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Introduction to Outreach and Education in the Cryosphere

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The cryosphere is one of the most dynamic and most obvious indicators of climate change. Some US colleagues even speak of rapid glacier and snowline retreat as the “canary in the coalmine” effect. However, for numerous non-scientists and stakeholders directly involved in cryosphere management, climate change and anthropogenic impacts on the cryosphere are often not yet recognised to their full extent. For example, planning in mountain areas is often carried out under the assumption that climate change will not impact these areas as heavily as predicted, despite the fact that temperature increase has been higher in many mountain zones than the lowlands. Therefore it is important to create distinct awareness raising in the field of basic and applied cryosphere research. Sessions at this years’s Cryospheric Sciences span general cryosphere topics, remote sensing, permafrost, ice sheet and glaciers, snow and energy balance, snow economics, mountains, sea ice and oceanography and climate change. These include more recent topics related to rapid cryosphere decay such as Arctic Coastal Processes, where the impacts of rapid permafrost melt on coastal zones will be discussed, Climate Change Impacts on Permafrost and related Hazards, Subglacial Environments, reacting sensitively to increasing temperatures and Biogeochemistry and Soil genesis in Snow-covered areas, implying that processes such as soil mineralization under seasonal snow cover may be changing with changing climatic conditions. Mountain related topics include the future of Artificial Snow under climatological, hydrological and economical constraints as well as the economical value of snow, Mountain Hydrology, including evolving problems of water scarcity in mountains, the changing hydrology and climatology of Himalayan Glaciers, the increased susceptibility to Glacier Lake Outburst Floods and Applied Sea Ice, which includes problems and benefits related to increased sea ice melt, such as changing navigation or pollutant release. Different approaches are important for an understanding cryospheric processes. Thus in this session interdisciplinary field work and modelling, outreach to media and methods for interaction with students, teachers and school children will be highlighted. It will also underline the importance of dissemination of data and results on rapid crysophere change for cryopshere managers and policy makers.