

Doctoral Programme in Civil, Environmental and Mechanical Engineering

Research subjects proposed for the 41st cycle – second call

Additional position with scholarship

Curriculum A - Civil and Environmental Engineering

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A5 - scholarship on reserved topics

Funded by: Department of Civil, Environmental and Mechanical Engineering within the project AICS NAANE (CUP E63C25001130005).

Title: Changes of Inundation Dynamics in the Amazon Floodplain

River – floodplain interactions are key to a multitude of ecosystem processes that sustain biodiversity and to support human livelihoods of riparian communities. These interactions are heavily altered in the most industrialized contexts of the globe, with few remaining free flowing river reaches that maintain longitudinal and lateral connectivity with the floodplain.

This research project focuses on the Amazon region, where the dynamics of floodplain inundation across different season still strongly affect the life conditions of riparian communities. Here climate change and increasing flow regulation by man-made water abstractions are modifying the natural flow regimes and create changes in these socio-geomorphological systems that are yet to be clearly understood and quantified

The project will refer to the Colombian reach of the Amazon River as a paradigmatic case study and will seek to understand and quantify the evolutionary trajectories of its inundation and morphological dynamics, and how this affects the local socio-geomorphological system.

The research shall develop an integrated approach that includes multi-temporal satellite imagery analysis, in-situ field measurements, hydraulic modelling, interaction with local stakeholders and communities, to quantify the spatial and temporal patterns of floodplain inundation as well as of the morphological changes at the reach scale. Time series analysis will be required to determine the magnitude, timing, frequency and duration of both flood and drought conditions in the riparian areas where indigenous communities and protected natural areas (Ramsar sites) are located.

We seek highly motivated candidates with a background in environmental, energy engineering and/or sciences or related fields. Previous experiences in international cooperation projects with field work on environmental issues and/or water resources management will be seen as a plus.

Funding is provided through the NAANE project, funded by the Italian Agency for Development Cooperation (AICS), and partnership with local NGOs and universities is foreseen.