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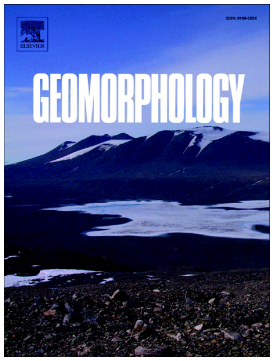

Reconstructing Last Glacial Maximum and Younger Dryas paleolandscapes through subsurface paleosol stratigraphy: An example from the Po coastal plain, Italy

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Reconstructing Last Glacial Maximum and Younger Dryas paleolandscapes through subsurface paleosol stratigraphy: an example from the Po coastal plain, Italy.

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Abstract

Paleosols are commonly used to reconstruct ancient landscapes and past environmental conditions. Through identification and subsurface mapping of two pedogenically modified surfaces formed at the onset of the Last Glacial Maximum (LGM) and during the Younger Dryas (YD) cold event, respectively, and based on their lateral correlation with coeval channel-belt sand bodies, we assessed the geomorphic processes affecting the Po coastal plain during the Late Pleistocene (30-11.5 cal ky BP). The 3D-reconstruction of the LGM and YD paleosurfaces provides insight into the paleolandscapes that developed in the Po alluvial plain at the transitions between warm and cold climate periods. The LGM paleosol records a stratigraphic hiatus of approximately 5 kyr (29-24 cal ky BP), whereas the development of the YD paleosol was associated with a climatic episode of significantly shorter duration. Both paleosols, dissected by Apennine rivers flowing from the south, dip towards the north-east, where they are replaced by fluvial channel belts fed by the Po River. The LGM channel-belt sand body reflects the protracted lateral migration of the Po River at the onset of the glacial maximum. It is wider (> 24 km) and thicker (~15 m) of the fluvial sand body formed

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