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Preliminary study of Fella and But watersheds: how to exploit databases of channel control structures and High-Resolution Topography (HRT)



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HydroLab
Progress in hydrology

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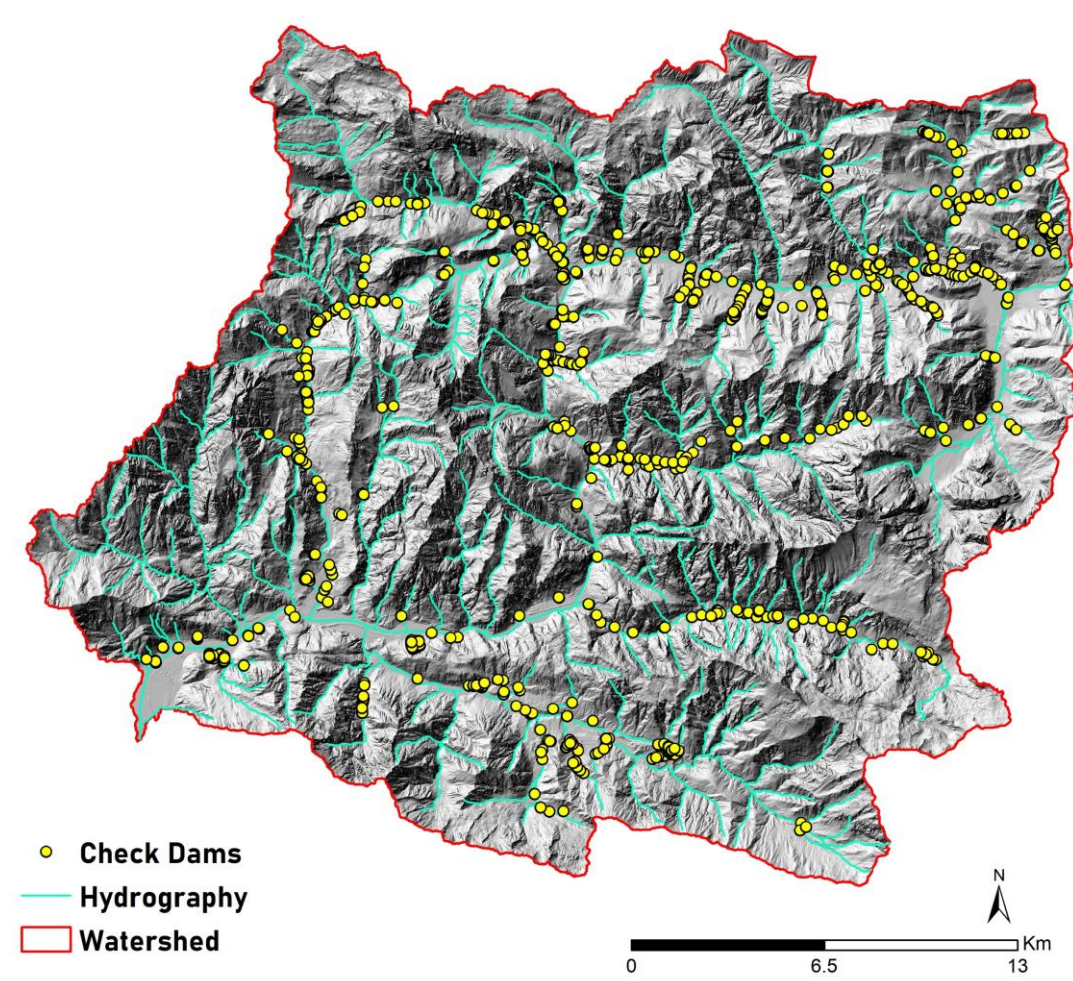
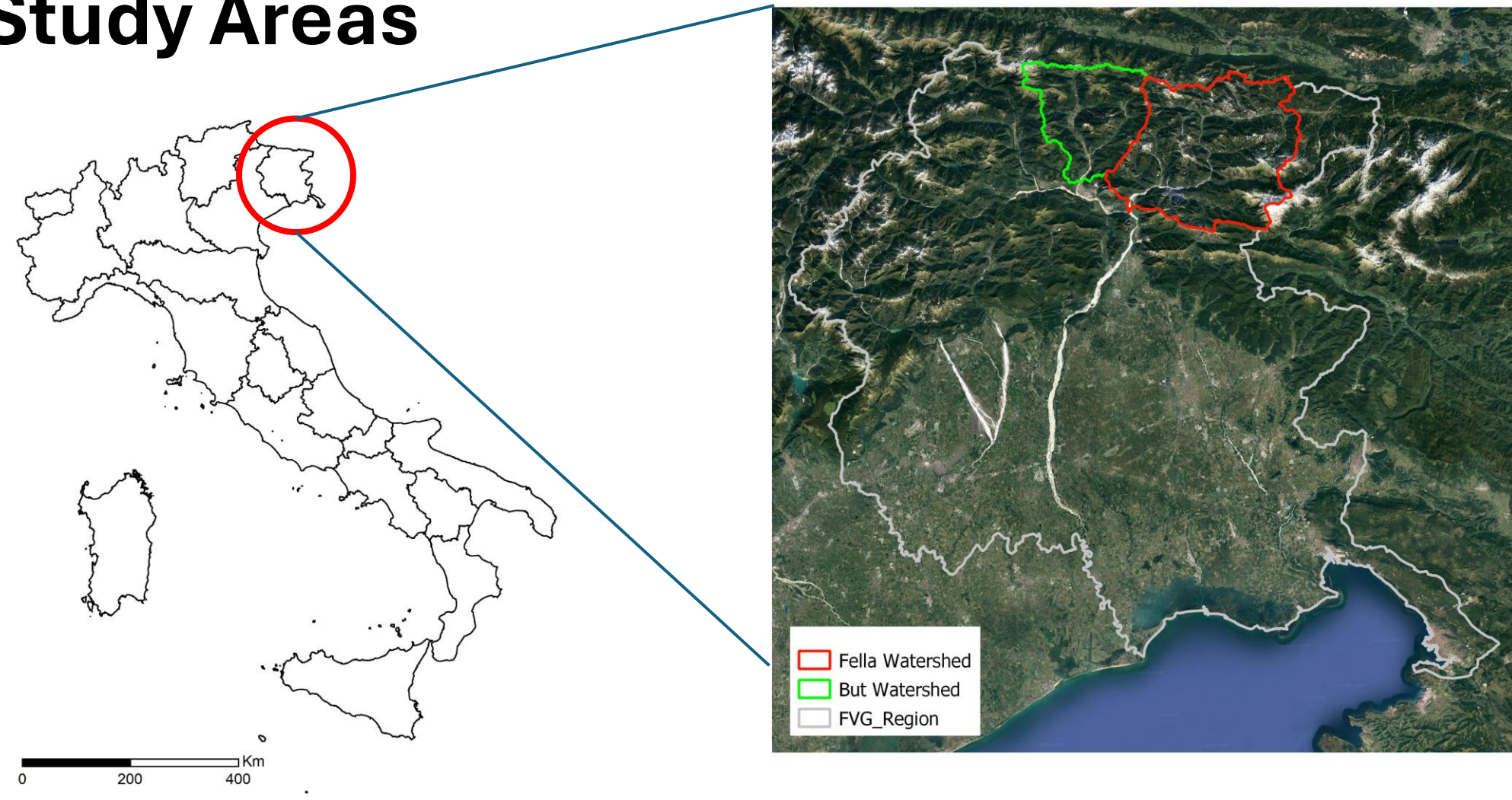
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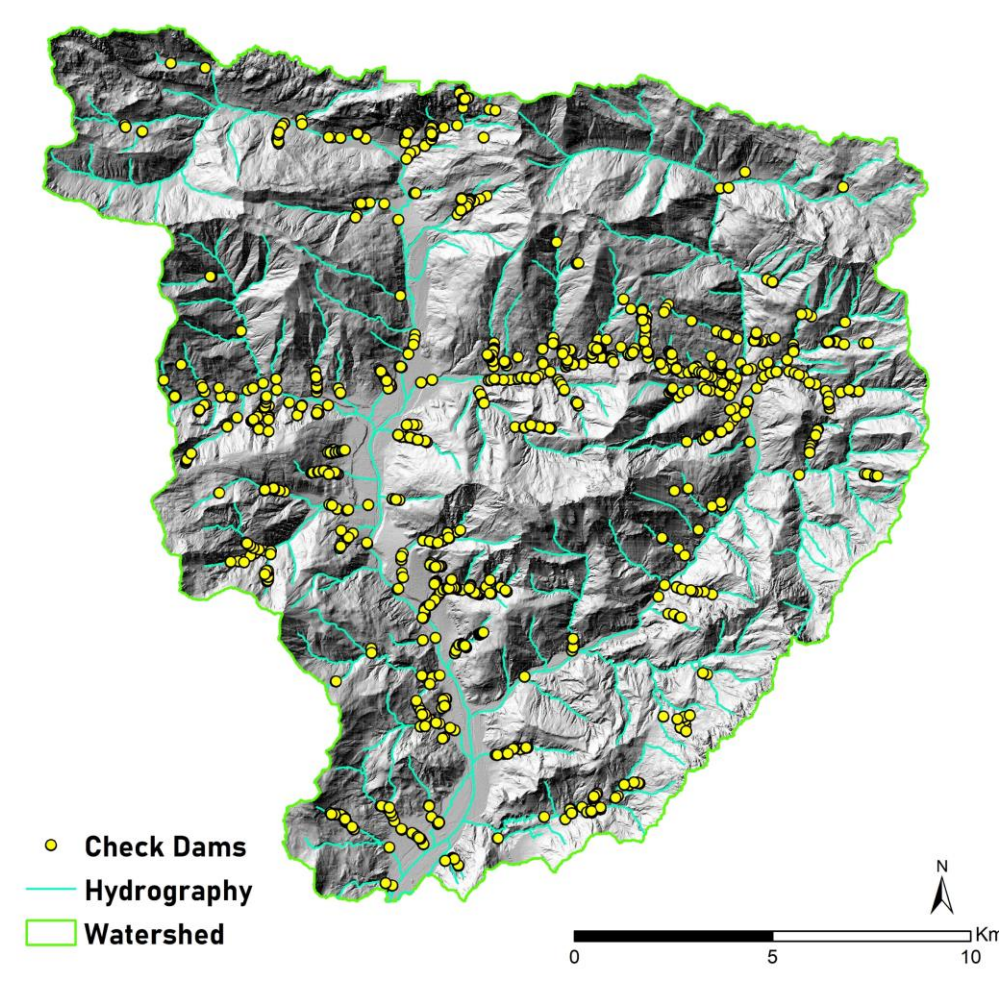
Introduction

