

International Workshop on Cryospheric Changes in a Warming Climate: Filling the Gap between Observations and Decision-making

Lijiang, China, 26-27 October, 2019

(FIRST CIRCULAR)



Organized and Sponsored by:

State Key Laboratory of Cryospheric Science (SKLCS), Northwest Institute of Eco-
Environment and Resources (NIEER), Chinese Academy of Sciences (CAS)

International Arctic Research Center, University of Alaska, Fairbanks (IARC, UAF)

State Key Lab of Frozen Soil Engineering (SKLFSE), NIEER, CAS

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Yulong Snow Mountain Glacier and Environment Observation Research Station, CAS



THEME

The Earth's cryosphere comprises a variety of snow and ice formations accounting for large areas of the Earth's surface covered by frozen water, including glaciers, ice sheets, snow cover, sea ice, lake and river ice, permafrost and solid precipitation, etc. Cryosphere can be divided into three categories, i.e. continental, marine and aerial, according to the dynamic and thermal conditions of formation, development and geographical distribution of cryosphere elements. All components of the cryosphere are closely interlinked and coupled to other components of the Earth system. Due to rapid changes in response to ongoing climatic warming, the cryosphere has received increased attention by the scientific community, policymakers, and the public. Glacier retreat and mass loss, snow cover decrease, sea ice extent decline, and permafrost thawing are at the forefront of concerns due to ranges of potential socio-economic, ecological, and environmental consequence. Developing efficient risk mitigation and adaptation strategies requires that cryospheric science fills the gap between cryospheric observations and decision-making. This workshop will thus focus on our current capabilities in extending observations to modeling and assessing cryospheric changes, identify mitigation and adaptability strategies in the rapidly changing cryosphere, understand cryosphere services, and develop pathways to decision-makers.

TOPICS

- Cryospheric processes and dynamics

The cryosphere is not only a prominent factor, but also an indicator in global climate change. It plays an important role functioning as one of the most direct and sensitive feedbacks in the climate system. It is understood that the global cryosphere has been undergoing significant changes in recent decades. Almost all of the components of the cryosphere are losing mass following climate warming. As the trend continues, the arctic sea ice extent keeps shrinking, and global glacier volume, Northern Hemisphere spring snow cover, and permafrost extent continue to decrease. The focuses of the topic include: 1) Assessing and quantifying rapid cryospheric changes; 2) Describing cryospheric processes in different regions against a 1.5/2°C global warming background; 3) Improving understanding of the physical processes and feedback mechanisms between the cryosphere and other spheres; and 4) Discussing implications for decision-makers responding to rapid changes driven or affected by a changing cryosphere.

- Cryosphere services and their roles in sustainable development

The cryosphere plays an important role in regulating climate and Earth systems by positive and negative feedback processes of water, energy, and biogeochemical exchange in different spatiotemporal scales. It conserves a significant amount of natural resources (e.g. water, natural gas, oil), endemic biological species and

indigenous cultural functions, and therefore play irreplaceable roles in servicing sustainable development to balance the needs of people, planet and profits (3Ps) at high mountain and polar regions. The session aims to assess the cryospheric services function (CSF), as relevant for, e.g., resource development, ecosystem services, cultural services, tourism and related factors.

- Impacts of cryosphere changes and adaptation

Rapid changes in the cryosphere have profound influences on societies, environment and economy. To understand the impacts of cryosphere changes and the ways to adapt to the changes, the session focuses on: 1) assessing the impact of Arctic cryospheric changes on infrastructure, resource development and maritime traffic; 2) evaluating impacts of glacier (ice sheet) melting on sea level rise and water resources; 3) giving an insight into permafrost degradation and impacts on ecosystem change; and 4) exploring regional adaptation and decision-making affected by cryospheric change.

SCIENCE STEERING COMMITTEE

Prof. Dahe Qin (chair), SKLCS, NIRRR, CAS

Prof. Yuanming Lai, NIEER, CAS

Prof. Larry Hinzman, UAF

ORGANIZING COMMITTEE

Prof. Shichang Kang, SKLCS, NIRRR, CAS

Prof. Hajo Eicken, IARC, UAF

Prof. Cunde Xiao, State Key Laboratory of Earth Surface Processes and Resource Ecology, BNU

CONFERENCE SECRETARIAT

Secretary General:

Dr. Tonghua Wu E-mail: thuawu@lzb.ac.cn; Phone: 86-931-4967713

Dr. Bob Bolton Email: wrbolton@alaska.edu; Phone: +1 907 474 6421

Dr. Shijin Wang E-mail: wangshijin@lzb.ac.cn; Phone: 86-931-4967399

Address: No. 320, Donggang West Road, Lanzhou 73000, Gansu Province, P. R. China

State Key Laboratory of Cryospheric Science (SKLCS), Northwest Institute of Eco-Environment and Resources (NIEER), Chinese Academy of Sciences (CAS)
International Arctic Research Center, University of Alaska, Fairbanks (IARC, UAF)

CALL FOR ABSTRACTS

Authors are invited to submit a 250-300 word abstract which should be 21*29.7cm (A4) with a margin of 3 cm on the top and bottom and 2.5 cm on the right and left,

using "Times New Roman" font throughout, single-spaced paragraphs and 12 pt. type for the body text. An abstract should contain the title, author(s) full name (the speaker's name should be underlined), address and E-mail. The authors are also required to complete and return the application form.

Please submit your abstract (in Microsoft Word format) and application form by E-mail to thuawu@lzb.ac.cn by **Oct. 10, 2019**.

VENUE

The conference will be held at Guanfang Hotel (Lijiang Qidian), No. 966, Shangri-La Avenue, Gucheng District, Lijiang City, Yunnan Province.

ACCOMMODATION

A number of hotels located within several kms of the conference venue (a 10-minute walk) have provided group rates for the workshop.