

Fluvial flooding hazard assessment in Northern Italy: potential and informativeness of different geomorphic classifiers

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Climate-KIC Demonstrator Project

Improved assessment of pluvial, fluvial and coastal flood hazards and risks in European cities as a means for building safer and more resilient communities.

Climate-KIC

- Hydrological and hydraulic **numerical models** provide accurate detailed inundation maps but are often very **resource intensive**.
- DEM-based approaches** based on **geomorphic classifiers (indices)** for distinguishing basin locations in flood-prone areas and flood-free areas.

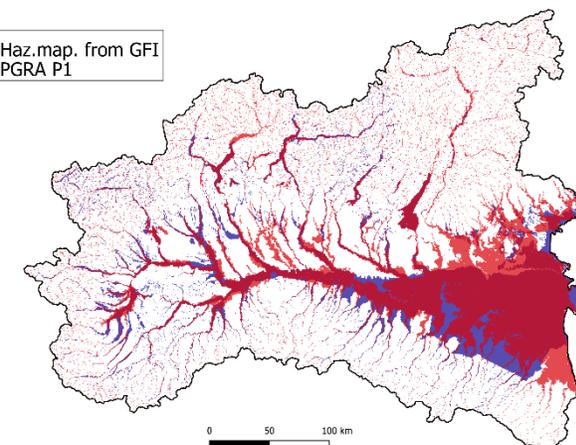
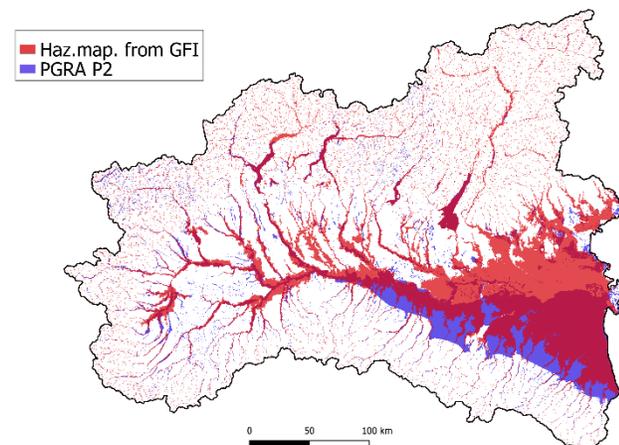
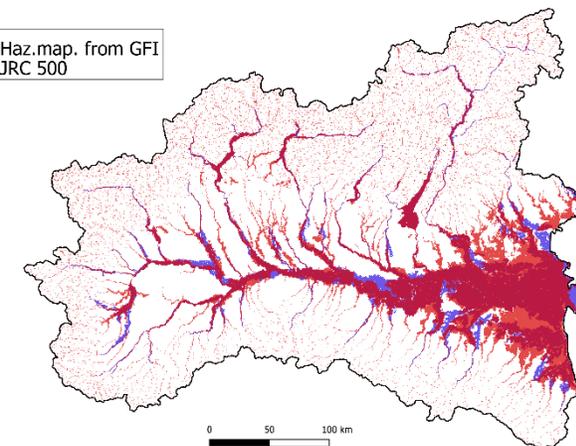
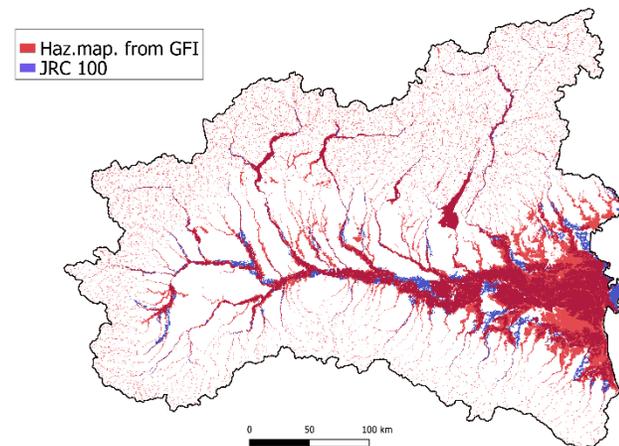
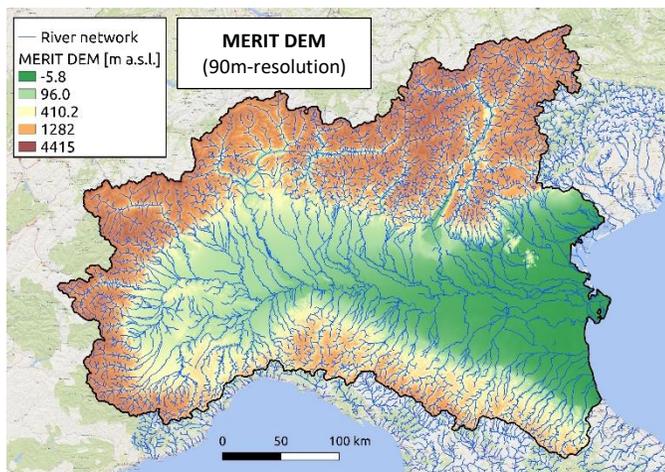
Aims of the study: to test different geomorphic classifiers for the identification of flood-prone areas in **Northern Italy**.

Geomorphic indices:

- Single: D, HAND
- Composite: TI_m , GFI, LGFI

Reference flood hazard maps:

- PGRA (ISPRA): P1, P2
- JRC: T = 100, 500 years



Conclusions: (1) Better performances of GFI compared to other geomorphic classifiers. (2) GFI threshold values are sensitive relative to different reference hazard maps. (3) Promising avenue for future researches: combination of multiple geomorphic indices through data-driven approaches and artificial intelligence.



For more information, please watch the short presentation at the following YouTube link:

https://www.youtube.com/watch?v=dplwRe9_rYw

