

Internationally Coordinated Glacier Monitoring

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Changes in glaciers provide one of the clearest evidence of climate change and as such they constitute an Essential Climate Variable in the Global Climate/Terrestrial Observing System (GCOS, GTOS) in support of the United Nations Framework Convention on Climate Change (UNFCCC). As recommended by the International Council for Sciences (ICSU), free and unrestricted international sharing of high-quality, long-term and standardized data and information products is one of the basic requirements for advances in research as well as for political decisions. This position has a long tradition in glaciology:

The internationally coordinated collection and distribution of standardized information about glacier changes was initiated back in 1894 and is today coordinated within the Global Terrestrial Network for Glaciers (GTN-G) under the auspices of FAO, ICSU, UNEP, UNESCO, and WMO. The GTN-G is jointly run by three operational bodies involved in glacier monitoring: the World Glacier Monitoring Service (WGMS, www.wgms.ch), the U.S. National Snow and Ice Data Center (NSIDC, www.nsidc.org), and the Global Land Ice Measurements from Space (GLIMS, www.glims.org) initiative.

With an online service (www.gtn-g.org), GTN-G provides fast access to regularly updated information on glacier inventory data. Currently, this includes glacier inventory data from about 100,000 glaciers mainly based on aerial photographs and maps, as well as digital outlines from also about 100,000 glaciers mainly based on satellite images. The GTN-G databases also include length change series from 1,800 glaciers, mass balance series from 250 glaciers, information on special events (e.g., hazards, surges, calving instabilities) from 130 glaciers, as well as 13,000 photographs from some 500 glaciers. All of these datasets are freely available and have been used in numerous scientific publications as well as in the assessment reports of the Intergovernmental Panel on Climate Change (IPCC).

In this presentation, we provide an overview of the operational structure, the monitoring strategy of GTN-G, and the available datasets within GTN-G. Furthermore, we address the current challenges of internationally coordinated glacier monitoring and its expectations of ICSU's new World Data System.