



## **The aid of remote sensing and environmental history techniques for planning and successful implementation of decentralized flood reduction**

Stephan Seeling and Michael Gross  
Dept. of Remote Sensing, Trier University, Germany

The history of European landscapes is a history of changes. Based on the geophysical spatial features like geology, soils or topography the interaction with regional climate and particular human land use practices led to the development of the recent mosaic of European landscapes. For centuries the human incitements behind these actions have been to conquer nature and to optimize human benefit. Hence the maintenance or future development of other landscape functions like biodiversity or buffer and balance functions for energy and mass flows have often been neglected. As a consequence most recent cultivated landscapes feature a deficit of close to nature water retention capacities. Modern catchment orientated water management plans launch at this point and try to recover or even enhance former decentralized landscape abilities for water retention. Additionally remote sensing is a fast, effective and not too expensive tool for conducting landscape inventories or expose trends in land cover changes. Both can be seen as mandatory components for planning and successful implementation of decentralized flood protection measures.

For three different landscapes of Southwest Germany we analysed the trends in land use change within the last four decades, based on remote sensing and statistical methods, to deduct on main human driving forces behind these changes. Together with other spatial analyses this offers support for prioritisation and implementation of landscape adapted and locally accepted decentralized flood protection measures.