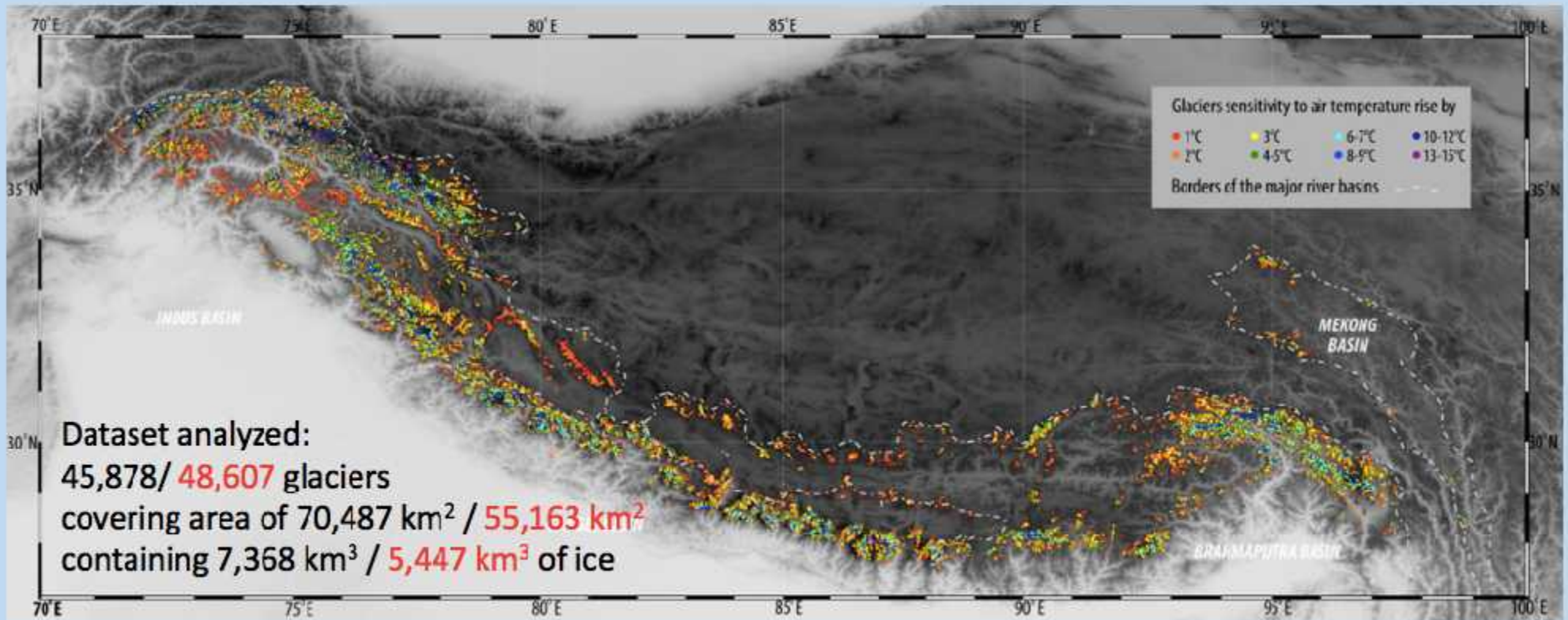
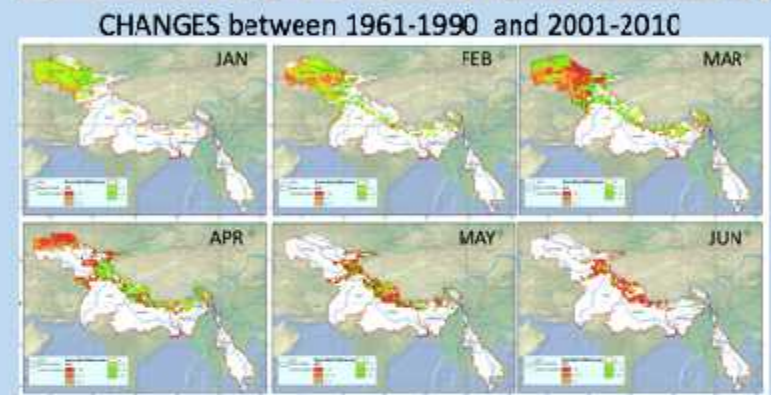
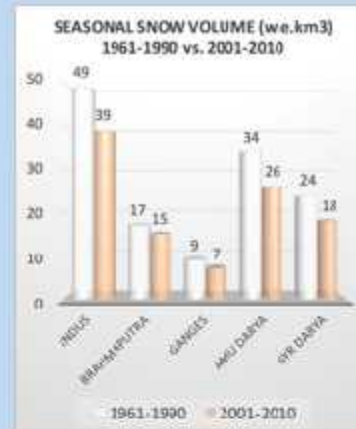
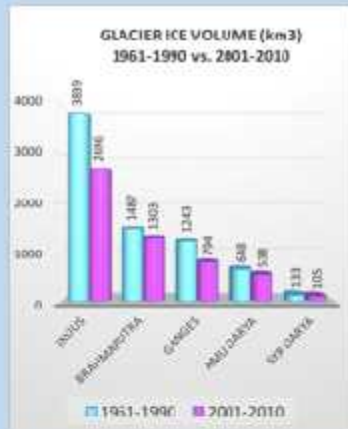
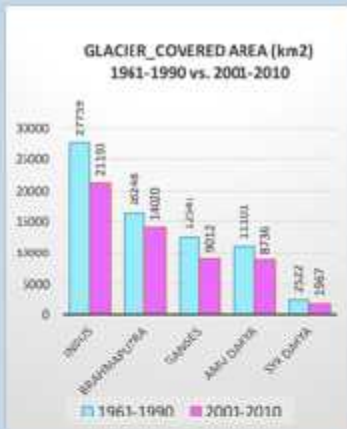


