



INTERUNIVERSITY PHD COURSE
“SUSTAINABLE LAND MANAGEMENT”
Cycle XXXVI

PhD Student:	Cinzia Albertini
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Title of the Research Project	Integrating a hydro-geomorphic approach and remote sensing observations for flood hazard assessment
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Summary of the Research Project

Flood hazard mapping is crucial for flood risk assessment and management of the emergency and post-emergency phases. According to the European Floods Directive (Directive 2007/60/CE), Member States are required to identify areas with a potentially significant risk to implement flood management plans and prevent human and economic losses. Within the Italian Legislation (Legislative Decree 49/2010), a methodology for updating flood hazard and risk mapping has recently been proposed [1].

In this context, the present research project aims to further advance knowledge on flood risk assessment and map flood hazard on a large scale. To this aim, hydro-geomorphic characteristics of the territory under exam, as well as anthropogenic features, will be taken into account and coupled with observations acquired from remote sensing techniques. On the one hand, geomorphic features provide significant information on flood exposure and the tendency of an area to be flooded [2], on the other hand, remote sensing monitoring of the Earth's surface through satellites or Unmanned Aerial Vehicles (UAVs) offer the capability of observing the evolution of rivers and landforms and detecting flooded areas [3]. Therefore, by exploiting these data, the final scope of the current research project is to develop a reliable methodology to delineate areas exposed to flood hazard.

The results of the research can help to develop targeted policies and measures for the mitigation of water-related hazard.



References

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3. Serpico, S.B.; Dellepiane, S.; Boni, G.; Moser, G.; Angiati, E.; Rudari, R. Information extraction from remote sensing images for flood monitoring and damage evaluation. *Proc. IEEE* **2012**, 100, 2946–2970.