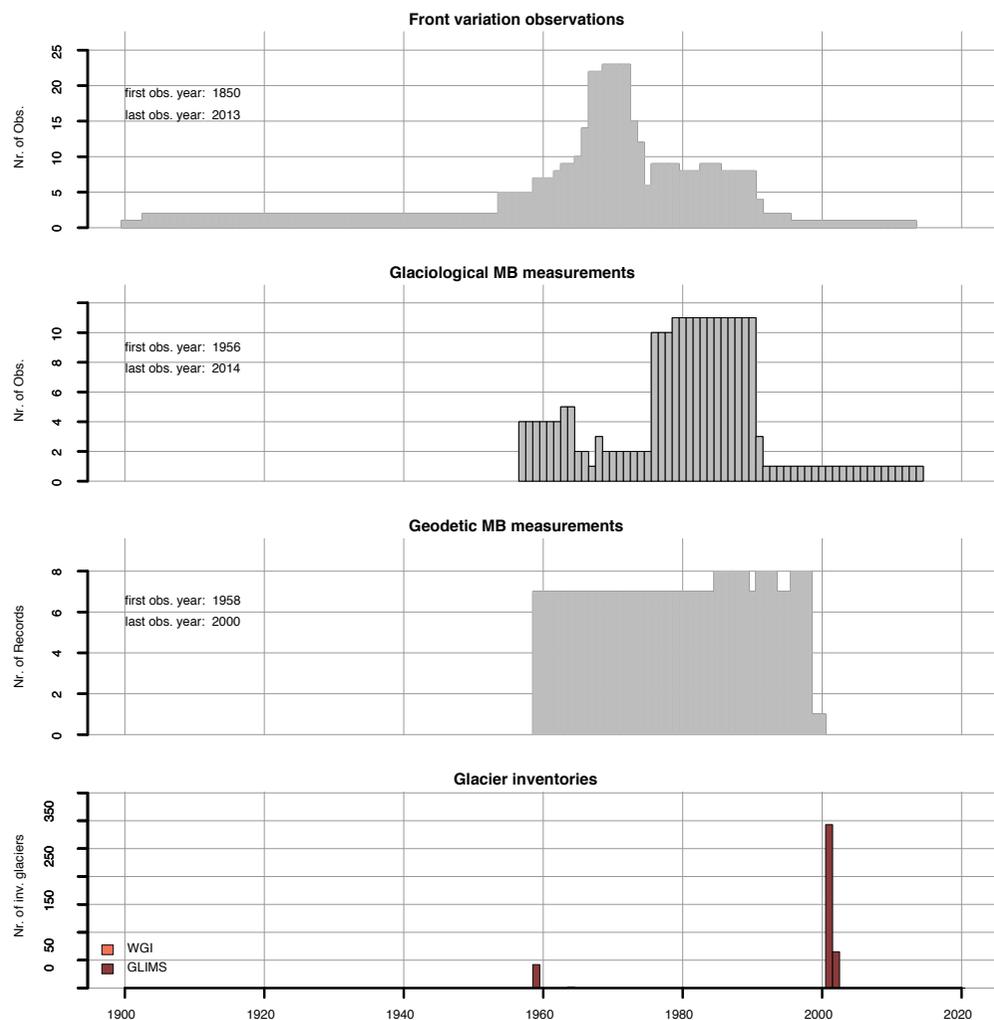


GLACIER MONITORING: KAZAKHSTAN

Glaciers in Kazakhstan have a significant role in local and regional water resources, natural hazards, and geopolitical stability. A total area of about 900 km² can be found and was monitored quite intensively in former times. Today long-term fluctuation information is available for one glacier only.

Available series



Several glaciers have been monitored regarding front variation and mass balance in Kazakhstan. The amount of available series peaked in the 1970s and 1980s. Unfortunately, many observation series (both MB and FV) were discontinued around 1990. About 40% of the glaciated area has been inventorized in GLIMS, mainly after 2000.

Key statistics

total glaciated area: 926 km²
 total coverage WGI: *
 total coverage GLIMS: 43%

Number of series: 24
 Average length [years]: 16
 Average number of observations: 10

Front Variation: 24
 Mass Balance: 13
 Thickness Change: 8

Present state

Well-coordinated monitoring system during Soviet times. Most observations abandoned during 1990s.

Long-term and detailed monitoring program at Ts. Tuyuksu glacier that was continued after the breakdown of the Soviet system.

A dozen mass balance programs, all but one interrupted around 1990.

Two dozen front variation series covering the second half of the 20th century, all but one interrupted around 1990. Few geodetic observations.

Region covered in the WGI as part of the Soviet inventory and partly covered in GLIMS.

Future potential/needs

Continue and expand national monitoring program. Coordinate activities with other Central Asian countries.

Continue long-term and detailed monitoring at Ts. Tuyuksu glacier for process understanding and model calibration. Validate glaciological series with geodetic observations.

Continue and resume glacier mass balance studies.

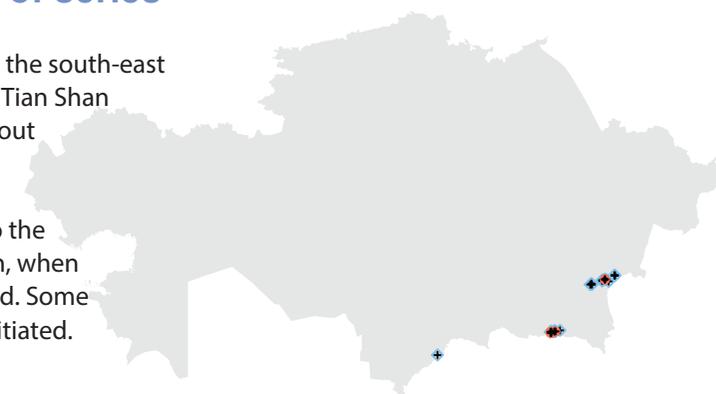
Resume decadal length change observations from remote sensing. Encourage geodetic change assessments for large glacier samples.

Complete glacier inventories with remote sensing data. Plan next repeat inventory towards 2020.

Spatial distribution of series

Glaciers in Kazakhstan occur in the south-east of the country, in the northern Tian Shan mountains. Here, an area of about 900 km² is glacierized.

Observation series were well distributed in this area, prior to the breakdown of the Soviet Union, when most of the series were stopped. Some of the series are currently re-initiated.



* in WGI part of (former) Soviet Union