

Glacial Hazards in Central Asia

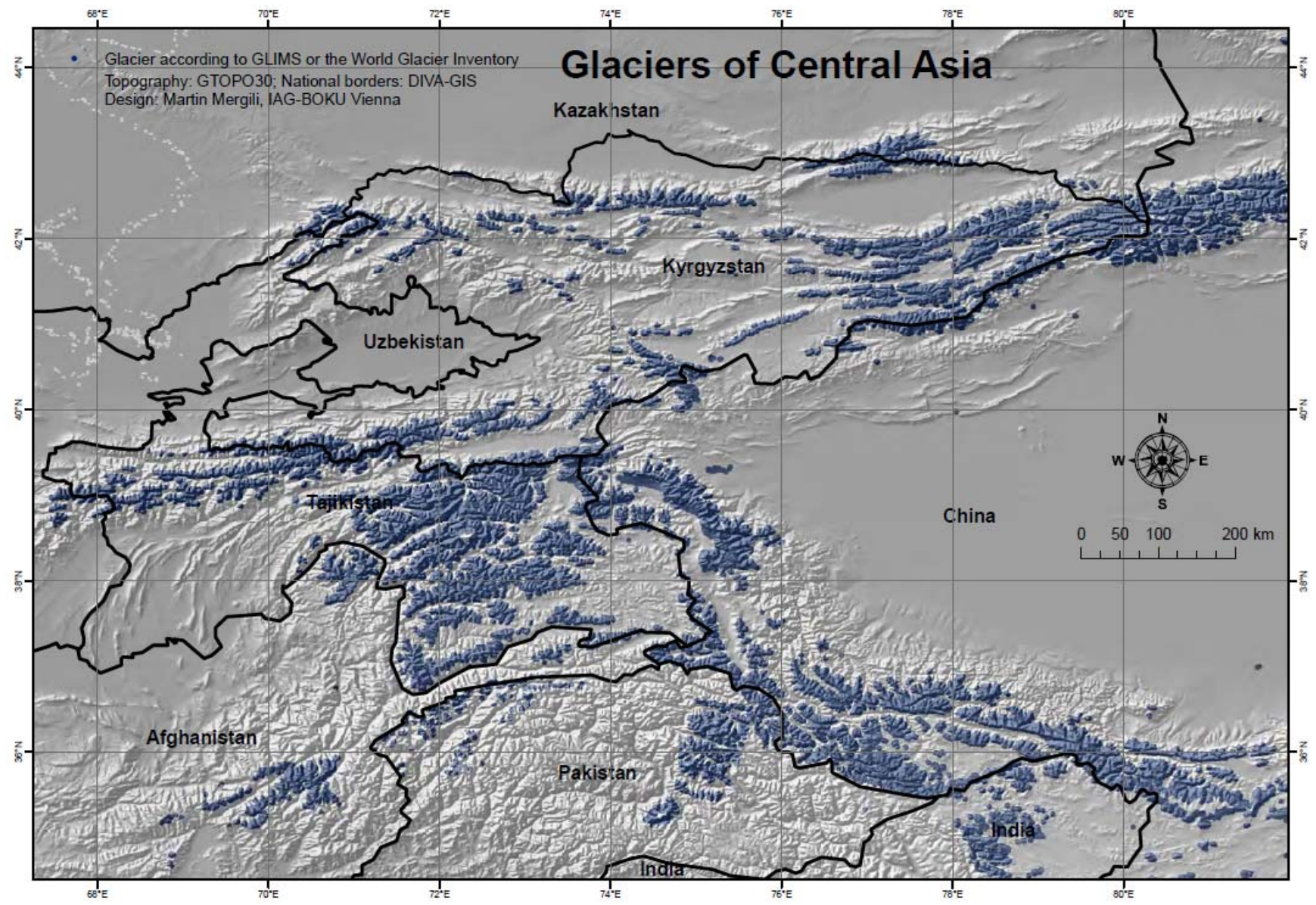
- **Kyrgyzstan by**
Michal Cerny, GEOMIN, Czech Republic
- **Tajikistan by**
Jean F. Schneider, IAG-BOKU, Vienna

International Workshop

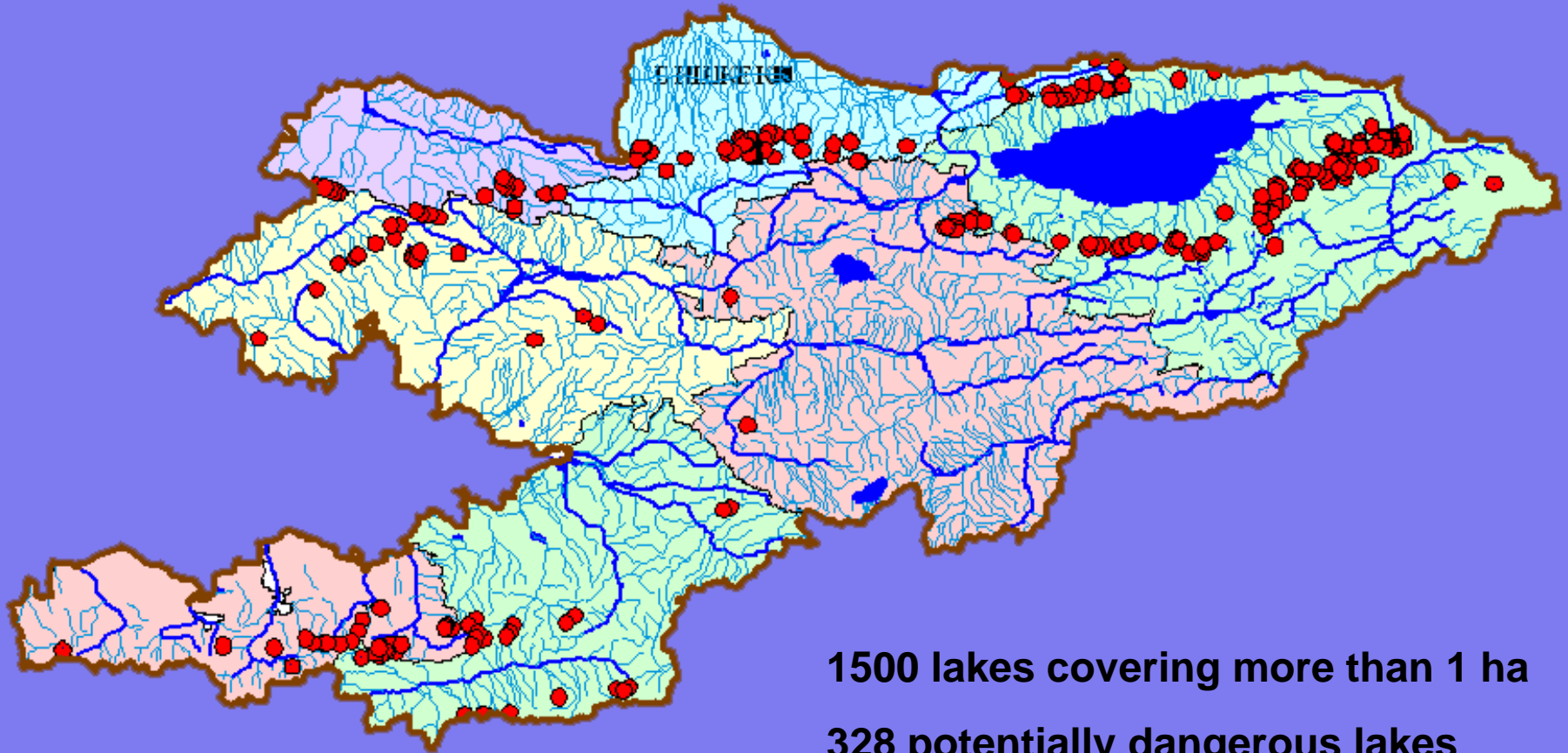
**Glacier Hazards, Permafrost Hazards and GLOFs in Mountain Areas:
Processes, Assessment, Prevention, Mitigation**

