New generation of integrated geological-geomorphological reconstruction maps in the Rhine-Meuse delta, The Netherlands

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Geological-geomorphological reconstructions are important for integrating diverse types of data and improving understanding of landscape formation processes. This works especially well in densely populated Holocene landscapes, where large quantities of raw data are produced by geotechnical, archaeological, soil science and hydrological communities as well as in academic research. The Rhine-Meuse delta, The Netherlands, has a long tradition of integrated digital reconstruction maps and databases. This contributed to improve understanding of delta evolution, especially regarding the channel belt network evolution.

In this contribution, we present a new generation of digital map products for the Holocene Rhine-Meuse delta. Our reconstructions expand existing channel belt network maps, with new map layers containing natural levee extent and relative elevation. The maps we present have been based on hundreds of thousands of lithological borehole descriptions, >1000 radiocarbon dates, and further integrate LIDAR data, soil maps and archaeological information. For selected time slices through the Late Holocene, the map products describe the patterns of levee distribution. Additionally, we mapped the palaeo-topography of the levees through the delta, aiming to resolve what parts of the overbank river landscape were the relatively low and high positioned areas in the past landscape. The resulting palaeogeographical maps are integrative products created for a very data-rich research area. They will allow for delta-wide analysis in studying changes in the Late Holocene landscape and the interaction with past habitation.