Mapping the transformations of the Dutch water landscape

Uncovering the impact of human intervention on the Dutch river delta

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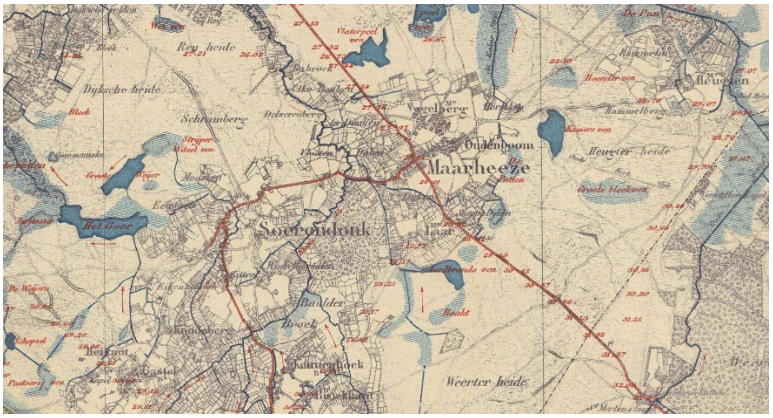
Project description

Over the past centuries, the Dutch delta has undergone profound hydrological transformations driven by human modification. Wetlands were drained and replaced by dense networks of channelized streams and artificial ditches, while rivers, coastal dikes, and levies were constructed to protect against floods. These developments have made the Netherlands one of the most water-secure and technologically advanced deltas in the world. However, recent hydroclimatic extremes have exposed the limits of our landscapes in delivering key ecosystem services such as water retention, flood protection, and biodiversity support. Therefore, rigorous transformation towards more resilient landscapes by robust water systems is required.

Nature-based solutions such as rewetting peatlands (paludiculture), restoring floodplains and constructed wetlands are increasingly popular as alternatives to the technical water infrastructure as they can combine water management with delivering ecosystem services. Questions remain about which measures are most effective and where they should be implemented to maximize benefits across multiple ecosystem services. Information from historical development can support the decision making for the implementation process how to optimize the functionality of NBS in different landscapes and land-use. Using historical maps, remote sensing data, and GIS-based analysis, we aim to quantify changes in hydrological landscape features and link these to current challenges and possible solutions for climate resilient planning and future nature-based solutions.



Job requirements

As a Bright Minds assistant you will help to collect, process and analyze spatial data to reveal how hydrological features have developed in the Rhine-Meuse-Scheldt Delta. Therefore, previous experience with GIS, R and/or remote sensing would be recommended. Furthermore, interest in figure making could be beneficial as we need to find innovative ways how to clearly show these changes so they are helpful to landscape planners.