10 – 13 November 2009, Vienna

Glaciers of Central Asia



Hazardous Alpine Lakes in Kyrgyzstan



1500 lakes covering more than 1 ha

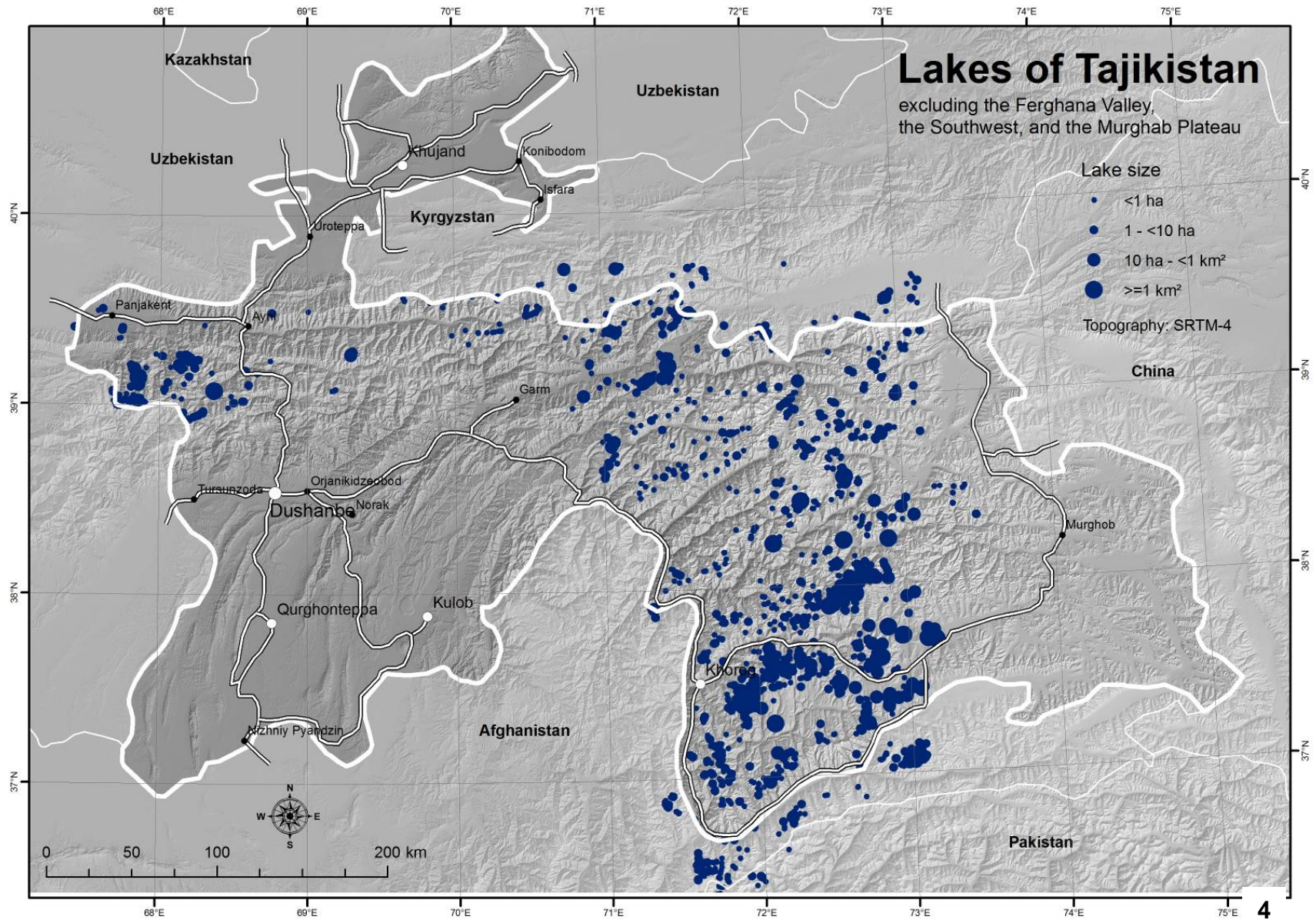
328 potentially dangerous lakes

25 of high potential hazard

12 actually dangerous lakes

Michal Cerny
GEOMIN
Czech Republic

Alpine Lakes in Tajikistan



The Dasht 2002 Event



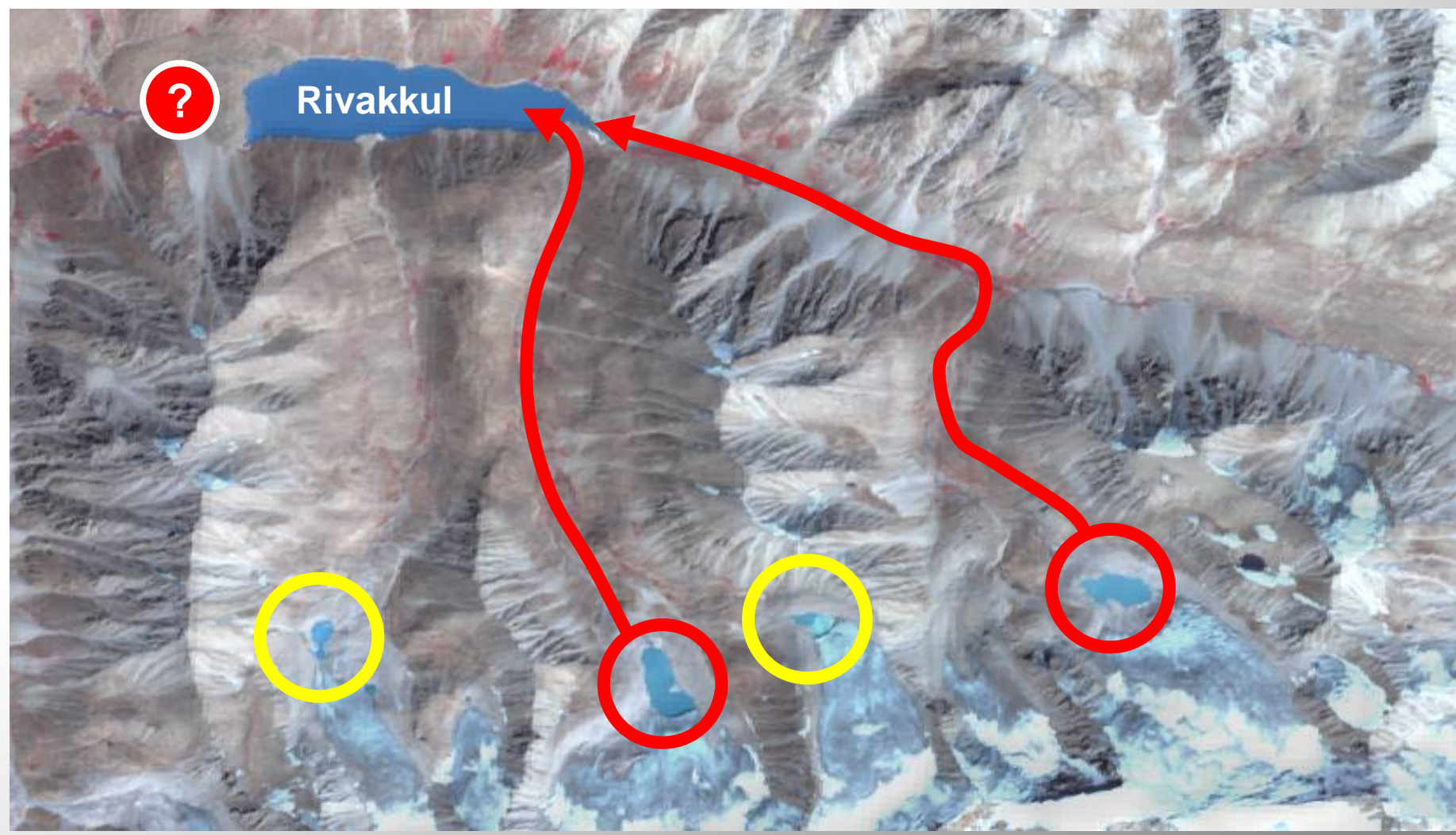
Tajikistan: Rivakdara Catchment



Glacial Lake above Rivakkul



Rivakdara Catchment



Khavrazdara Catchment



Zulumart Glacier



Remote Geohazards Assessment in High Mountain Areas of Tajikistan, TajHaz 2009-2010



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development
and Cooperation SDC