The study of sediment dynamics and its interaction with channel control structures enables effective hydrological risk mitigation. An updated inventory of these structures is crucial for monitoring and planning both old and new prevention works. High-resolution topography data (HRT), such as LiDAR, is essential for accurately mapping watershed characteristics and to perform multi-temporal analysis. The combination between multi-temporal analysis and channel control structures inventory is important to improving monitoring actions

Study Areas



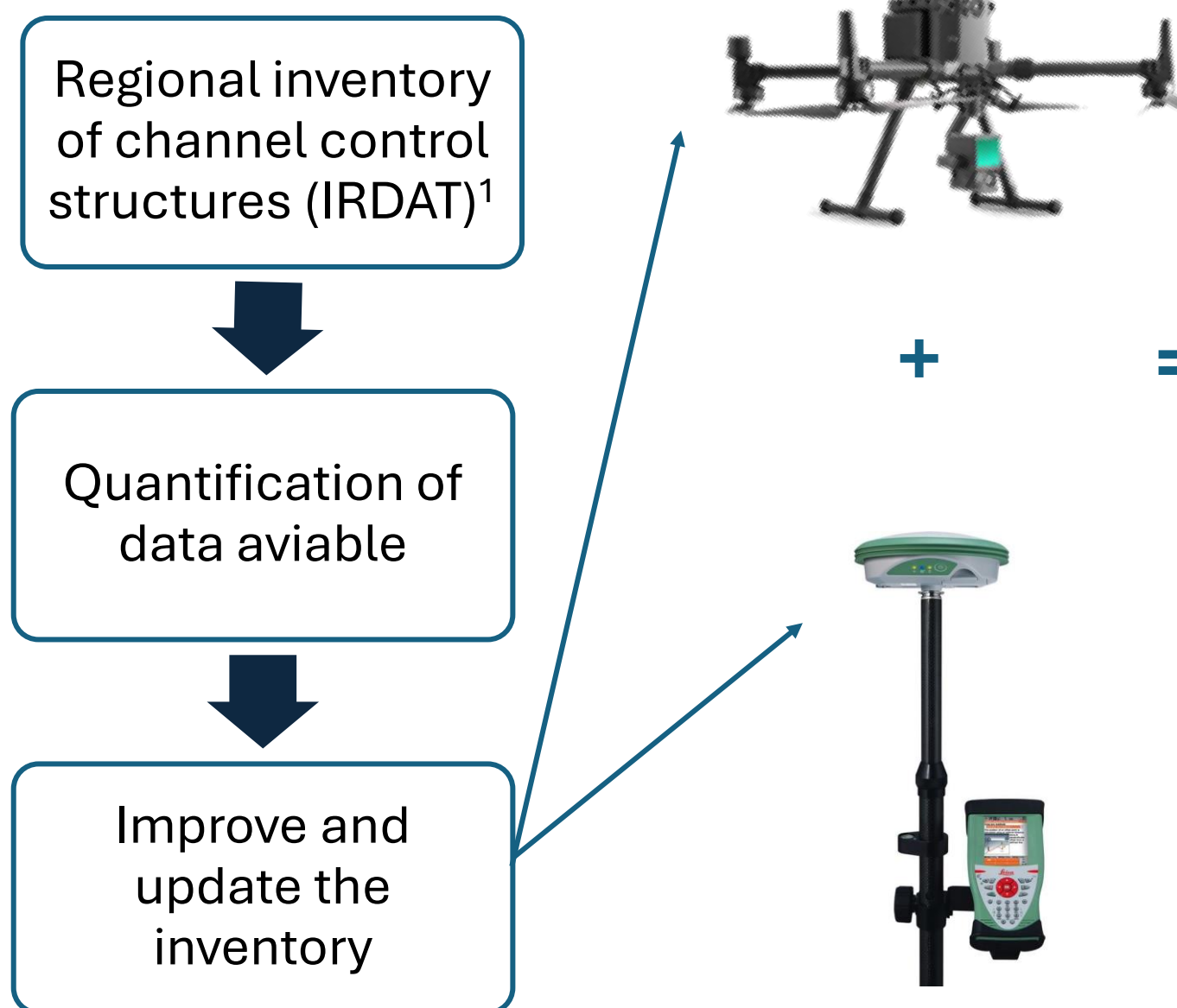
Fella basin
Area: 703 Km²



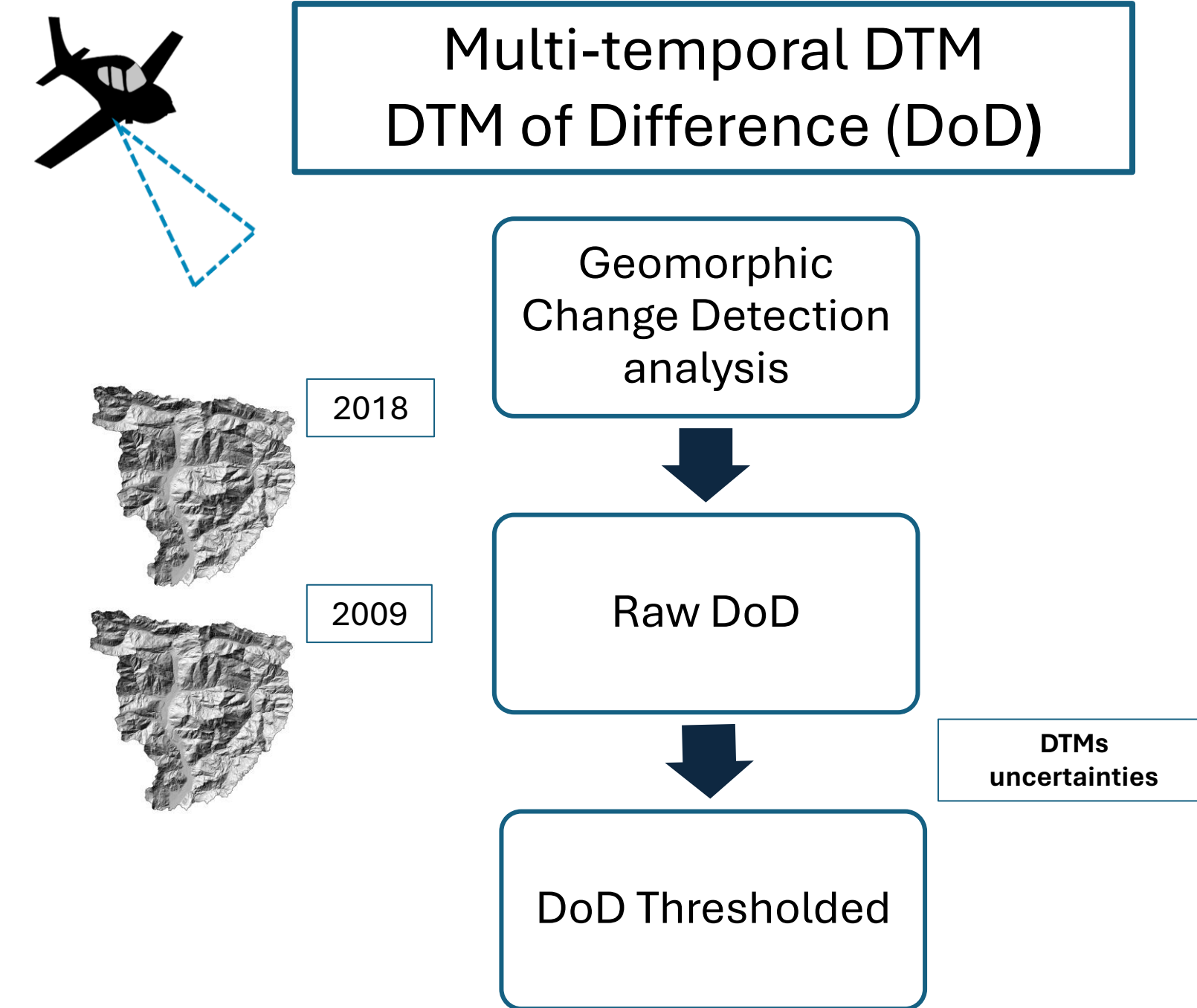
