Geophysical Research Abstracts
Vol. 20, EGU2018-13920, 2018
EGU General Assembly 2018

A Technical Guidance Document for the Assessment of Glacier and Permafrost Hazards in Mountain Regions

Simon Allen (1), Holger Frey (1), Christian Huggel (1), Michael Krautblatter (2), Wilfried Haeberli (1), Marta Chiarle (3), and Marten Geertsema (4)

(1) Department of Geography, University of Zurich, Switzerland , (2) Technische Universität München, Germany, (3) Consiglio Nazionale delle Ricerche (CNR), Istituto di Ricerca per la Protezione Idrogeologica (IRPI), Italy, (4) Ministry of Forests, Lands, and Natural Resource Operations, and Rural Development, Prince George, BC, Canada

Hazards relating to glaciers and permafrost are a threat to lives and livelihoods in many mountain regions. In view of rapid global warming and related changes in the mountain cryosphere, landscapes are evolving and new threats are emerging. Coupled with ongoing expansion of people and their infrastructure into high mountain valleys there is an increasing potential for societal losses and far-reaching disasters. Recognizing the need for a structured and comprehensive approach to hazard assessment underpinned by latest scientific understanding, the Joint Standing Group on Glacier and Permafrost Hazards in High Mountains (GAPHAZ) of the International Association of Cryospheric Sciences (IACS) and the International Permafrost Association (IPA) has produced a technical guidance document as a resource for international and national agencies, responsible authorities and private companies. Two core components were distinguished within an assessment framework; 1) Susceptibility and stability assessment: identifying where from, and how likely hazard processes are to initiate; 2) Impact assessment: identifying the potential threat from the hazard for downslope and downstream areas, and providing the scientific basis for decision making and planning. The guidance document provides several illustrative examples from the Peruvian Andes, demonstrating how the assessment framework can be applied in the case of cascading, chain reaction events. It is meant as a tool for experts in charge of hazard evaluations, reflecting current scientific state-of-the-art, but does not intend to replace the knowledge and experience required for such assessments.