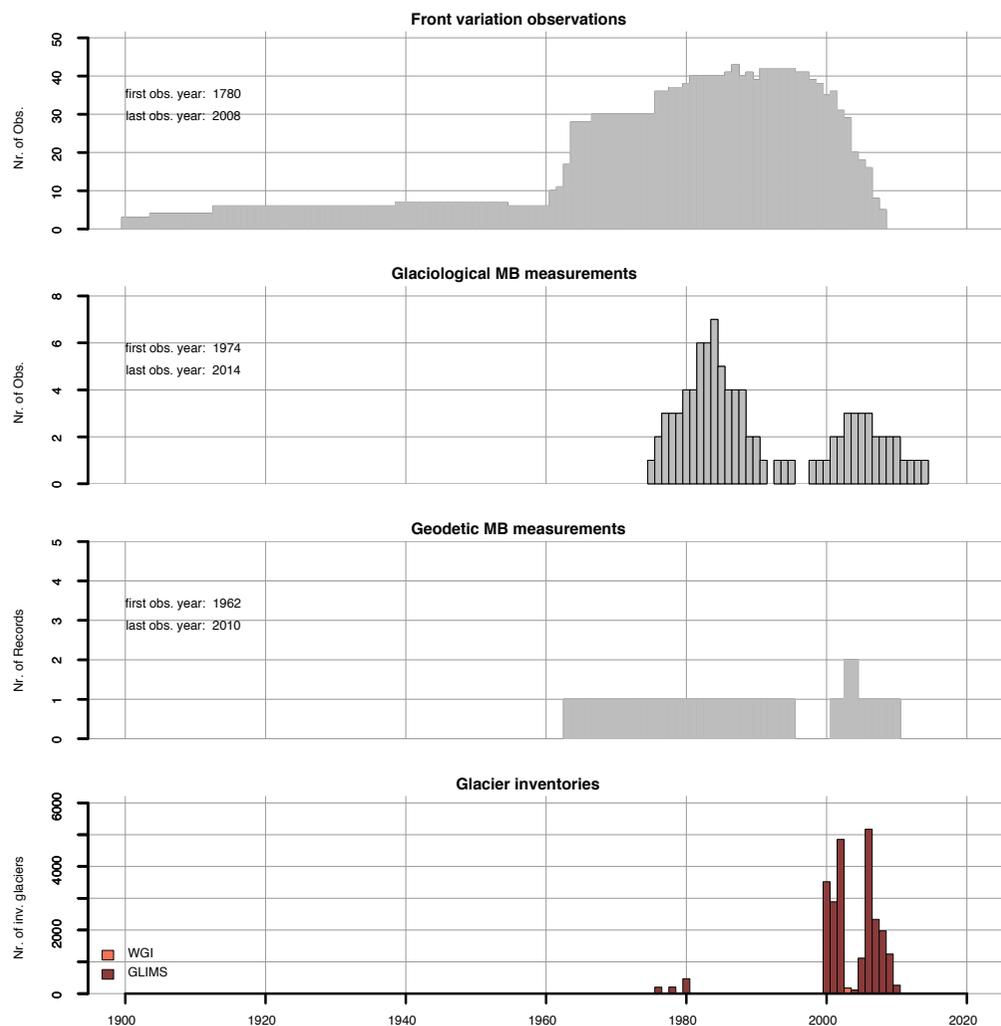


GLACIER MONITORING: INDIA

Glaciers in India have a significant role in local and regional water resources, natural hazards, and geopolitical stability. The country lack long-term and detailed information on glacier changes.

Available series



Front variation observations in India started in the late 18th century and had its peak between 1980 and 2000 with about 40 series. After 2000 the number of observations decreased significantly. Mass balance was measured on a few glaciers only and lacking a long-term mass balance series. Also geodetic data is limited. Glacier inventories show a full coverage (GLIMS) after 2000.

Key statistics

	Front Variation	Mass Balance	Thickness Change
total glaciated area: 15'417 km ²	47	14	3
Number of series:	19	7	0
total coverage WGI: 26 %	Average length [years]:	4	7
total coverage GLIMS: 117 %	Average number of observations:	4	7
		1	

Present state

Glacier observations mainly based on research projects.

No long-term and detailed mass balance programme.

A few glaciers with a decade of glaciological measurements.

A few dozen front variation series covering the late 20th century, a few series extending back to 1900. Geodetic data is available for 3 glaciers only. No more data reported in recent years.

Limited coverage in WGI, full coverage in GLIMS after 2000.

Future potential/needs

Coordinate national glacier monitoring activities. Collaborate with glaciologists in neighbouring countries. Promote free and open exchange of glacier data.

Promotion of one or a few benchmark glaciers for long-term and detailed measurement programmes for process understanding and model calibration.

Continue existing mass balance measurements and establish new in-situ series in other mountain region of the country.

Resume front variation measurements and fill gaps with remote sensing data. Encourage geodetic volume change assessment.

Compile glacier inventories with remote sensing for 20th century. Plan next repeat inventory towards 2020.

Spatial distribution of series

Glaciers in India are concentrated in the North of the country, in the Himalaya, covering an area of about 15000 km² and feeding important rivers, such as the Ganges and the Brahmaputra.

The glacier observation series in India are mostly short and therefore long-term and detailed monitoring programmes needs to be set up to allow future documentation on glacier changes.

