




# Evaluating the effectiveness of risk reduction strategies


Understanding natural hazard risk management in Italy

## nATional fLood informAtion System - ATLAS

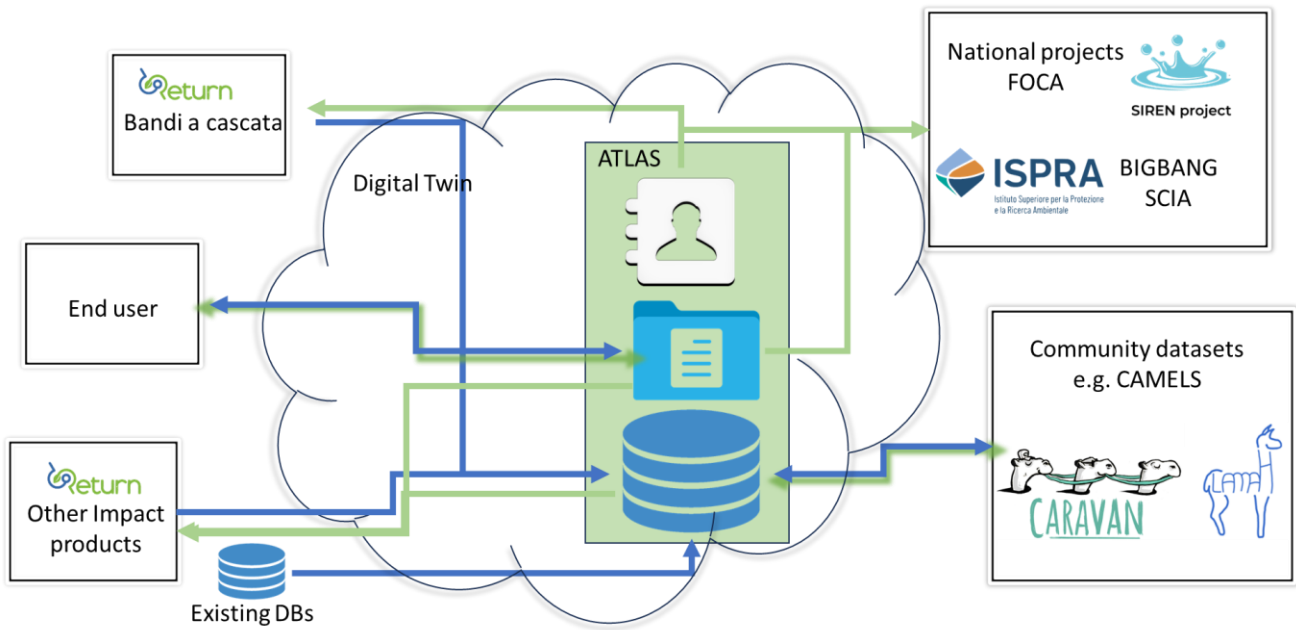
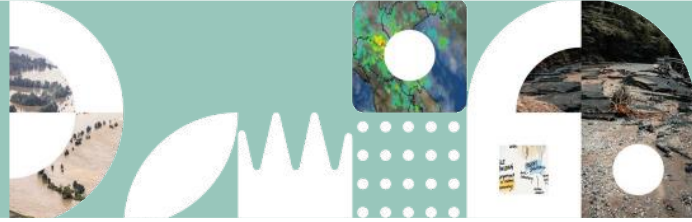
 **QUESTIONS** How can data be optimally utilized to assess the risks of drought and flooding?  
How can statistical analysis be applied to present and future climatic extremes?

-  **OBJECTIVES**
- Standardize and collect existing data, creating a unique database for flood-related information.
  - Facilitate research on flood risk assessment and management.
  - Provide a user interface and a library for accessing and utilizing the data.
  - Allow continuous access to data through models/algorithms developed by users.
  - Integrate algorithms developed by end users.

-  **DESCRIPTION**
- ATLAS is an information system capable of hosting and managing data in raster, vector, multidimensional matrices, and sheet/table formats. Its modular and scalable structure is expected to initially accommodate at least the following datasets:
- Maximum annual precipitation values for short and very short durations (sub-daily and sub-hourly) and annual maxima of daily peak and average flows, which are utilized for research on the statistics of precipitation extremes and floods in small basins, as well as for assessing the impacts of climate change on extreme events and consequently on flood risk.
  - Spatially distributed precipitation fields with high spatial/temporal resolution, estimated from observations of the national weather radar network combined with high temporal resolution ground rainfall observations, for the analysis of extreme events.
  - Geomorphological parameters of river basins, with a specific focus on small-sized basins, for the reconstruction of extreme events and the development and implementation of appropriate modelling.
  - Parameters for the characterization of soils and the quantification of erosion and runoff in small river basins.
  - Riverbed descriptors for reconstructing flow/debris flow estimates in small basins.
  - Cartography for the implementation of models and the evaluation of hazard and hydraulic risk.
  - The ATLAS structure will enable the national scientific community to easily access fundamental information for research development, overcoming the current main obstacle of data availability.

-  **HOW IT WORKS** ATLAS is designed as a database that can also collect data from existing databases, both related to other projects and ongoing initiatives (see blue lines in the figure below). This data can be used for the analysis and evolution of flood and drought risks. Additionally, ATLAS data could also support research and studies from other institutions and contribute to other national databases, such as FOCA, ISPRA, and ARPA, as well as international ones like Caravan (see green lines in the figure below).





Possible links between ATLAS and other DBs/projects

## Contacts



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## Institutions



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

