



Professor Maria Shahgedanova
on behalf of the MRI network

Enhancing monitoring and observation systems in the Third Pole region The Mountain Research Initiative

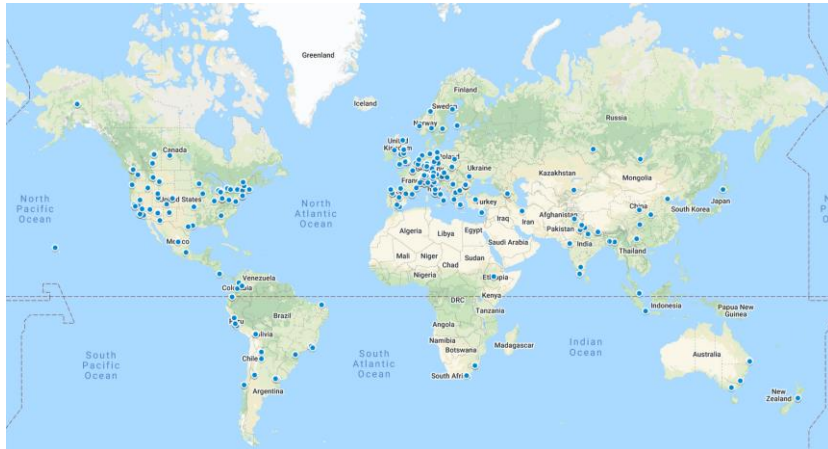
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THE MRI NETWORK

The MRI and its Coordination Office was proposed in 2000 by the then International Geosphere Biosphere Programme (IGBP) of the International Council for Science (ICSU), together with the International Human Dimensions Programme (IHDP) of the International Social Science Council and the FAO/UNEP/UNESCO/WMO/ICSU-sponsored Global Terrestrial Observation System (GTOS), in response to a need to ...

*“...achieve an **integrated approach** for observing, modelling and investigating global change phenomena and processes **in mountain regions**, including the impacts of these changes and of human activities on mountain ecosystems”.*

The MRI is hosted by the **Centre for Development and Environment (CDE)** at the University of Bern and funded by the **Swiss Academy of Sciences (SCNAT)**.



Priority regions:
Central Asia, Hindu Kush – Himalayas, Caucasus, East Africa, tropical and subtropical Andes

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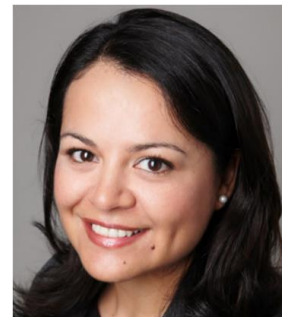
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Mountain Ranges of Research Expertise

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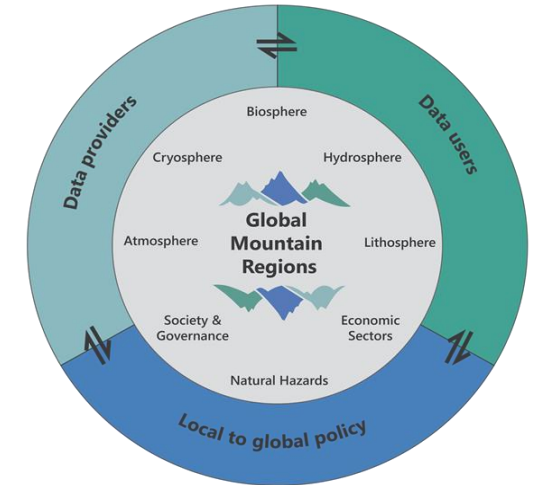
Dr. Carolina Adler
Executive Director
Mountain Research Initiative

**Executive
Director**

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MRI activities in TPRCC region