Greater Himalaya and Aral Sea Region: Modelling Glacier Response to Climate Change

Oxana S. Savoskul





<http://waterdata.iwmi.org/>

http://waterdata.iwmi.org/assessments/Climate_Snow_Area

Introduction

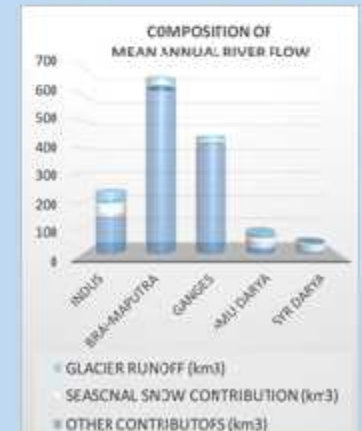
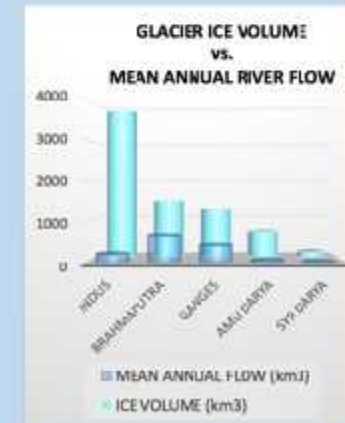
In high, high-altitude mountain regions, glaciers and seasonal snow are important water resources. Climate Change (CC) in the past 50 years has produced rapid and significant glacier and seasonal snow melt. This report presents the results of the first comprehensive basin-scale assessment of the storage properties of glaciers and seasonal snow, and their contribution to Mean Annual River Flow (MARF) in six major Asian river basins: Indus, Ganges, Brahmaputra, Amu Darya, Syr Darya, and the Yellow River. These are supplementary to the assessment of the state of water resources in six river basins, their hydrological and socio-economic importance in river basins across Asia and the world. This report includes methodology and summary findings of the indicator resources assessment and is based on IWRM and ICR 4/2000 Research reports on the Indus and Ganges, 2012 & 2013.

