

Title of the project: Calibration methods based on innovative use of measurements/new measurement techniques

Assignment no.: 12.24

Internal/external:
External

Head graduation committee:
tbd

Daily advisor:
Anna Kusters (Deltares)
Anouk Bomers (UT)

Name(s) of participating companies or institutes:
Deltares

Start of the project:
asap

Required courses:

Hydraulic modelling
River Flow and Sediment Dynamics
River Morphodynamics

Short description of the project

Deltares develops state-of-the-art numerical models for clients around the world. The department of river dynamics works on improving the methods used for the set-up, calibration and validation of river models. This Msc. graduation topic focuses on investigating the use of measurements to improve the hydrodynamic calibration.

Traditionally, hydrodynamic calibration of river models is based on water level and discharge measurements at specific, fixed locations. Recently however, other data sources have become available that can potentially be used for calibration. Examples are video images, radar, aerial photography and satellite images. This project combines the investigation of novel measurement techniques with application of these measurements in the calibration of hydrodynamic river models. Steps include:

- 1) Collecting available datasets that could be used in calibration
- 2) Investigating the suitability of data for calibration
- 3) Designing calibration methods in order to incorporate new data
- 4) Model calibration and validation

References:

Van der Deijl, E. (2023). *Validatie hoogwater Maas juli 2021*. Deltares report11208053-002-ZWS-0006.

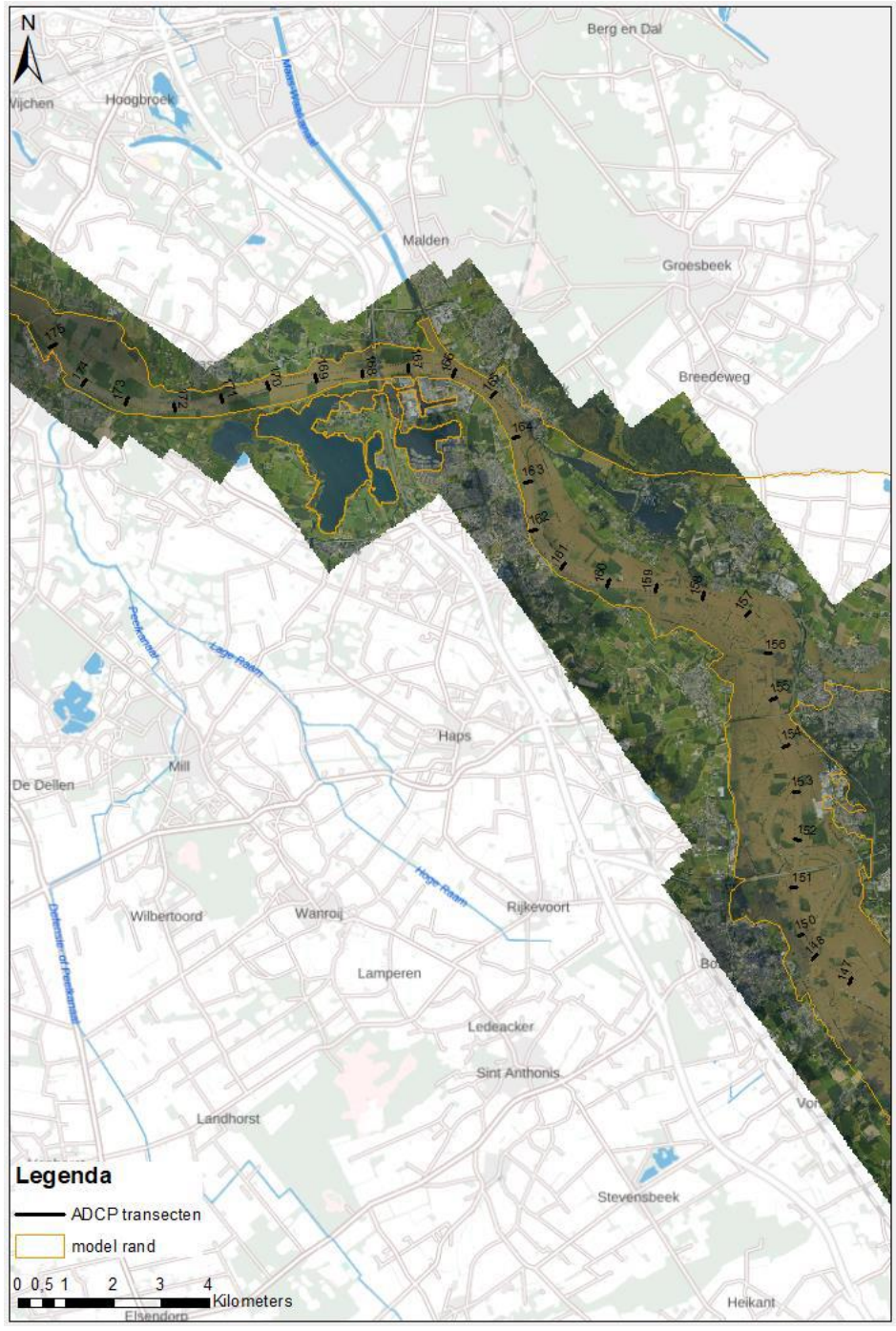


Figure 1 Aerial photograph of the Meuse during the flood of July 2021. Source: Van der Deijl (2023).