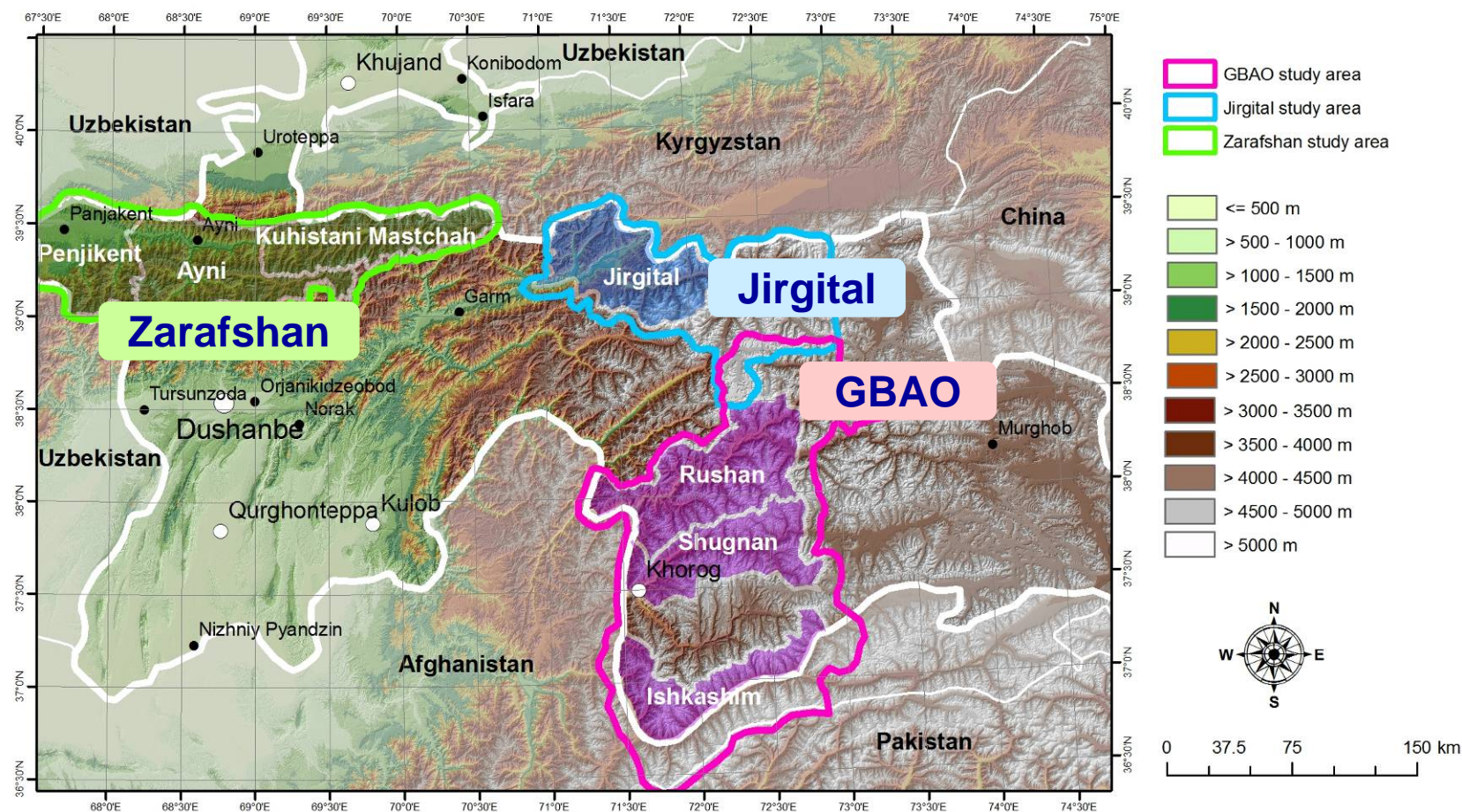


Objectives

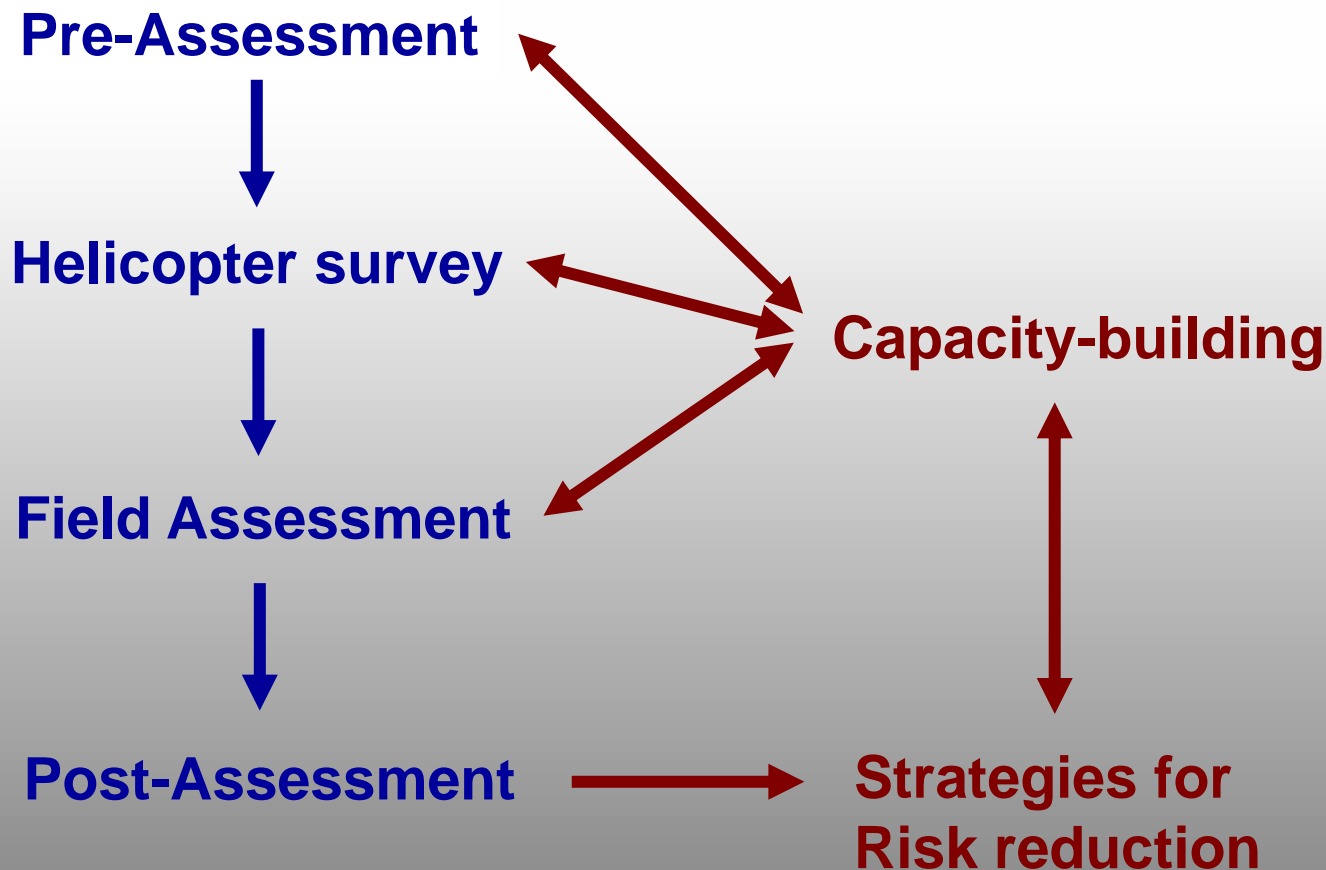


- > To identify remote geohazards in selected areas of Tajikistan (Zarafshan, Jirgital, GBAO)
Remote geohazards: Mass movements, GLOF, LDOF, seismic triggering, climate change
- > To assess the impact of different scenarios connected to these hazards, including combinations and worst case
- > To give recommendations how to monitor and to cope with the hazards identified