Tables

Glacier covered area in 1961-90 and 2001-10
Total annual glacier runoff and its contribution to MARF in 1961-90 and 2001-10
Mean annual snow-covered area in 1961-90 and 2001-10
Annual snow melt and its contribution to MARF in 1961-90 and 2001-10

Graphs

Area extent of glaciers and seasonal snow in 1961-90 and 2001-10
Contribution of glaciers and snow to MARF in 1961-90
Contribution of glaciers and snow to MARF, between 1961-90 and 2001-10
Contribution of glacier runoff in 1961-90 and 2001-10 to MARF



GLACIER SYSTEMS:

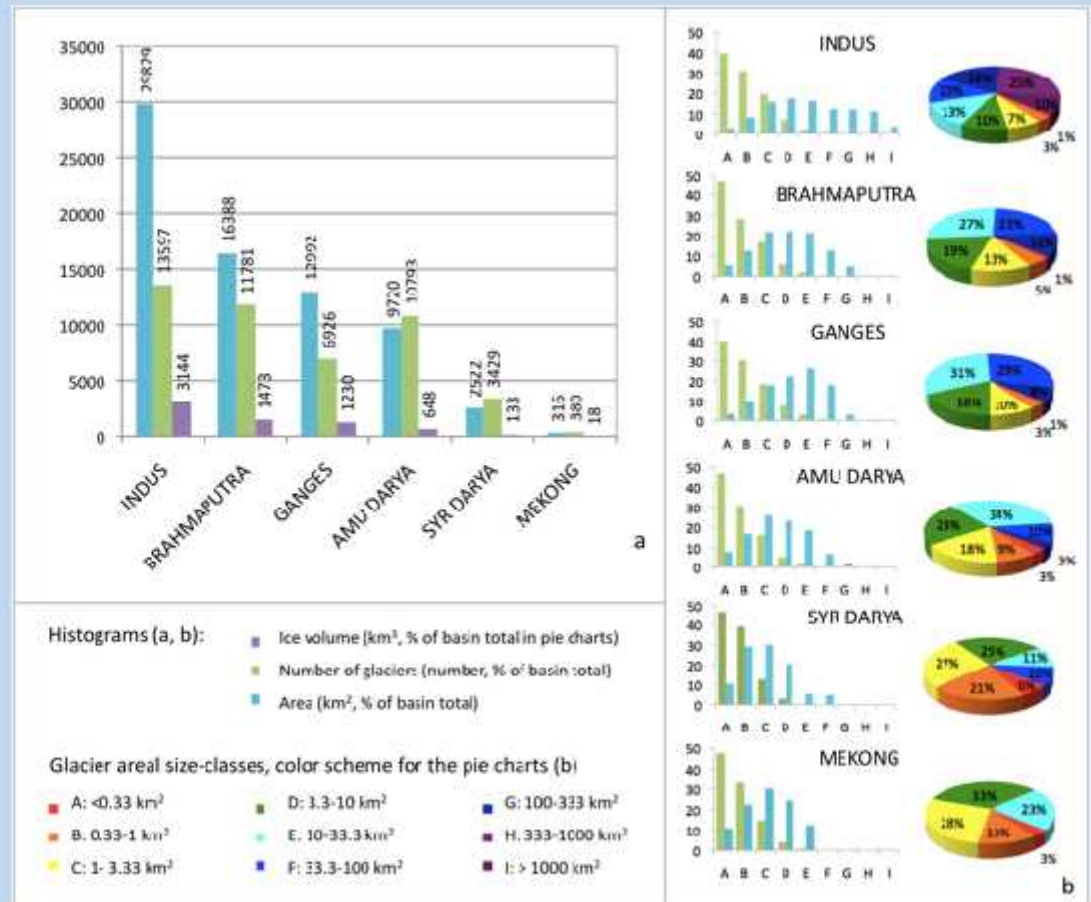
✓ DEFINITION

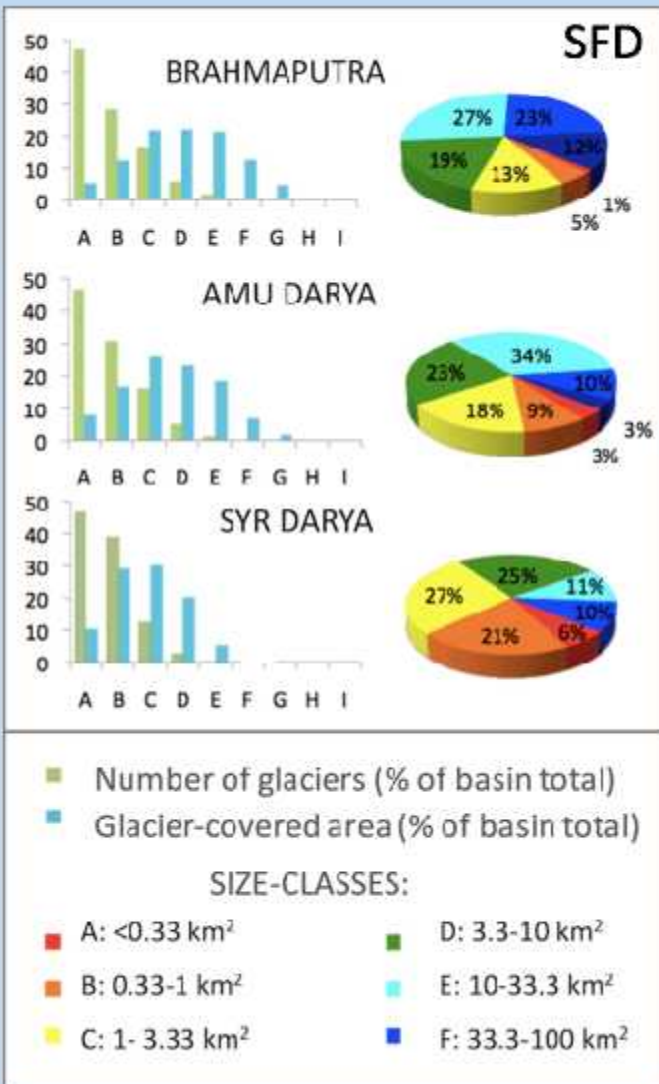
✓ PARAMETERS

- number of glaciers
- glacier-covered area (km²)
- ice volume (km³)
- diversity (SFD and AAD)

✓ PROPERTIES

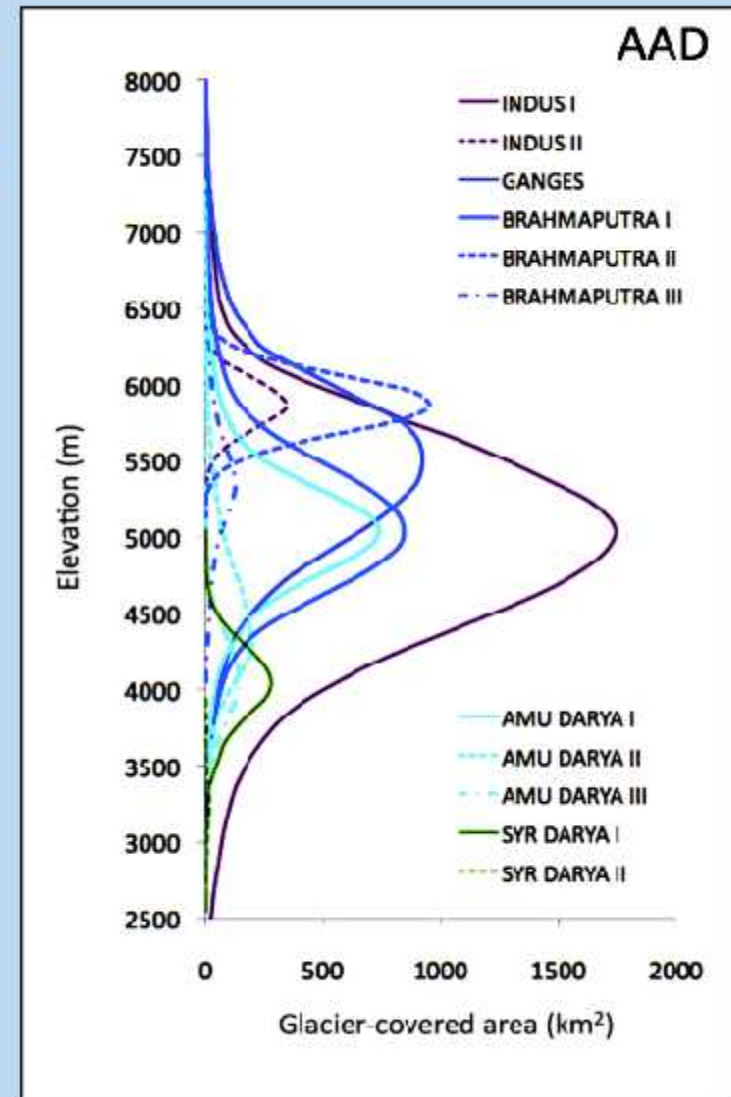
- SFD: Pareto distribution
- AAD: Gaussian distribution

