

## Evaluating the effectiveness of risk reduction strategies

Understanding natural hazard risk management in Italy

### Analisi e documentazione di Piene imProvvisive per una Aumentata RESilienza in zone montane - APPARE

**QUESTION** How can we enhance the understanding of flash floods in mountainous basins to reduce flood risks and improve territorial resilience?

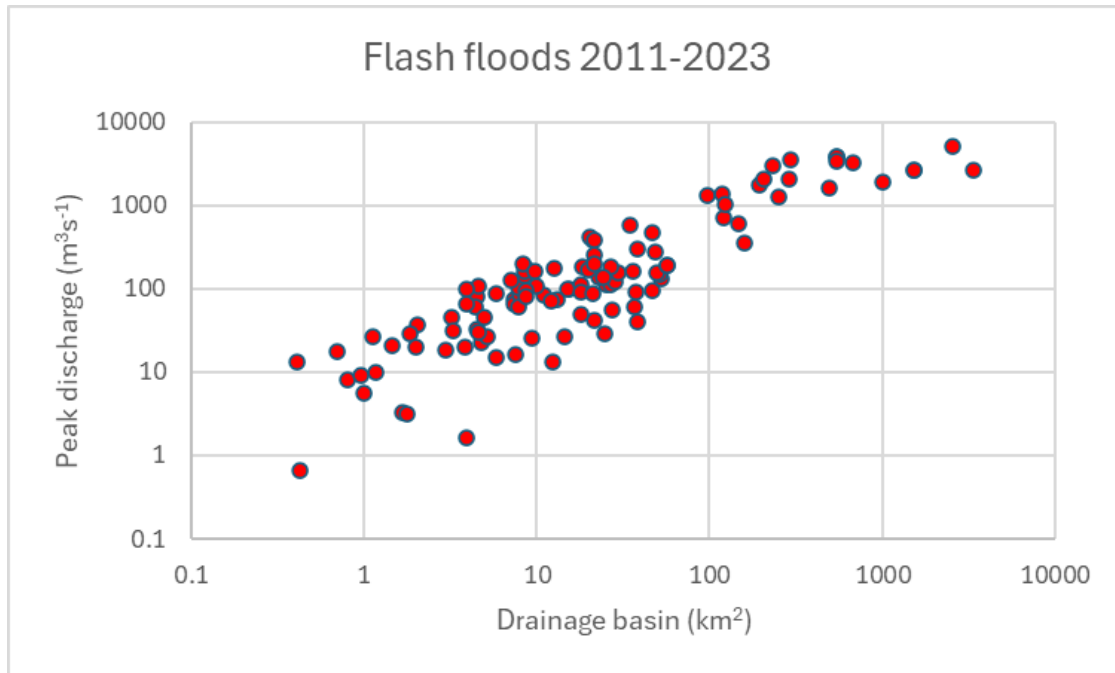
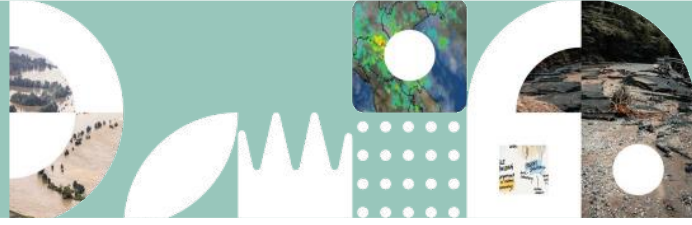
**OBJECTIVE** To optimize methodologies for documenting flash floods and their associated morphological impacts on riverbeds, while also expanding the collection of relevant data.

**DESCRIPTION** Comprehensive data on extreme flood events are crucial for developing effective flood risk mitigation strategies. Traditionally, such data are gathered through flow measurement networks. However, even the most densely distributed monitoring systems often face limitations in capturing the hydrological response of small mountain and hill basins during flash floods. To overcome this challenge, it is imperative to implement integrated post-event investigative strategies that focus on watercourses affected by flash floods. These strategies can provide more detailed insights into flood dynamics and the subsequent morphological changes in river systems.

**HOW IT WORKS** The APPARE project aims to advance our understanding of flash floods in mountainous and hilly regions, thereby enhancing the resilience of these areas through improved planning and risk management. This goal is achieved through several key activities:

- Post-event reconstruction of peak discharges via topographic surveys of flood marks, combined with the application of hydraulic formulas and/or hydrodynamic models.
- Expansion of flash flood datasets, with a focus on comparing newly acquired data against historical events across diverse geoclimatic contexts.
- Integration of hydrological reconstructions with geomorphological observations, including the evolution of riverbeds and the dynamics of woody debris transport.





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“ Impact-based decision making allows the prioritization of strategies for targeted future investments.”