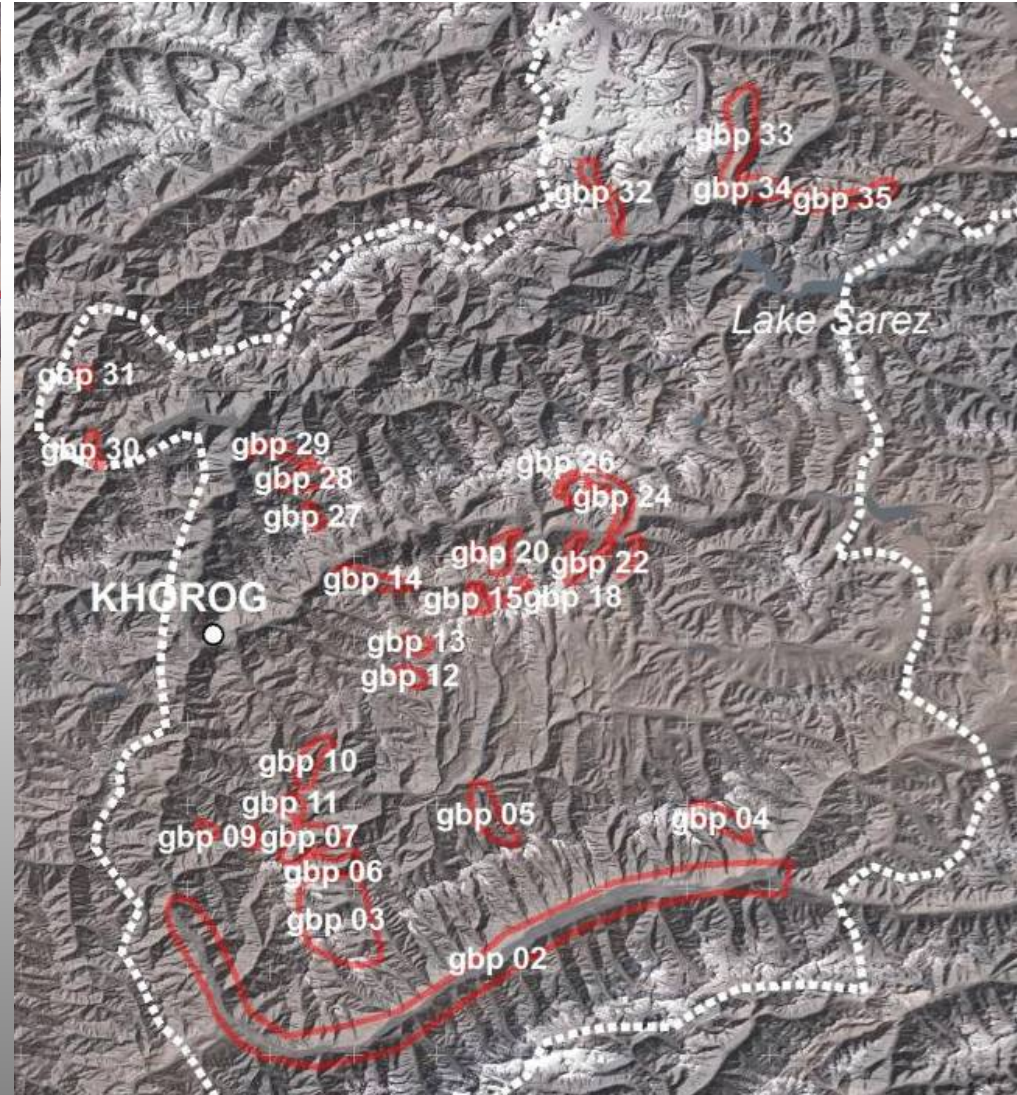
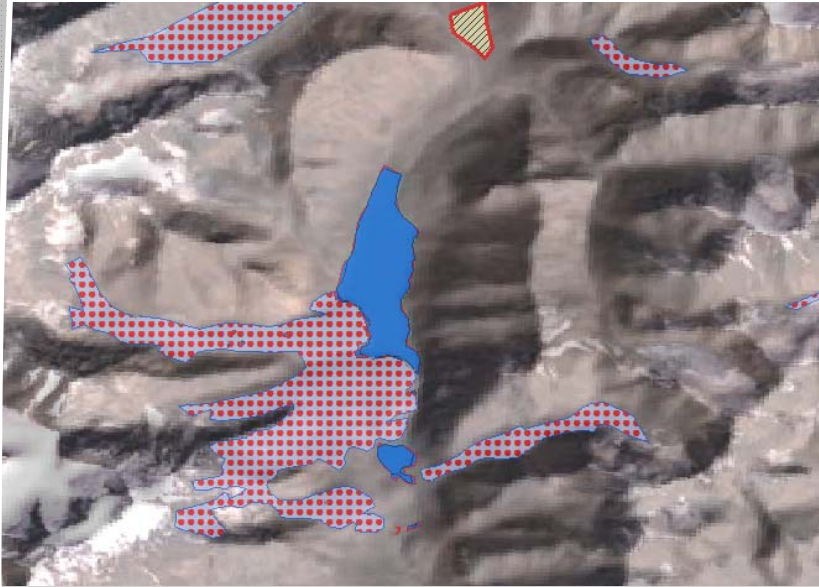
Study areas