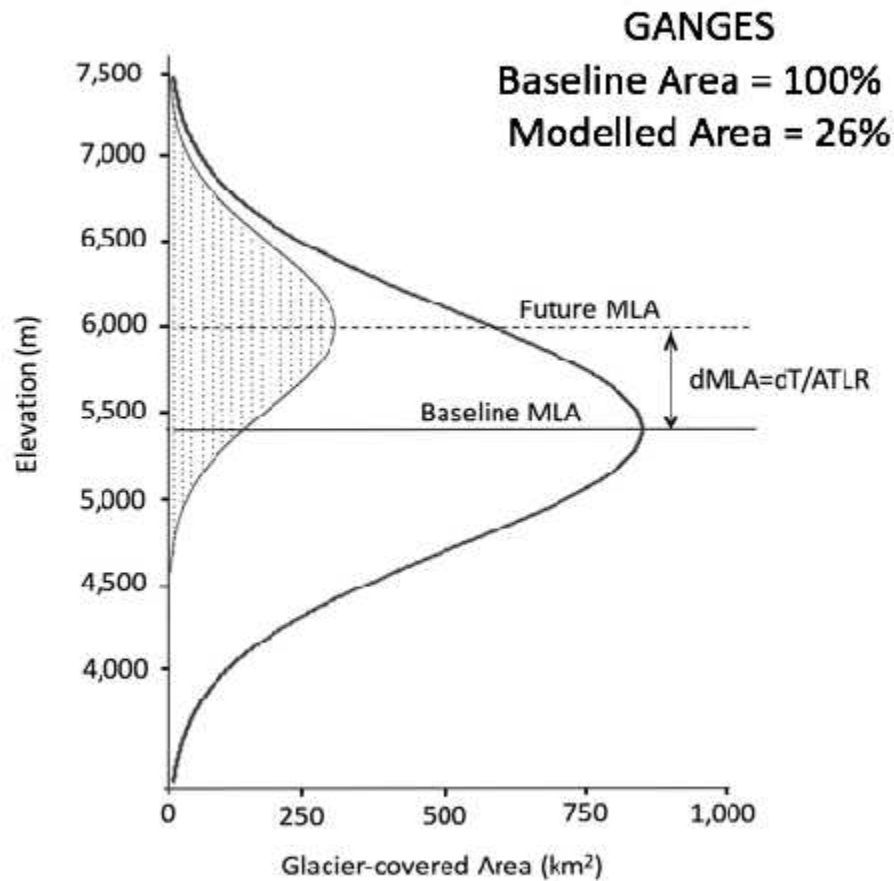




GLACIER SYSTEMS under CC IMPACT:

