

Evaluating the effectiveness of risk reduction strategies

Understanding natural hazard risk management in Italy

National Coastal Evolution Tool



QUESTIONS

- Are there existing (and available) datasets on the Italian shoreline (total or partial) and its evolution?
- Are there widely recognized and standardized methods to retrieve the shoreline and its evolution?
- What are the most recent and effective research methods applied to retrieve the shoreline and its evolution?
- What are the scales of interest for the different products?



OBJECTIVES

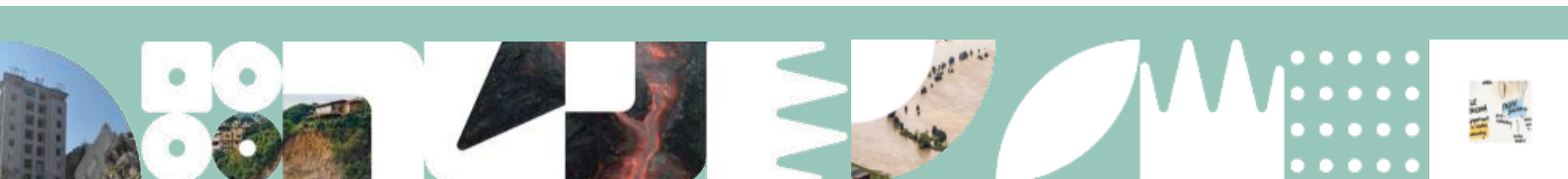
- Collect existing datasets on the Italian shoreline and its evolution.
- Define standardized as well as innovative methods to retrieve the shoreline and its evolution.
- Retrieve the shoreline in areas where there are no existing datasets and study its evolution.
- Define the scales and all the metadata useful for various applications.

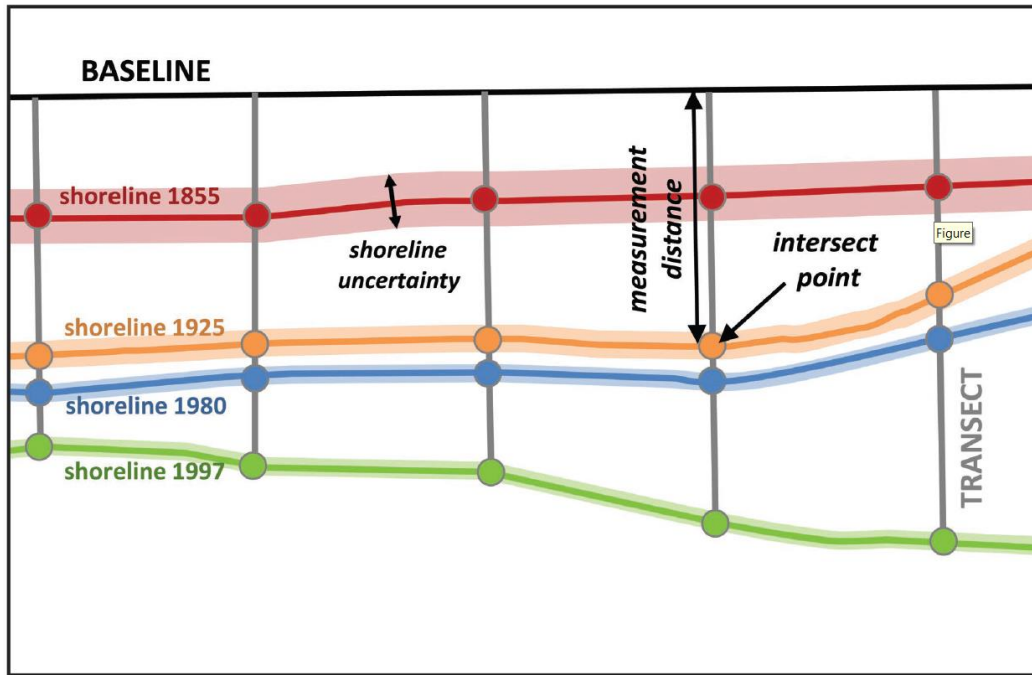
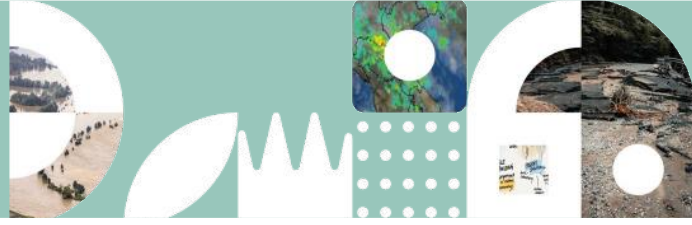


DESCRIPTION The first product is an inventory of shoreline lines, created using not only data from the Emilia Romagna Region but also utilizing all available data from national and international databases. The second product has been developed using the databases resulting from the first product and the Digital Shoreline Analysis System (DSAS) software, which is provided by the USGS (image below; USGS DSAS). This type of tool enables the monitoring of shoreline evolution as a whole, as well as along user-defined transects, and allows for statistical analysis of shoreline changes.



HOW IT WORKS The shoreline dataset will be implemented by including already available georeferenced features from global, EU, national, and regional databases. For specific study areas, new shoreline surveys will also be included, obtained using satellite and aerial imagery, or utilizing drones and cameras. The metadata accompanying the products will include a comprehensive description of the methodology used to produce the shorelines at different scales and using various types. The shoreline evolution dataset includes a detailed description of the applied methodology, as well as all ancillary datasets, the metadata, and rate-of-change statistics (i.e. Net Shoreline Movement-NSM, Linear Regression Rate-LRR, Weighted Linear Regression Rate-WLR, Standard Error, and R-squared, etc.).





The Digital Shoreline Analysis System (DSAS) is used to analyze changes in the coastline.

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Institutions



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