Methodology



Pre-Assessment



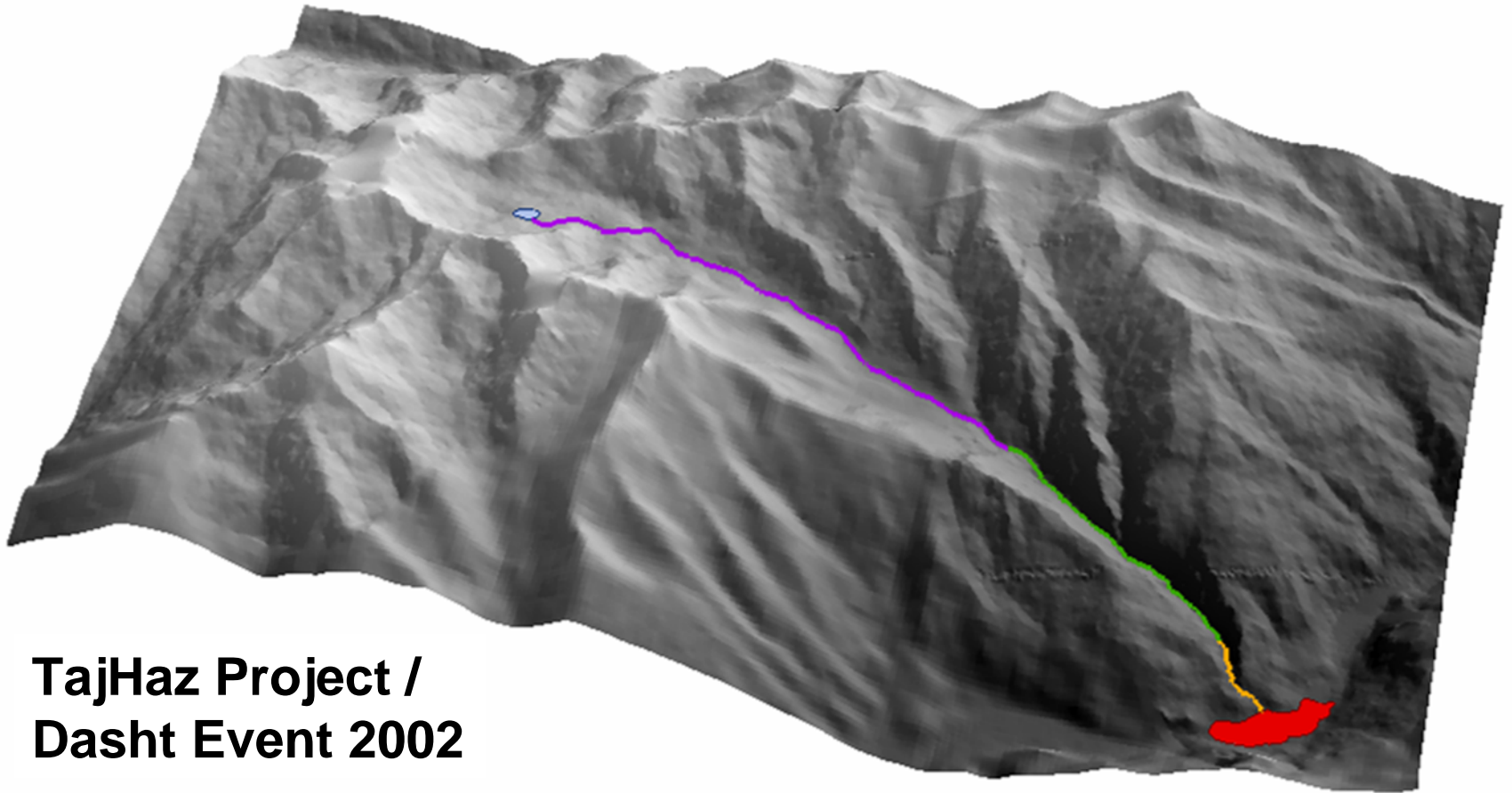
Helicopter Survey



Field work

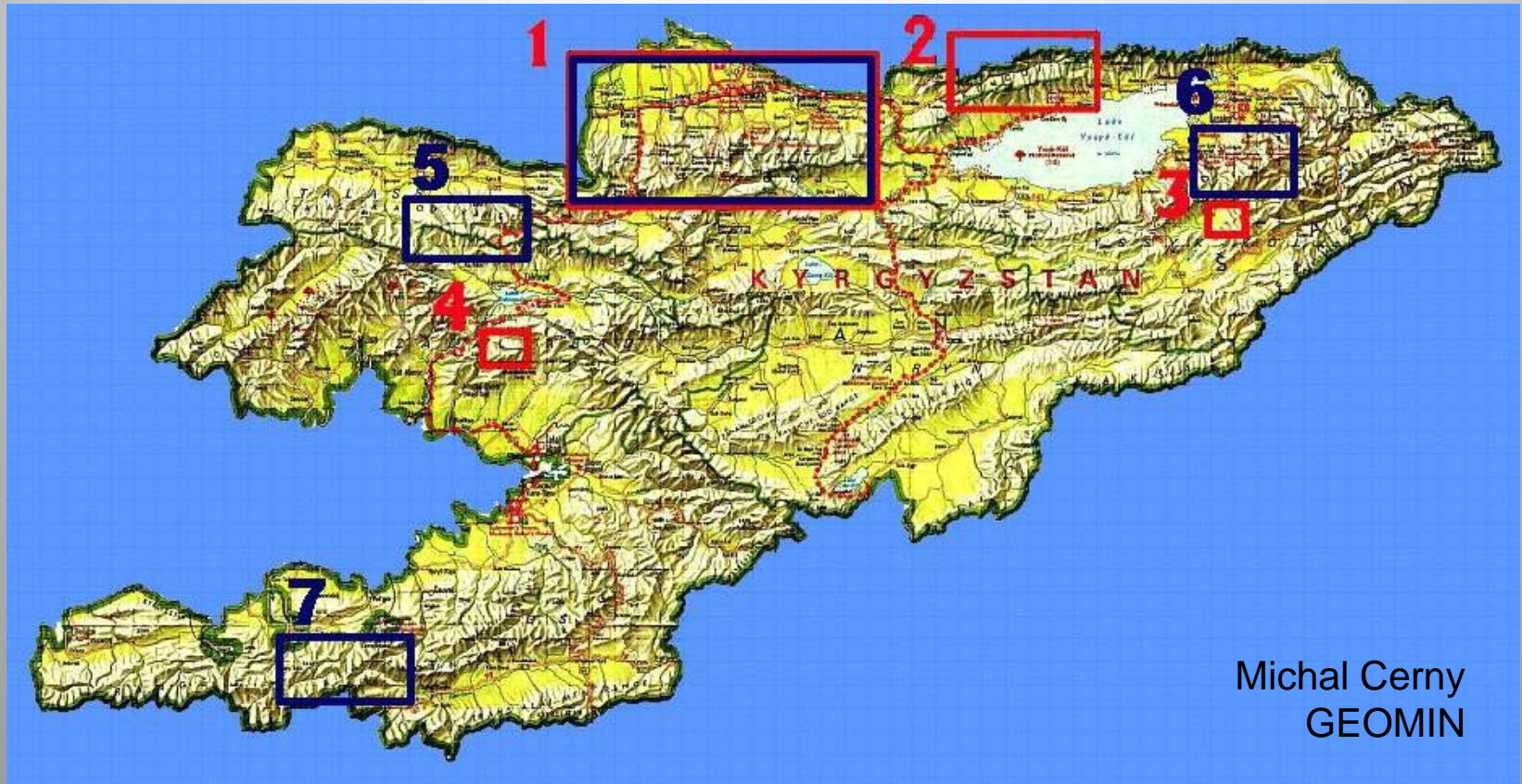


Post-Assessment (Modelling)



**TajHaz Project /
Dasht Event 2002**

Regions researched by Czech-kyrgyz project



