

## **FLOODPLAIN REGENERATION AND FLOOD PROTECTION**

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The project team “Projektgruppe Weserniederung” has been studying the restoration potential of the floodplains of the upper region of the River Weser in central Germany for many years. Central in this project is the role played by floodplain channels as agents that bring dynamics into the floodplains. In order to better understand the effect of hydrological factors in the regeneration process, a network of both groundwater and surface water gauging stations was installed in the project area to record water levels at various locations. The area was surveyed intensively with a view to capture the terrain accurately. Yearly vegetation maps of the area are readily available as part of the research programme. Upper and lower boundary conditions are well defined with the help of gauges which record water levels continually in the main river channel. Field measurements of Velocity were conducted on several occasions to check Model accuracy. A two dimensional hydro dynamic numerical model was then developed using RMA2. With the help of the numerical Model, floods of various intensities were simulated. The hydrological Data collected in the field was used to calibrate and verify the Model. Finally, simulations mimicking the existence of a floodplain forest were carried out, with a view to estimate the variations of water levels in the area under those conditions. The results of the simulations are discussed with particular reference to flood protection and floodplain regeneration.