Natural levees are important elements in delta plain geomorphology for understanding delta architecture, landscape evolution and settlement patterns. The data-rich Rhine-Meuse delta, The Netherlands, has a long tradition of integrated digital reconstruction maps and databases. For this delta we present a new generation of digital map products with natural levees mapped at delta scale. In this contribution, we present the integrative map showing the patterns of levee distribution at AD 100, 500 and 900 and a palaeo-topography reconstruction of the levees. We outline the method of compiling these maps and analyse the levee patterns of different channel belts and delta segments. At delta scale, tectonic setting and delta plain configuration are important in determining the width and orientation of natural levees. At smaller scale, time of evolution, orientation of the channel belt relative to the delta plain gradient overprint these delta scale trends. The resulting palaeogeographical maps are integrative products created for a very data-rich research area that will yield new insights on delta evolution and past delta hydrology. They provide new opportunities for palaeoenvironmental and archaeological maps to study changes in the Late Holocene landscape and the interaction with past habitation.

### Geomorphological reconstructions

**Method**

- Channel belt generations (Cohen et al. 2012) and boundries locations
- Draw levee boundries with qapen from 100,000 boudaries
- Draw levee boundries with A125, L125 geomorphology
- Combine with residual channels and channel belts into integrated geomorphological reconstructions

**Resulting maps**

### Palaeo elevation reconstruction AD 100

**Method**

- Map geomorphological top levee queries from borehole data
- Top levees relative to MSL
- Top levees corrected for younger sedimentation and for delta plain gradient reconstruction groundwater level (Cohen 2003, Koster et al. in prep.)
- Mask out levee

**Resulting map**

### Conclusions and outlook

New detailed geomorphological reconstructions of the Rhine-Meuse delta for the late-Roman and early-medieval landscape provide the following insights:

1. **Holocene tectonic activity** caused the large abundance of natural levees and channel parts in the central part of the delta.
2. Generally, the elevation of levees increases for younger levees. In the most confined part of the delta plains, natural levees are oppositely elevated due to flood wave level amplification in the most narrow part of the delta plains.
3. On a smaller scale, west levees and channel parts form where channel belt directions from the regional delta plain gradient and directly from the coastline.
4. Settlements are found in the higher elevated natural levees of the delta.

The presented geomorphological reconstructions facilitate new vegetation reconstructions, studies on flooding hydrology and settlement dynamics in the landscape.