

251-7 - Booth No. 92: EXPLORING THE POST-MESSINIAN TO QUATERNARY EVOLUTION OF THE PO PLAIN (NORTHERN ITALY) THROUGH CONTINENTAL DRILLINGS: FROM CANYONS TO GLACIERS



Wednesday, September 25, 2024



8:00 AM - 5:30 PM



Hall D (Anaheim Convention Center)

Booth No. 92

Abstract

One of the main geomorphological consequences of the desiccation of the Mediterranean Sea during the Messinian Salinity Crisis was the progressive lowering of the base level of hydrological networks and the excavation of deep canyons. Throughout the late Neogene and the Quaternary, the progressive growth of the Alps and Apennines and subsequent activation of intense sediment transportation, the alternating phases of high and low stand of the sea level, and the expansion of glaciers making available huge quantity of debris progressively filled these canyons and created the Po Plain of northern Italy. A part of indirect reconstructions based on data from geophysical exploration, very little direct information illustrating the complex architecture of the sedimentary succession preserved below the Po Plain exists. In the region at the foot of the Alps, the integration of data from water well drillings and the dataset from the CARG project of geological mapping of Italy allows for paleogeographic reconstructions. The considered cores reached depths of up to 300 m and collected information not deeper than the lower limit of the Piacenzian stage of the Pliocene epoch. Here, we present a large dataset of sedimentological, lithological, and biostratigraphic data from wells located in the upper Po Plain of the Lombardy Region, illustrating the interplay of different sedimentary environments (marine to glacial) that occurred between the Pliocene and the Pleistocene. For this region, the dataset illustrates the existence of deltaic, beach, and infra-circalittoral environments in the Piacenzian and Gelasian, with a progressive onset of fluvial sedimentation prevailing since the end of the Calabrian. A marked change in sedimentation dynamics occurred since MIS22 with the onset of glaciations. The building of glacial amphitheaters at the mouths of the main Alpine valleys made available large quantities of coarse sediments redistributed by wide outwash systems. The formation of paleosols weathering gravel bodies (only occasionally preserved in cores and cuttings) occurred during interglacial phases. Finally, the sedimentary record is further complicated by active tectonics triggering local uplift and subsidence.

Author



Andrea Zerboni

Università degli Studi di Milano

Authors



Mariangelo Baio

Università degli Studi di Milano



Donata Violanti

Università degli Studi di Torino



Andrea Pezzotta

Università degli Studi di Milano



Gaia Crippa

Università degli Studi di Milano



Roberto Sergio Azzoni

Università degli Studi di Milano



Andrea Piccin

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