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Occurrence of Roman occupation in the Rhône delta during late antiquity: an outer harbor of Arles?

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During archaeological survey on the Ulmet Cistercian abbey, the occurrence of roman ceramic and marble pieces suggests a roman occupation. Ulmet is located in the Rhône delta between the Vaccares pond and the Mediterranean Sea, 23 km south of Arles (south of France). Despite the predominance of the roman coastal port "Fossae Marianae", Arles is well known to be an important roman city and a fluvial harbor. In the deltaic marshy area, paleochannels of the Rhône River are identified. Investigations are aimed at identifying buried archaeological levels, remains of roman occupation. Geological setting shows a Holocene formation of about thirty meters thick formed by clayey material, with metric to decametric sandy interbeds, overlying a Pleistocene pebbly fluvial formation. This delta area is characterized by a flat landscape with ponds, marshes and sand levels covered by halophilic vegetation.

2D Electrical Resistivity Tomography (ERT) was performed using wenner-schlumberger array that appears the most robust in this context. The vicinity of the sea leads to a saturation of the formations by brackish water responsible for low resistivity and weak contrasts. ERT allowed to image the boundary between Holocene and Pleistocene sediments and to detect a probable paleochannel. Moreover, on the eastern edge of this paleochannel, ancient bank has been detected and confirmed by an excavation. The stratigraphy show clayey formation intercalated between two levels of antropic rock filling. A migration of the bank could explain this stratigraphy.

High resolution ERT profiles (30 to 50 cm inter-electrodes spacing) conducted at the north of the abbey remains have revealed two levels, between 0 m and 0.6 m depth and at around 1.4 m depth respectively, showing alignments of highly resistive anomalies interpreted as archaeological remains.

The archaeological investigations confirm the presence of remains associated to harbor activities and river bank protection. The wide variety of stones used for the edification indicates an origin outside the Rhône delta. They are composed of limestones of the Provence area and of schists and basalt stones of far-distant origin. The origin of the material could be the ship ballast whereas, in other archaeological sites of Camargue, the building material comes from the vicinity of Arles. The study of the ceramic material dates the archaeological levels between the 5th and the 7th century A.D. A building complex is dated between the 5th and the 6th century A.D.

For instance the lower geo-electrical anomalous level was not dug yet. Within two E-W profiles, the upper level dip westward in direction of the paleobank. This could mark out a limit of a bank when channel was working. Our results confirm a roman occupation at the edge of an ancient Rhône's channel that could be an outer harbor of Arles.