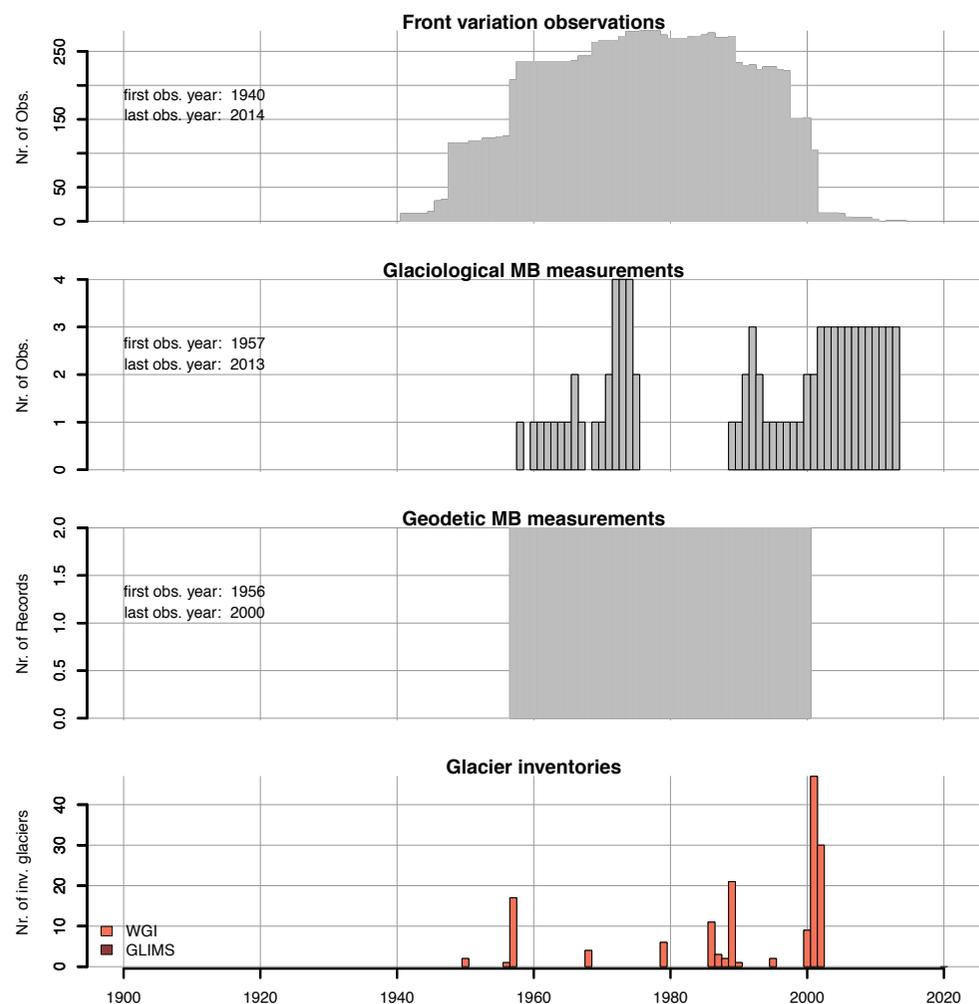


# GLACIER MONITORING: ANTARCTICA

The glaciers outside the Antarctic icesheet are of great importance, but the history of glacier monitoring is relatively young. A number of length change measurements is available, but long-term data series (front variation and mass balance) are sparse.

## Available series



Glacier front variation observations in Antarctica reach back to 1940, show a constant (high) number between 1960 and 1990 and a significant decrease since then. The glaciological mass balance measurements started end of the 1950s on one glacier and increased to only 3 nowadays. Almost no geodetic volume change assessments exist. WGI inventories are available, but not complete.

## Key statistics

	Front Variation	Mass Balance	Thickness Change
total glaciated area: 132'867 km <sup>2</sup>			
total coverage WGI: 1.2 %	283	15	2
total coverage GLIMS: 74 %	3	5	1
Number of series:	2	6	1
Average length [years]:			
Average number of observations:			

## Present state

Glacier monitoring is carried out by various nations and a larger number of investigators. Differentiation between ice sheet and glacier monitoring not always clear.

Only a few long-term measurement series with more than ten years of mass balance observations.

Limited number of mass balance sites with typically not more than a few years of observations.

Most glaciers of the Antarctic Peninsula have remotely sensed front variation observations. Only a few in-situ front variation series. Basically no geodetic volume change assessments.

No complete inventory available. Separation between glaciers and ice sheet is missing.

## Future potential/needs

There is a need for coordinating the various international monitoring efforts.

Research stations provide a potential capacity for setting up intense and long-term monitoring programmes at benchmark glacier.

Encourage long-term mass balance studies well distributed over the region, combining glaciological and geodetic methods.

Encourage remotely sensed assessments of glacier changes in length, area and volume. Make use of historical aerial photographs for geodetic volume change assessments.

Compile a glacier inventory of the Antarctic Peninsula, the Sub Antarctic Islands, and of the Dry Valleys. Coordinate with ice sheet community for glacier-ice sheet separation.

## Spatial distribution of series

Glaciers around Antarctica are mainly concentrated on the Antarctic Peninsula. In addition, glaciers are found on the Sub Antarctic Islands and in the Dry Valleys at the East Coast; but a complete glacier inventory is not available. A clear separation of ice sheet and glaciers is sometimes missing and needs coordination within the glaciological community. Quite a lot of glaciers are monitored in the areas named above, but the monitoring series often have gaps.