Michal Cerny
GEOMIN

1) Kyrgyz Ala-Too, 2) Kungey Ala-Too, 3) Ak-Shiyarak, 4) Babash-Ata, 5) Talas Ala-Too, 6) Terskey Ala-Too, 7) Alay ridge

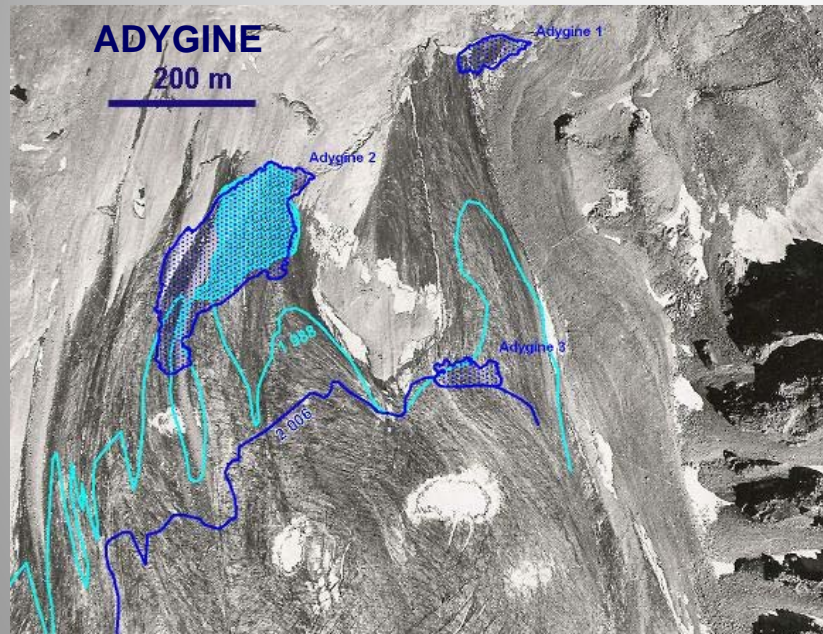
Red areas – regions researched by 2004 – 2006 project

