China) Scientific Conference at Kaifeng, China, October 2012, 85 (in Chinese).

Li, H., Yang, X., Ren, X. and Zhang, D. (2012): A new synthesis of environmental changes in deserts. Abstracts of 2012 GSC's (Geographical Society of China) Scientific Conference at Kaifeng, China, October 2012, 58 (in Chinese).

Ren, X., Yang, X., Li, H. and Zhang, D. (2012): Chemistries of ground water in the Hunshandake Sandy Lands and their hydrological interpretations. Abstracts of 2012 GSC's (Geographical Society of China) Scientific Conference at Kaifeng, China, October 2012, 108 (in Chinese).

Zhang, D., Yang, X., Ren, X. and Li, H. (2012): Numerical simulation of star dunes. Abstracts of 2012 GSC's (Geographical Society of China) Scientific Conference at Kaifeng, China, October 2012, 174 (in Chinese).

b. The current accurate URL of the commission's web site.

<https://www.facebook.com/IGUCRE2013> (under construction, TBA)