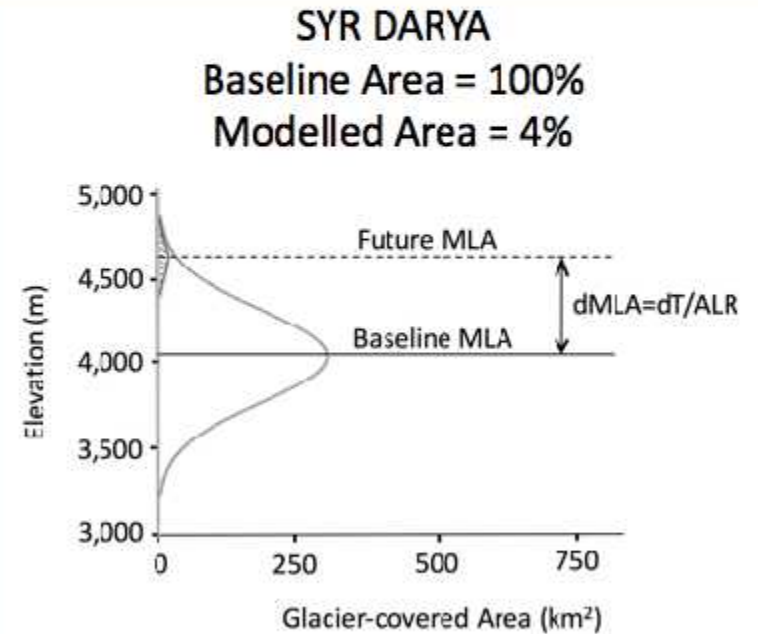
- ✓ EVOLUTION
- ✓ MODELLING
- ✓ IMPLICATIONS





✓ GLACIER SYSTEMS MODELLING

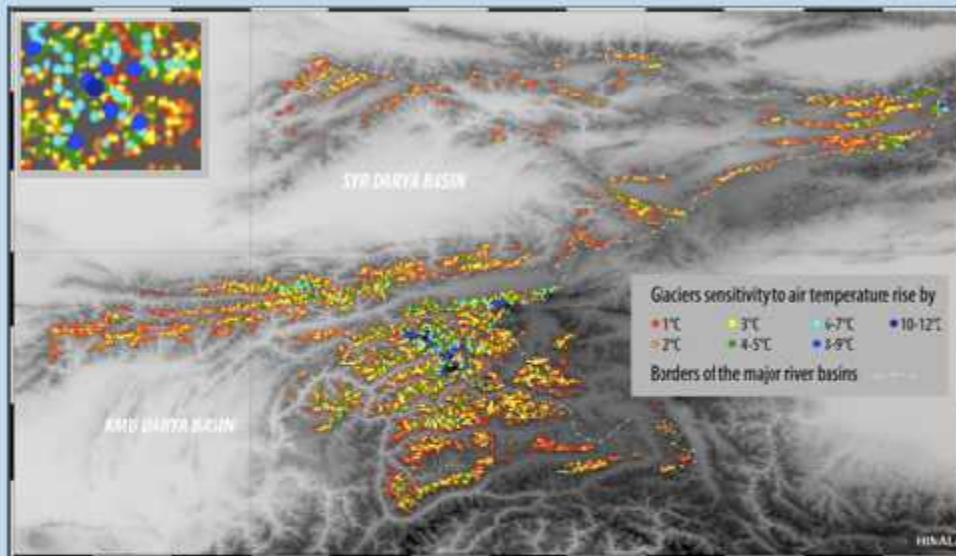
MODEL RUNS:
 $dT = 4^{\circ}\text{C}$ $xP = 0$
 $dMLA = 600 \text{ m}$
 $ALR = 0.65^{\circ}\text{C}/100 \text{ m}$



✓ IMPLICATIONS

CC IMPACT SENSITIVITY

GLACIER SYSTEMS in THE ARAL SEA REGION



each dot = one glacier