Blue areas – regions researched by current (2007 – 2010) project

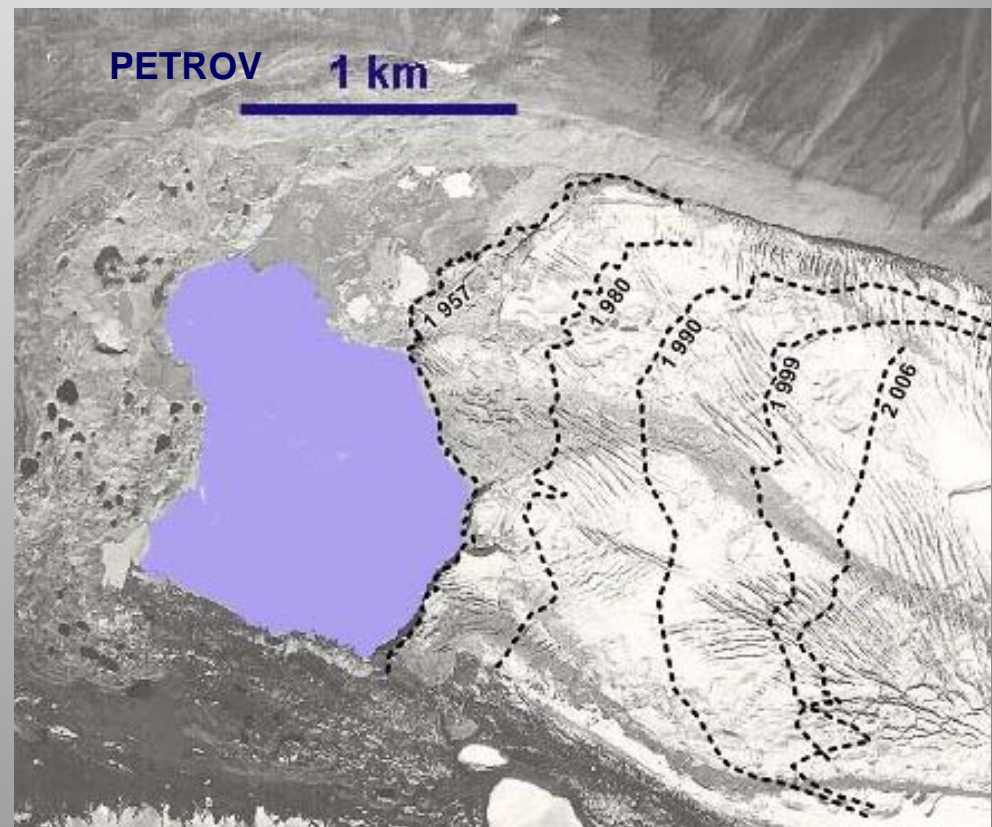
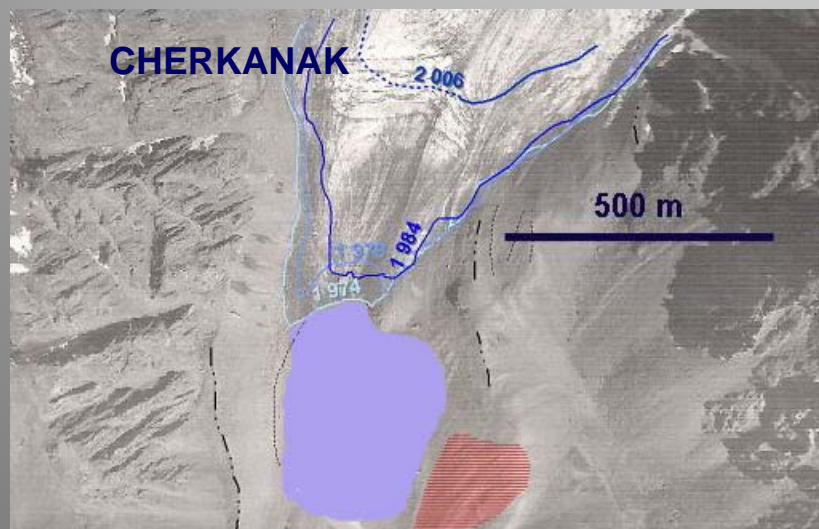
Glaciers retreat in all of Kyrgyz high mountains

Dynamics of glacial lakes development is increasing

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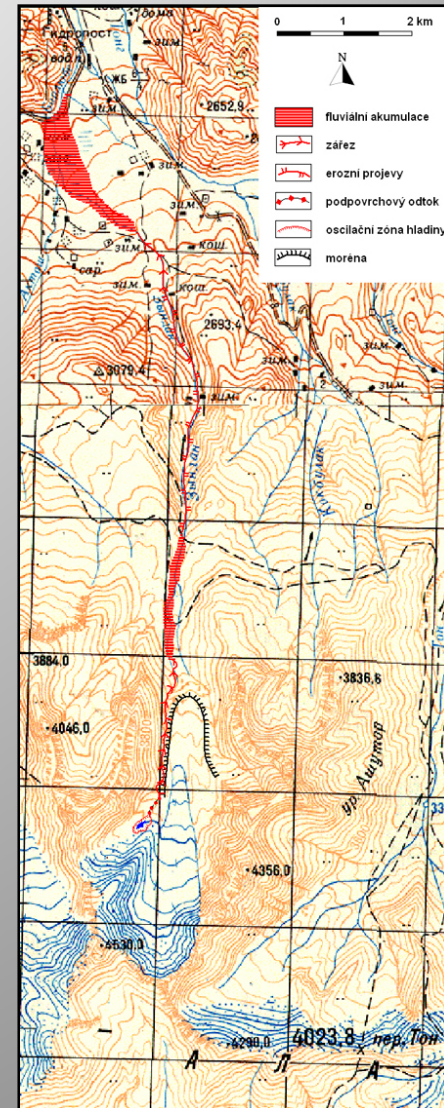
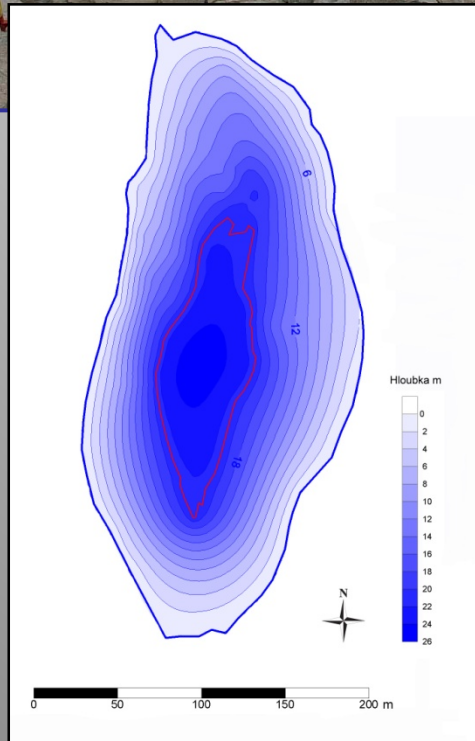