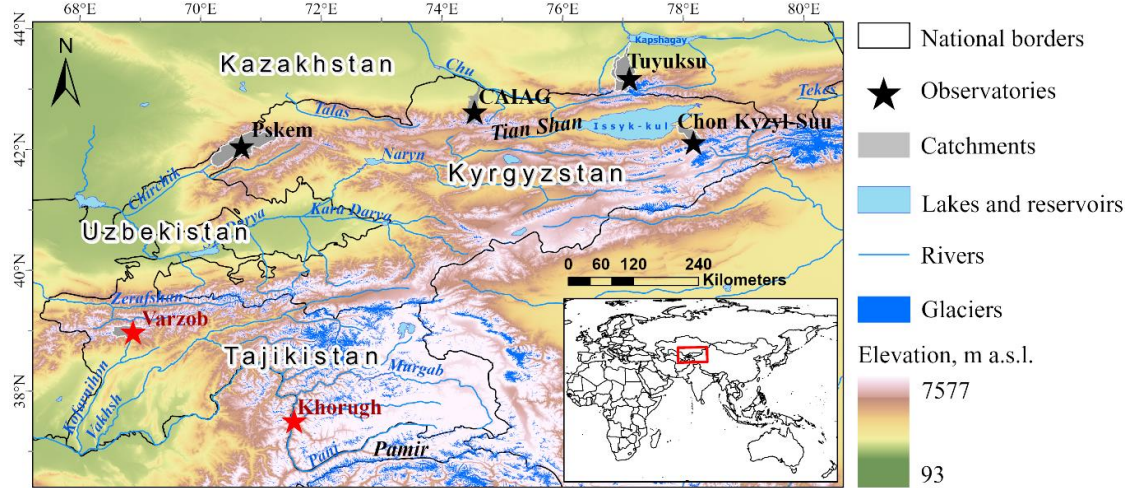
- Facilitation of long-term multi-disciplinary monitoring and data acquisition and provision
 - Strengthening mountain resilience and adaptive capacity through the reduction of risks and improved mountain governance
 - Capacity building and education
- Funding research projects focusing on data acquisition and provision, reducing risks and strengthening resilience



2024-25: Ongoing projects

- Monitoring of glaciers in the Karakoram with special emphasis on water demand and management (STREAM)
- Risk assessment for hydropower projects from rock and/or ice avalanches in High Mountain Asia (REACH)
- Long-term monitoring of snow accumulation and related climate variables at a high-altitude cryospheric research site in Bhutan

New data sets for TPRCC region



Central Asia Mountain Observatory Network (CAMON):

<https://research.reading.ac.uk/central-asia-mountain-observatory/>

Data set based on *in situ* snow monitoring in Kazakhstan and Uzbekistan

- Snow depth at daily time step since the 1960s (northern and western Tien Shan)
- Snow Water Equivalent (SWE) at 10-day time step since 1981 (northern Tien Shan only)

