

EGU21-12502, updated on 28 Oct 2021

<https://doi.org/10.5194/egusphere-egu21-12502>

EGU General Assembly 2021

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## Morphological evolution of the middle and lower Seine valley during the Quaternary period.

**Kim Genuite**, Carole Nehme, Daniel Ballesteros, Dominique Todisco, and Damase Mouralis  
Université Rouen Normandie, Laboratoire IDEES, Normandie, Rouen, France (kim.genuite@gmail.com)

The Seine river (France) drains today a catchment area of 80,000 km<sup>2</sup> covering almost the northern part of France. Despite its importance, few studies focused on the Seine catchment and its landscape evolution, unlike the Somme basin, which remains a European reference for the Quaternary, because of the numerous archaeological sites it contains. The middle and lower Seine valley in Normandy shows nevertheless a particular meandering fluvial dynamic and a succession of fluvial terraces over 120 m height, dated back to Early Quaternary. Previous works focused on the stratigraphy of alluvial sequences and led to the accurate characterization of lower fluvial and estuarine levels from Marine Isotope Stage (MIS) 1 to MIS 11. The alluvial terraces comprise also various Acheulean industries, showing human settlements in the valley for at least 400,000 years. Such archaeological remnants were retrieved in Saint-Pierre-Lès-Elbeuf, Tourville-la-Rivière, Vernon and La Celle.

Nowadays, the Seine connects to the drowned lower Seine course which continues in the Channel. This submerged part was subaerial during the last glacial cycle. Presently, the lower Seine course is still under the influence of marine tidal effects up to la Bouille (around 30 km from the coast). Additionally, estuarine deposits filled the valley up to Les Andelys (around 80 km from the coast) during the Holocene transgression and cover the penultimate and last glacial alluvial terraces. Nevertheless, the dynamic of the Seine river is broadly identified with few chronological constraints, but without any morphometric analysis combined with stratigraphical study.

This work provides a review of the stratigraphy of the quaternary alluvial deposits in the lower part of the Seine Valley, together with new morphometrical analysis of the paleo-meanders located at higher altitudes. The analysis of the paleo-morphologies compared with high-resolution digital elevation model (DEM), provides new means for constraining the fluvial incision and deposition over long distances and periods, and helps to discuss the river evolution related with quaternary uplift, catchment evolution and glacio-eustatic dynamics.