But basin
Area: 325 Km²

Methods

CHANNEL CONTROL STRUCTURES INVENTORY

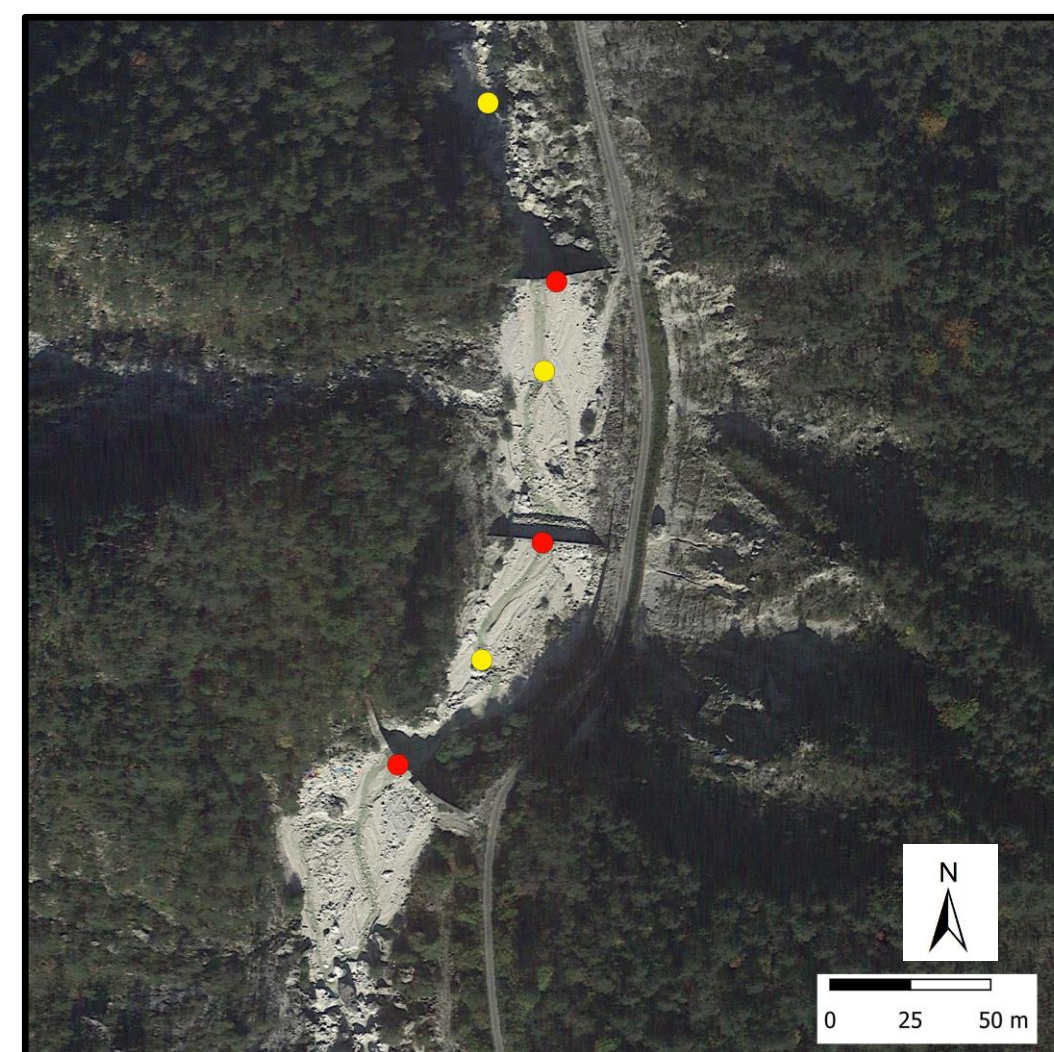
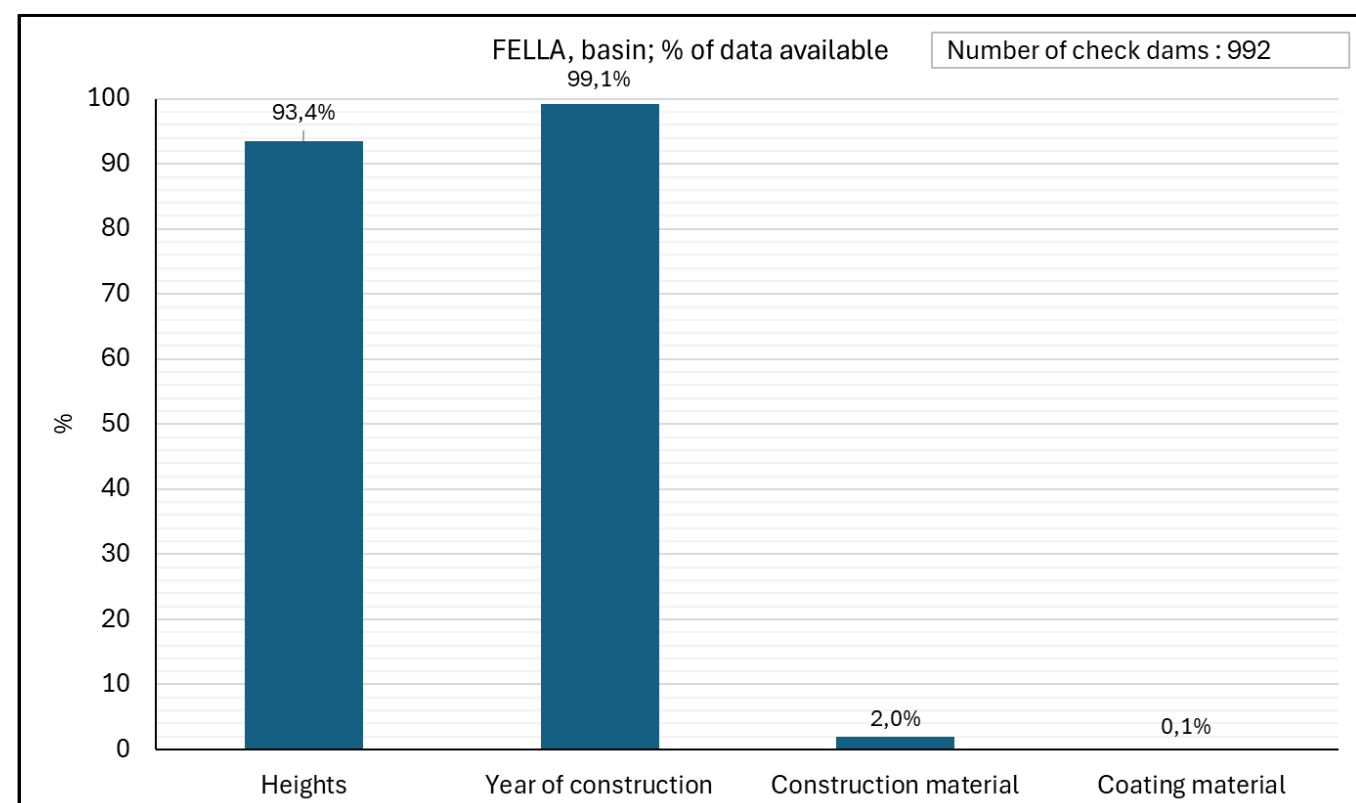
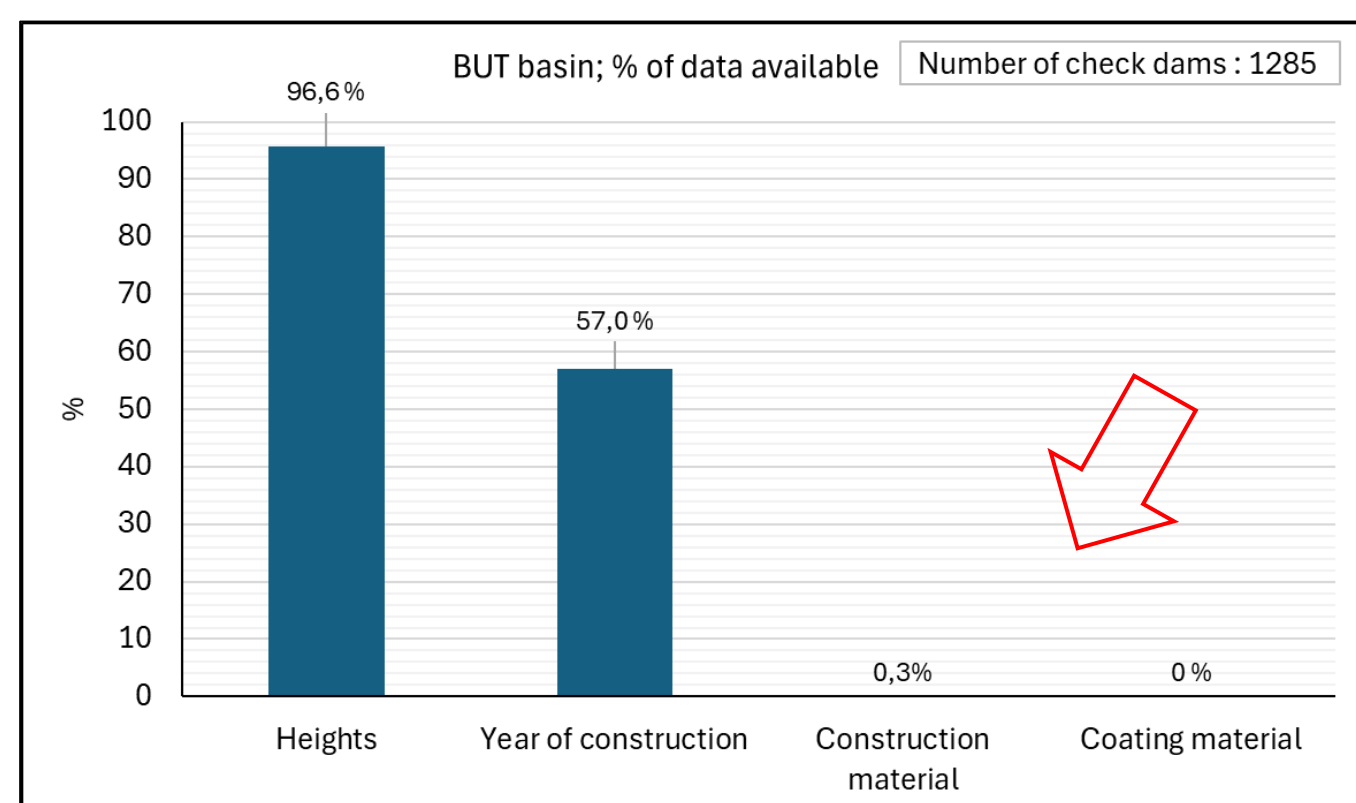