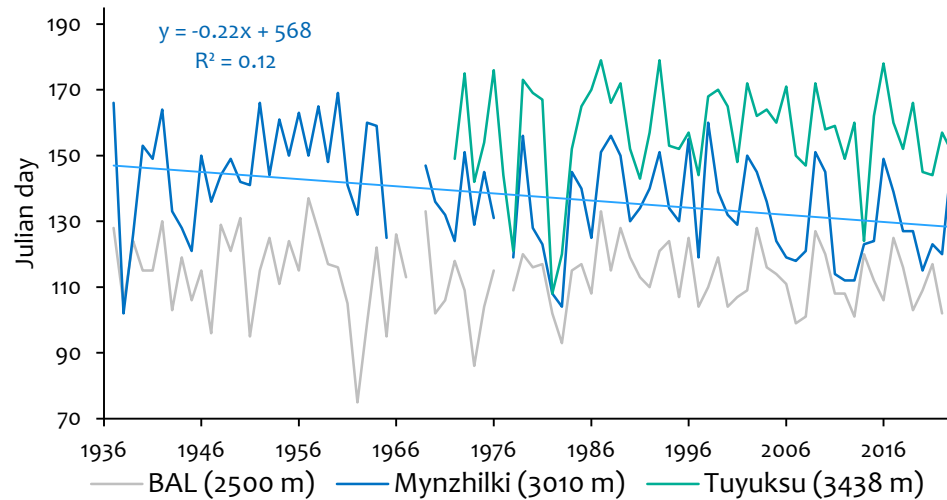


Climatological analysis

Verification of ERA5 and FLDAS-Central Asia data
Verification and potential improvement of MODSNOW
operational tool for snow cover monitoring
(<https://www.cawa-project.net/research/wp-2/>)



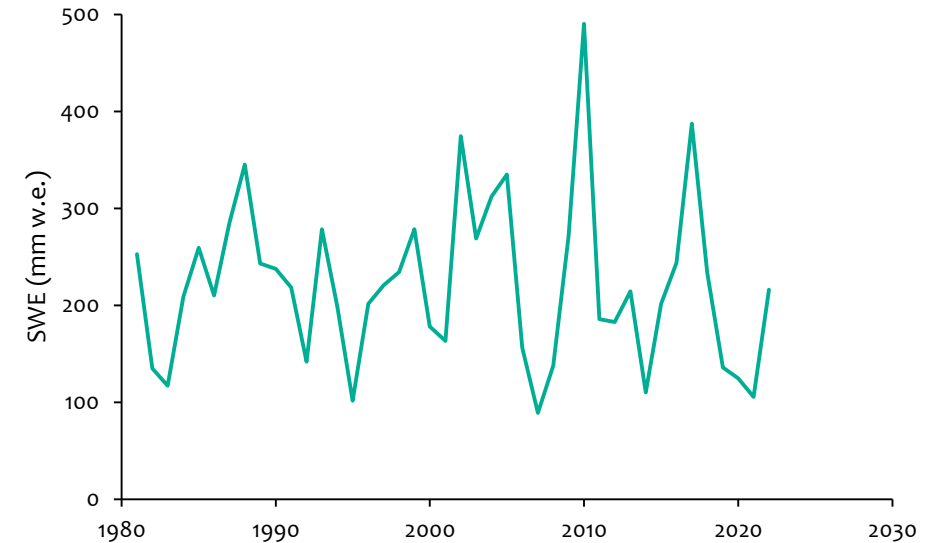
Examples of snow cover data analysis: Ile Alatau, Kazakhstan



Date of snow cover disappearance: Ile Alatau

Earlier snow melt but trends are spatially inconsistent

‘Glaciers to Farms’ programme coordinated by ADB and GCF:
Consultations conducted in the Central Asian countries and Pakistan highlighted a strong need for snow cover data including *in situ* data



Maximum values of Snow Water Equivalent (SWE) at Mynzhilki station (3010 m a.s.l.) in the Ile Alatau.

Overall, there is no trend for snow depth and SWE reduction in the region.

Assisting WMO

The International Year for Preservation of Glaciers

WMO Global Cryosphere Watch

- Improvements in data provision in glacierized regions with emphasis on incorporating research data
- Preparation of the White Paper 'Improving Access to Cryospheric Data in Data Sparse Areas'

MRI – official partner of the High-level Conference on Glacier Preservation

- 'From Glaciers to Sea: Glaciers, Snowpack and Water Availability in a Changing Climate' in collaboration with GIZ, FAO, Norwegian Water resources and Energy Directorate, Tajikistan Ministry of Water and Energy Resources
- 'Glacier Monitoring Needs Worldwide' in collaboration with WMO, NHMS Tajikistan, IAEA, MRI, FMI



High-Level International
Conference on Glaciers'
Preservation
29-31 May 2025
Dushanbe, Tajikistan



Thank you

International Mountain Conference, September 2025, Innsbruck, Austria

Several sessions and workshops coordinated by MRI. TPRCC participation is welcome

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