UNIVERSITA' DEGLI STUDI DI PADOVA
DIPARTIMENTO DI GEOSCIENZE
Via Gradenigo 6
35131 Padova
www.geoscienze.unipd.it

DIPARTIMENTO DI GEOSCIENZE

Seminario

Geomorphic dynamics in mountain streams triggered by severe floods: processes, impacts, and hazard mapping

Thursday, January 16 - 2025 – 4,30 P.M. Arduino Classroom

Speaker: **Dr. Andrea Brenna**

Department of Geosciences - University of Padova

During high-magnitude to extreme flood events, whose intensity and frequency is currently exacerbated by the occurrence of heavy rainfalls under the effects of climate change, streams undergo geomorphological dynamics that differ significantly from those observed under ordinary hydrological conditions. Intense processes of bank erosion and sediment transport can lead to substantial modifications in the riverchannel's morphology, with important implications for flood-related hazards. This is particularly evident in mountainous environments, where geomorphological processes such as channel widening and enhanced sediment transport, sometimes manifesting as debris floods or debris flows, represent the main source of hazard, and potentially risk, related to floods. Drawing primarily on a series of examples collected from the Cordevole River catchment (Dolomites, Italy) following the October 2018 Vaia Storm, this seminar addresses the following topics: (i) advances in the understanding of river geomorphic dynamics in response to high-magnitude floods; and (ii) geomorphic approaches available for mapping flood hazards driven by river channel dynamics, with a focus on risk mitigation particularly in anthropized areas.