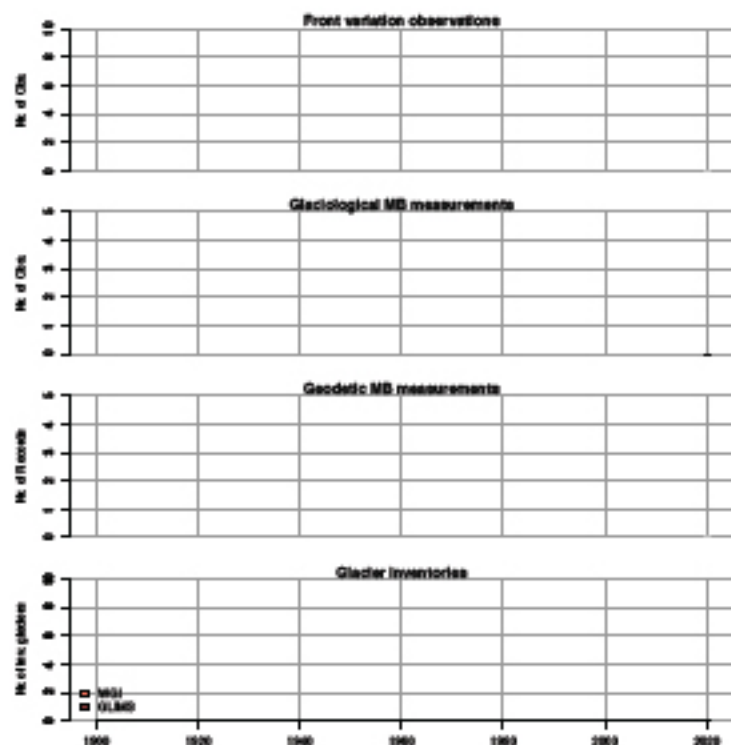


GLACIER MONITORING: <CC>

General introduction and overview: General remarks on the status of the glacier monitoring in the respective country. The aim of this assessment is to evaluate the national implementation of the international monitoring strategy (Global Hierarchical Observing Strategy; GHOST) in the respective countries.

Available series



This figure is standardized for all countries and shows the availability and number of Front Variation (FV) and glaciological and geodetic Mass Balance (MB) measurements in the respective country as reported to the WGMS. The last graph shows the number of inventorized glaciers as counted from the current GLIMS and RGI data set. The numbers in the grave provide information on the first and last year measurements.

Active investigators and institutions

Principal Investigators of Mass Balance Measurements: <Name> <(Sponsoring Agency)>



National Correspondent: <Name> <(Sponsoring Agency)>

Short comment from corresponding NC + Foto

List of Abbreviations:

WGMS: World Glacier Monitoring Service
FV: Front Variation
MB: Mass Balance
TC: Thickness Change
RGI: Randolph Glacier Inventory

NC: National Correspondent
GCOS/GTOS: Global Climate/Terrestrial Observing System
GHOST: Global Hierarchical Observing Strategy
WGI: World Glacier Inventory
GLIMS: Global Land Ice Measurements from Space



Key statistics

	FV	MB	TC
tot. glac. area: RGI best estimate	#	#	#
tot. cov. GLIMS: in % RGI	#	#	#
tot. cov. GLIMS: in % RGI	#	#	#
No. of series:	#	#	#
Avg. length [years]:	#	#	#
Avg. no. of obs.:	#	#	#

Present state and Future potential/needs

Glacier observation by GCOS/GTOS follows a tiered Global Hierarchical Observing Strategy (GHOST), which is designed to retain adequate spatial and temporal resolution. Here, tiers are implemented as follows (after Haeberli et al., 2000):

- Tier 1** *Multicomponent system observations across environmental gradients:*
The observations should have a broad spatial diversity and the focus is on uninterrupted, long-term measurements.
- Tier 2** *Extensive glacier mass balance and flow studies within major climatic zones* for improved process understanding and calibration of numerical models. Selected study sites should represent the characteristic environmental conditions of the respective climatic zone.
- Tier 3** *Determination of regional glacier volume change within major mountain systems* using cost-saving methodologies. At this tier, the intention is to sample the range of environmental conditions within climatic zones, without spatial representativeness.
- Tier 4** *Long-term observations of numerous glacier length, area and thickness changes within major mountain ranges* for assessing the representativeness of cont. mass balance and volume change measurements on single glaciers. Spatial representativeness is of highest priority
- Tier 5** *Glacier inventories repeated at time intervals of a few decades* by using remote sensing. Acquisition of data from airborne or spaceborne remote sensing products in yet uncovered regions to complete the global picture of the world's glaciers.

Spatial distribution of series

A map of the respective country illustrates the type spatial distribution measurement series and their length as reported to the WGMS according to the legend on the right.

- ◊ FV Series with < 30 Obs.
- FV Series with ≥ 30 Obs.
- MB Series with < 30 Obs.
- MB Series with ≥ 30 Obs.
- TC Series
- + discont. Series

References

The analyses are based on the following data set versions and represent the current state as of 2015:

- WGMS and NSIDC. 1980, updated 2012. World Glacier Inventory. Compiled and made available by the World Glacier Monitoring Service, Zurich, Switzerland, and the National Snow and Ice Data Center, Boulder CO, U.S.A. doi: 10.7265/NS/NSIDC-WGI-2012-02
- GLIMS and NSIDC (2005, updated 2015): Global Land Ice Measurements from Space glacier database. Compiled and made available by the International GLIMS community and the National Snow and Ice Data Center, Boulder CO, U.S.A. DOI:10.7265/NSV/98602
- Arendt, A. et al. 2012, Randolph Glacier Inventory (v5.0): A Dataset of Global Glacier Outlines. Global Land Ice Measurements from Space, Boulder Colorado, USA. Digital Media.
- WGMS all bulletins/FOG
- Haeberli, W, Ohler, J., and Barry, R. G. (2000). Glacier monitoring within the Global Climate Observing System. Annals of Glaciology, 31: 241–246.

A complete list of PIs and sponsoring agencies can be found in the Appendix.