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Alluvial systems in the Venetian Plain (Italy) as archives of late Quaternary climates and environments

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The research investigates the sedimentary, environmental and climatic evolution of the Venetian Plain during the Late Quaternary, through the multidisciplinary analysis and the correlation of deep cores.
The Venetian Plain is part of the foreland basin of the Southern Italian Alps, a thrust-fold belt mainly constituted by Mesozoic and Tertiary carbonate rocks. The study area represents the northernmost alluvial environment facing the Adriatic Sea and presents peculiar characteristics as it lies between the Mediterranean region and the Alps. The closeness with the sea have affected its evolution during the climatic fluctuation occurred in the Middle and Upper Pleistocene, facilitating the development of large glaciers even in small fore-alpine catchments and influencing the fluvial sedimentary pattern and base - level.
Large sectors of the Venetian Plain consist of glaciofluvial sediments deposited during the aggradation phase of the Last Glacial Maximum (LGM) to form fluvial megafan. These sediments, as well the post - glacial alluvium, provided valuable evidence for the reconstruction of the climatic and environmental changes occurred during the Upper Pleistocene and Holocene. Information on the pre - LGM are rather poor because of the significant depth, generally higher than 30 meters, at which the relative sediments are found.
The study focuses on the analysis of the climatic and environmental proxies provide by two cores located in the megafan of the Brenta River ("Geriatrico 1" and "Cà Borille" cores). These cores, 130 and 103 meters deep respectively, are of great potential interest because they present proximal marine intercalations pertaining to Upper Pleistocene interglacial phases.
Available data and ongoing analyses include palynology, litostratigraphic characterization, provenance analyses on the sand fraction (sand petrography and heavy minerals), micropaleontology (foraminifera and ostracods) and radiocarbon dating.
The main aims of the research are to extrapolate the depositional history and the drainage pattern of the plain during the Middle - Upper Pleistocene, to define the paleoenvironmental evolution of the area and to improve the climatic proxy dataset on the southern side of the Alps needed for bio - chronostratigraphic subdivision and correlation.
We expect that such multidisciplinary approach will provide new evidence on the glacial - interglacial climatic cyclicity in the upper Middle and Upper Pleistocene and its influence on the depositional dynamics and prograding mechanisms of the fluvial megafans, in this important sector of the Southern Alps foreland basin.