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**Geomorphology for society:
challenges and opportunities**

BOOK OF ABSTRACTS



THEMATIC SESSION 6

**EXTREME EVENTS, HUMAN IMPACT AND DENUDATION: SYNERGISTIC EFFECTS
(organized by the IAG WG DENUCHANGE)**

Chairpersons:

Eliza Placzkowska, Ionela Rachita, Zbigniew Zwolinski



Human geomorphology of the Cancano and San Giacomo reservoirs area (Northern Italy): a multitemporal analysis of landscape transformation in the Central Alps

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This study investigates the human geomorphology of the Cancano and San Giacomo reservoirs in the Fraelle Valley (Upper Valtellina), central Italian Alps, based on the geomorphological evolution of the area after dams construction on the upper reaches of the Adda River. It was carried out in the framework of the GEOTRes (Geoheritage threatening and resilience: mapping the impact of geomorphic and human processes in sensitive morphoclimatic environments" projects supported by MUR, PRIN2022 PI. R.S. Azzoni). Using a multitemporal analysis of historical maps (1885, 1931), aerial and field imagery (1930, 1945, 1953), and comparisons with present-day high-resolution satellite data, we reconstructed the pristine fluvial landscape and its transformation after human interventions. The analysis of cartographic and photographic datasets reconstructs the pre-dam landscape providing insights into the natural setting of the Adda River and its associated landforms prior to significant anthropogenic changes. This historical perspective traces the river's evolution from a natural, dynamic system into a highly regulated environment tuned by human infrastructure. The construction of three major dams—Cancano I Dam (1920-1928), Cancano II Dam (1953-1956), and San Giacomo Dam (1940-1950)—caused substantial modifications to the river's dynamics, resulting in alteration of the hydrological regime, submerging vast areas of the valley, and capturing of local streams. This highlights a dramatic reshaping of the region's geomorphological process. New landforms, including terraces and modified riverbanks, reshaped as a direct consequence of these changes. This study highlights the role of dams and reservoirs on the Alpine landscape, emphasizing the long-term consequences of human activities on fluvial systems and their geomorphological evolution. As a consequence, the construction of dams significantly influencing the dynamic of the critical zone and triggering new landscape processes.

KEYWORDS: human geomorphology, geomorphic process, dams, Adda River, alpine region