Adygine glacier 1962 – 2007, 350 – 460 m retreat
Cherkanak glacier 1974 – 2006, 400 m retreat
Petrov glacier 1957 – 2006, 1770 m retreat



Outburst of Zyndan glacial lake, 24th of July 2008

Three people died
High economic damage



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Research and monitoring station Adygine

Built-up in 2008 within the framework of Czech-Kyrgyz project on monitoring of hazardous alpine lakes



Research programme:

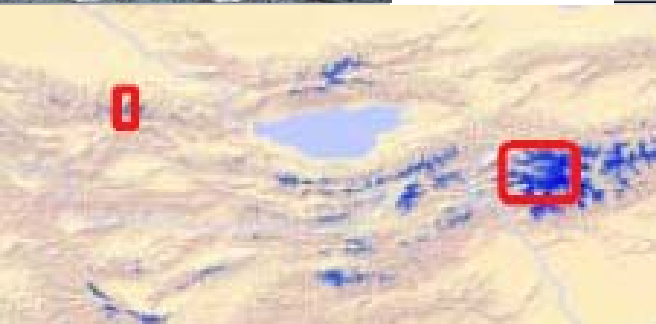
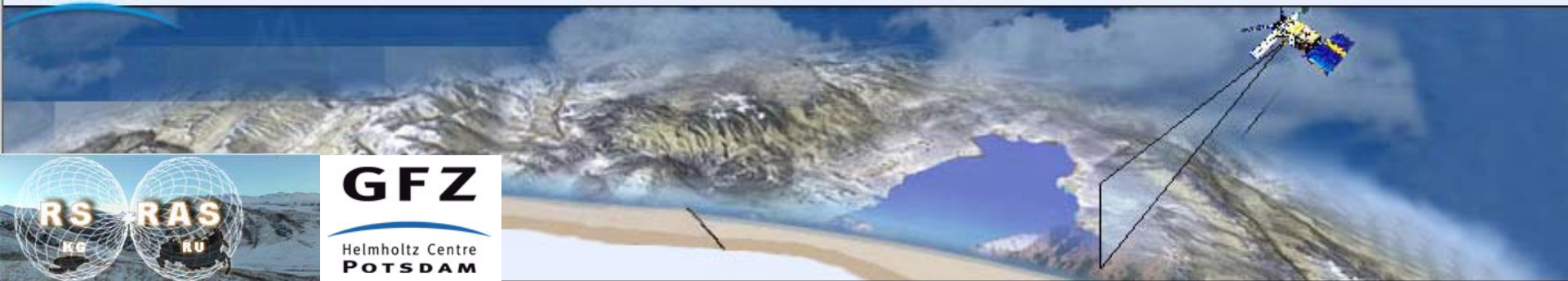
- ☐ Monitoring of hazardous lakes
- ☐ Meteorological observations
- ☐ Hydrological measurements
- ☐ Glaciological research
- ☐ Other researches (geological, botanical etc.)

The station is open to any further project.

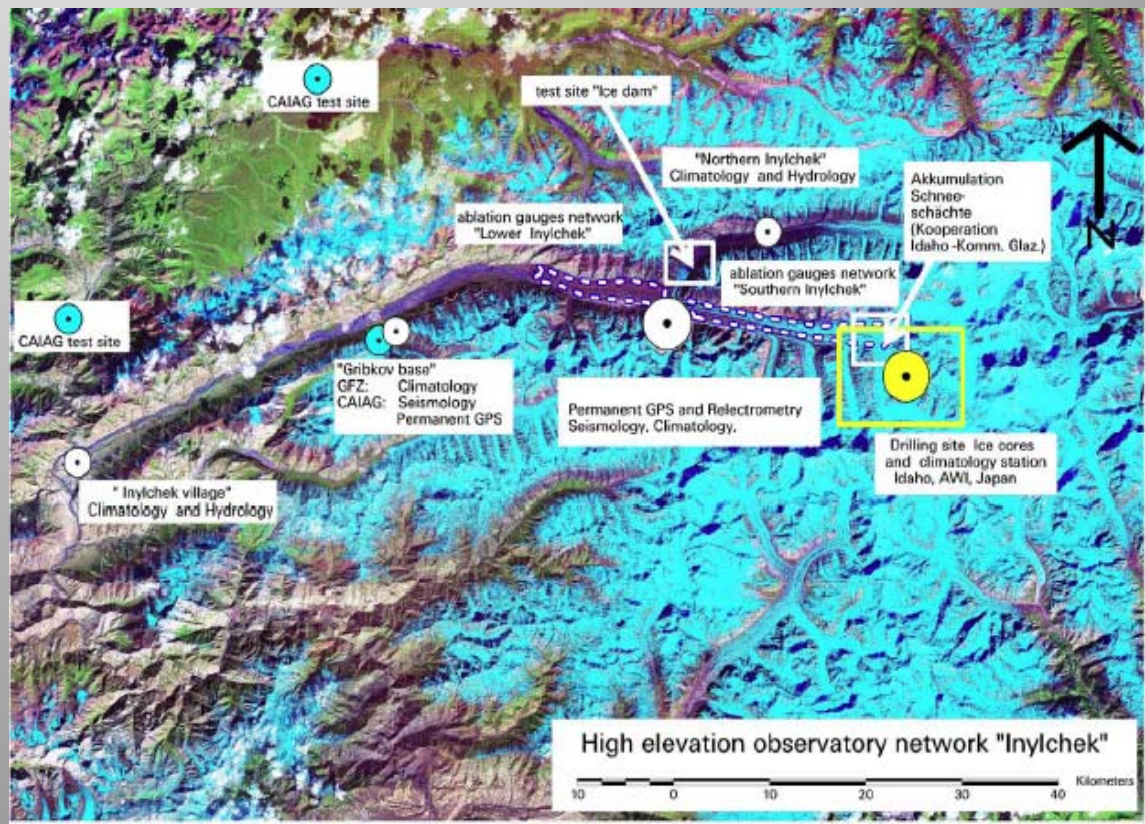


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High Elevation Observatory Network „Inylchek“



Capacity-Building





Awareness-Building

**Handing over
Responsibility**



Thank you! Discussion?

Michal Cerny / Jean F. Schneider