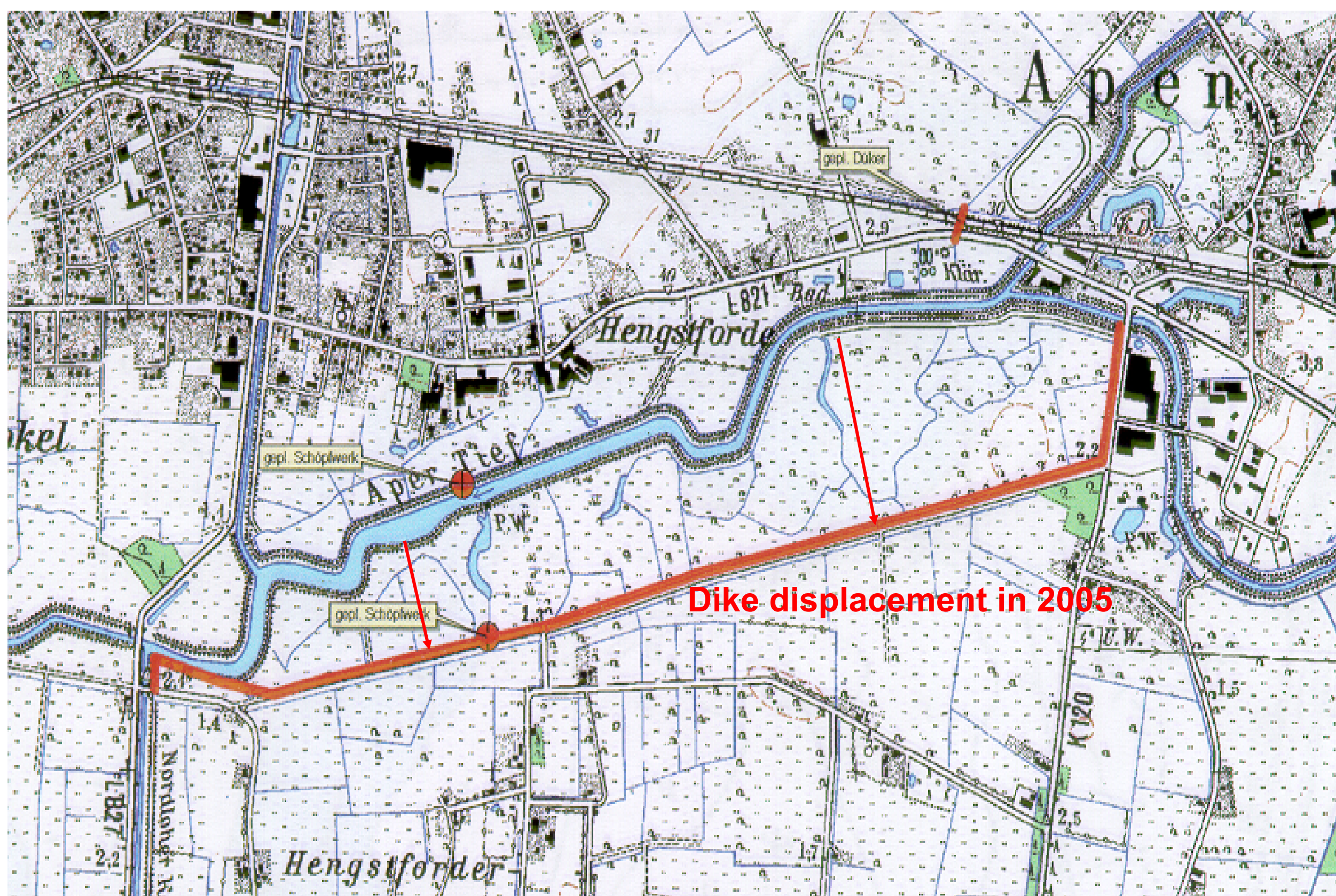


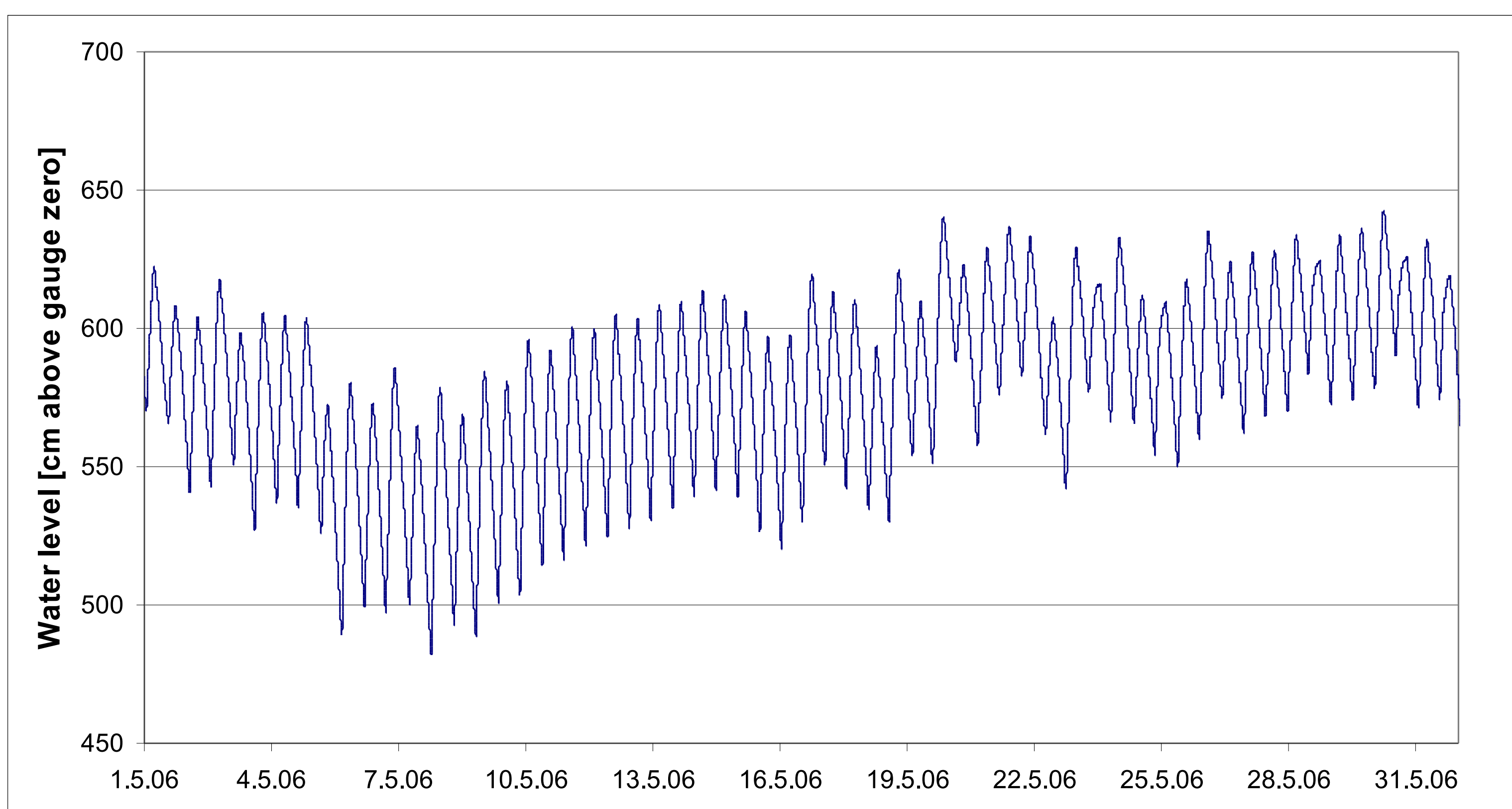
Basin characteristics

River Basin / River Basin (according EU-WFD)	Ems river basin
Operation (from... to...)	2004 – 2009
Gauge coordinates / Gauge datum:	3417020 / 5898320 / -5.02 m asl (NLWKN Aurich).
Catchment area:	75 ha
Elevation range:	0 to 4 m above sea level
Basin type: (alpine, mountainous, lowland)	Lowland, tidally influenced
Climatic parameters: (mean precipitation, temperature and others)	~780 mm/a precipitation, ~8.5°C mean temperature
Land use:	Pasture until 2004, natural succession from 2005 on
Soils:	Sandy gleysols, partly fen soils
Geology:	Quaternary sediments
Hydrogeology: (Type of aquifers, hydraulic conductivity)	Unconfined porous aquifer
Characteristic water discharges: (Q_{min} , Q_{max} , Q_{mean})	Variable flow directions and discharges depending on tide

Map of the research basin



Exemplary hydrograph



Special basin characteristics (hydrogeology, lakes, reservoirs etc.)

1. Tidally influenced area
2. Development of freshwater tidelands
3. Natural succession of vegetation
4. One artificial lake; artificial drainage in the surrounding area

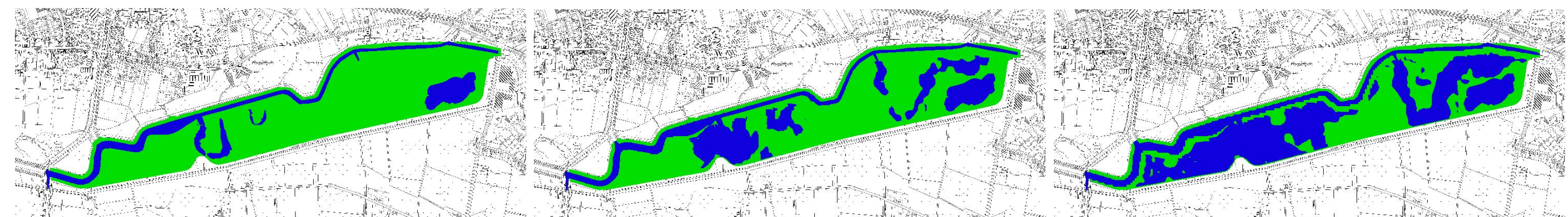


Instrumentation and data

Measured eco-hydrological parameters	Measuring period	Temporal resolution	Number of stations
Surface water table Groundwater table Soil genesis Erosion, sedimentation processes Dynamics of tidal creeks Species composition (flora, fauna)	2004-2009 Mainly during the growing season	5min (surface water table, groundwater table) Annual (flora, fauna) Measurement campaigns (sedimentation / erosion processes)	1 (surface water) 5 (groundwater) 20 vegetation plots

Applied models

1. GIS based inundation model



Main scientific results

1. Development of a natural marsh dynamics in a freshwater system:
 - Formation of tidal flats
 - Formation of highly dynamic tidal creeks
2. Groundwater dynamics closely coupled to river dynamics
 - Tidally driven groundwater fluctuations
3. Rewetting of the area after displacement of the dike; initiation of altered soil formation processes
4. Natural succession due to abandoned land use and tidal dynamics (rewetting)
5. Rapid changes in species composition within a few years (flora and fauna)
6. Exemplary project achieving a win-win situation between nature protection and flood protection



Key references for the basin

1. Publication in preparation for "Wasser und Abfall" (Vieweg Verlag / GWV Fachverlage GmbH)

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