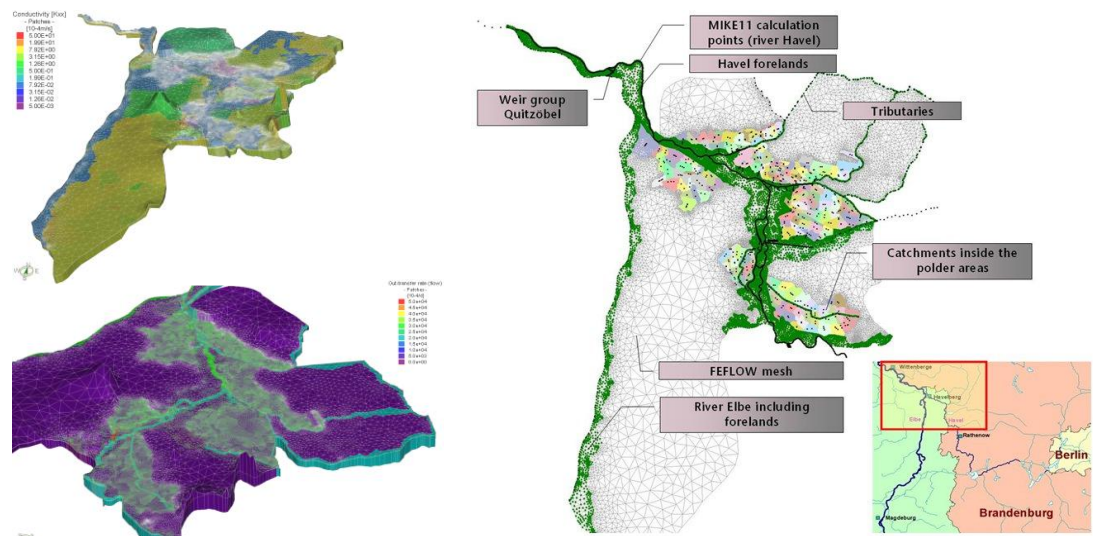


Location	Lower Havel region, Germany
Type of project	A coupled FEFLOW [®] /MIKE11 [®] groundwater / surface-water model
Client	LUGV Brandenburg, Landesbetrieb für Hochwasserschutz und Wasserwirtschaft des Landes Sachsen-Anhalt, Germany



Objective	During the extreme Elbe flood event in 2002, the Quitzöbel weir group was opened to use the lower Havel region as retention area to reduce the impact of the flood on downstream communities. Based on a detailed analysis of this extreme flood event and of the flood management in the retention area, strategies for polder flooding and for peak water level reduction need to be optimized, taking into account both ecological and economical aspects. Based on the optimized strategies, the directive for the control of the Quitzöbel weir group needs to be revised and updated.
Approach	A coupled FEFLOW [®] and Mike11 [®] flow model was built to investigate the dynamics of groundwater and surface-water interaction in the lower Havel region during flood events. Surface-water bodies (streams) and retention areas were simulated with a one-dimensional MIKE11 [®] model, while a three-dimensional FEFLOW [®] model was used to simulate the groundwater-flow part. River-water levels and discharge values are exchanged via the IfmMIKE11 tool that couples FEFLOW [®] and MIKE11 [®] .
Benefit	Based on the analysis of the Elbe flood in 2002 and further scenarios, optimized flood management strategies and measures to reduce the peak water level could be suggested. The IfmMIKE11 coupling interface was successfully tested, focusing on polder flooding. The interface is generally applicable to simulation tasks encompassing both groundwater and surface-water processes.