MULTI-TEMPORAL TOPOGRAPHIC DATA

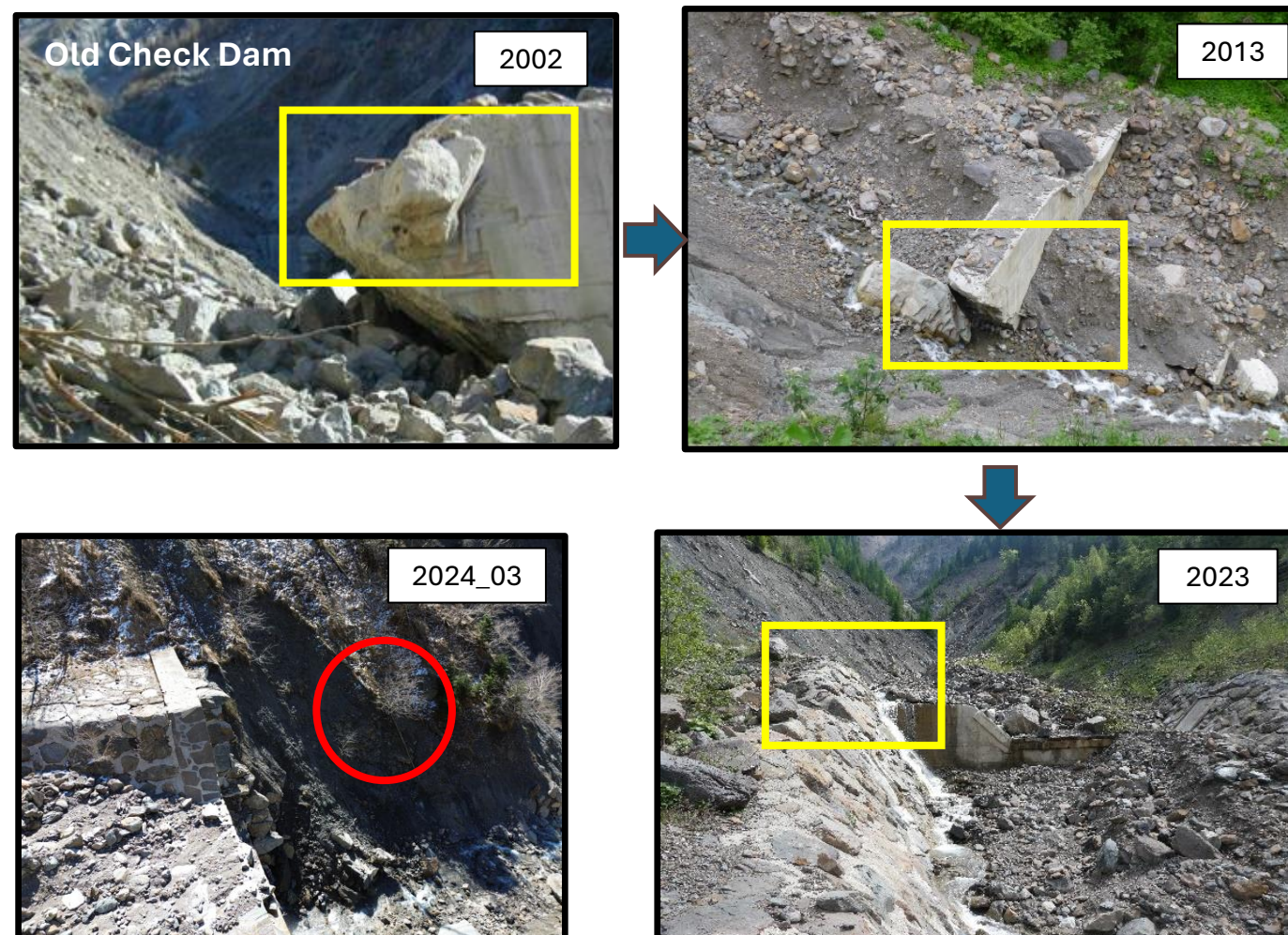


Results

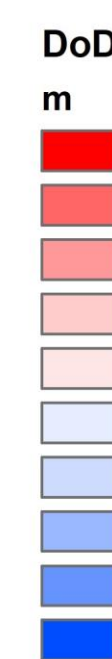
IRDAT Channel Control Structures Inventory



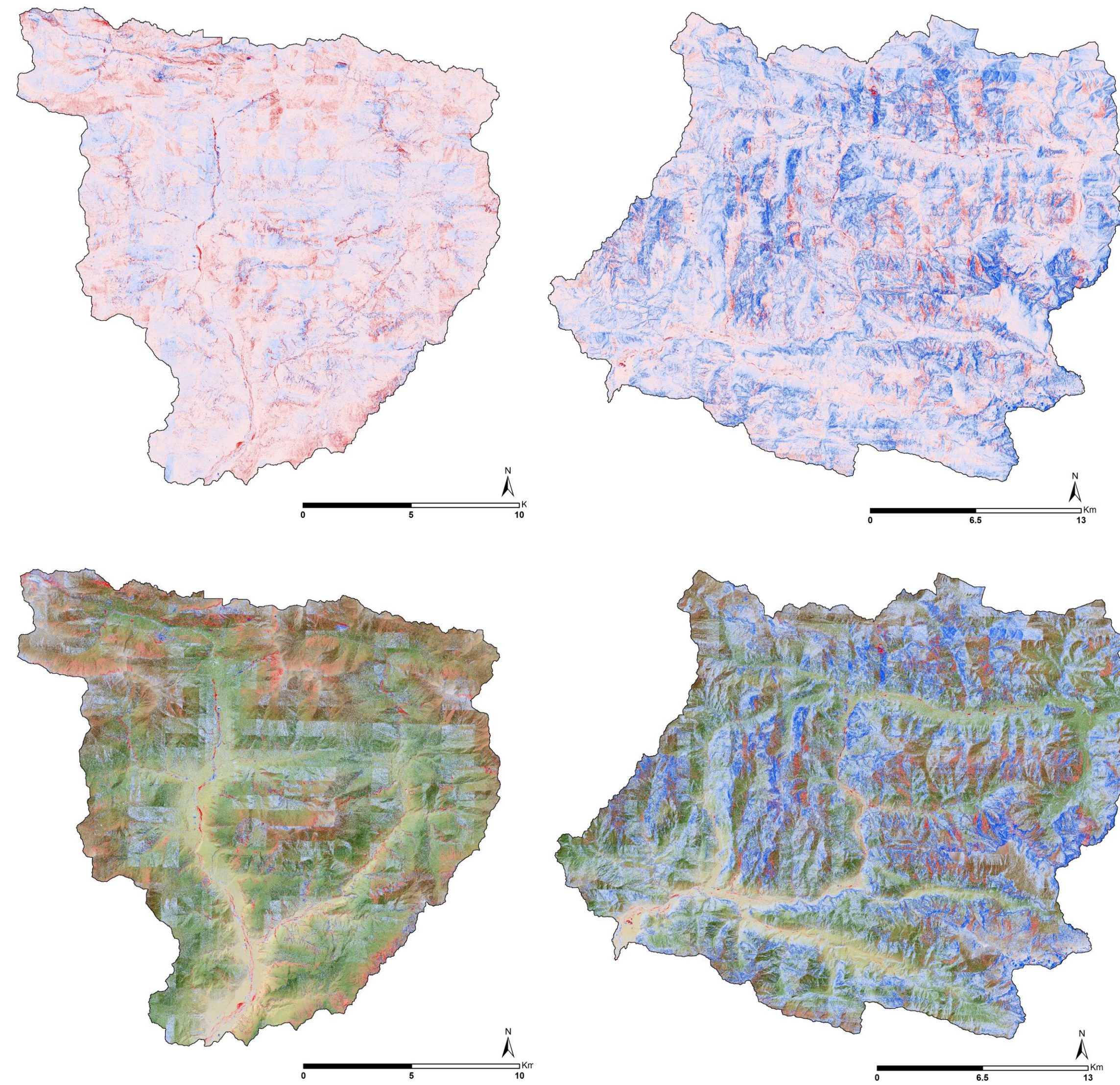
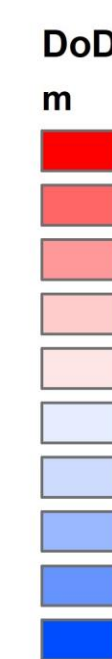
● Check Dams - IRDAT Channel Control Structures Inventory
● Check Dams - Field Survey



RAW DoD



TRESHOLDED DoD



Conclusions

Regional Channel Control Structures inventory

- Not accurate GNSS precision of location
- Need to update
- Need to increase information on status, functionality and materials of channel control structures

High- Resolution Topography dataset (HRT)

- Necessity to post-processing for multi-temporal analysis (Not ready-to use)
- Co-registration of point cloud (raw data)
- Problem of processing HRT data for large spatial scale