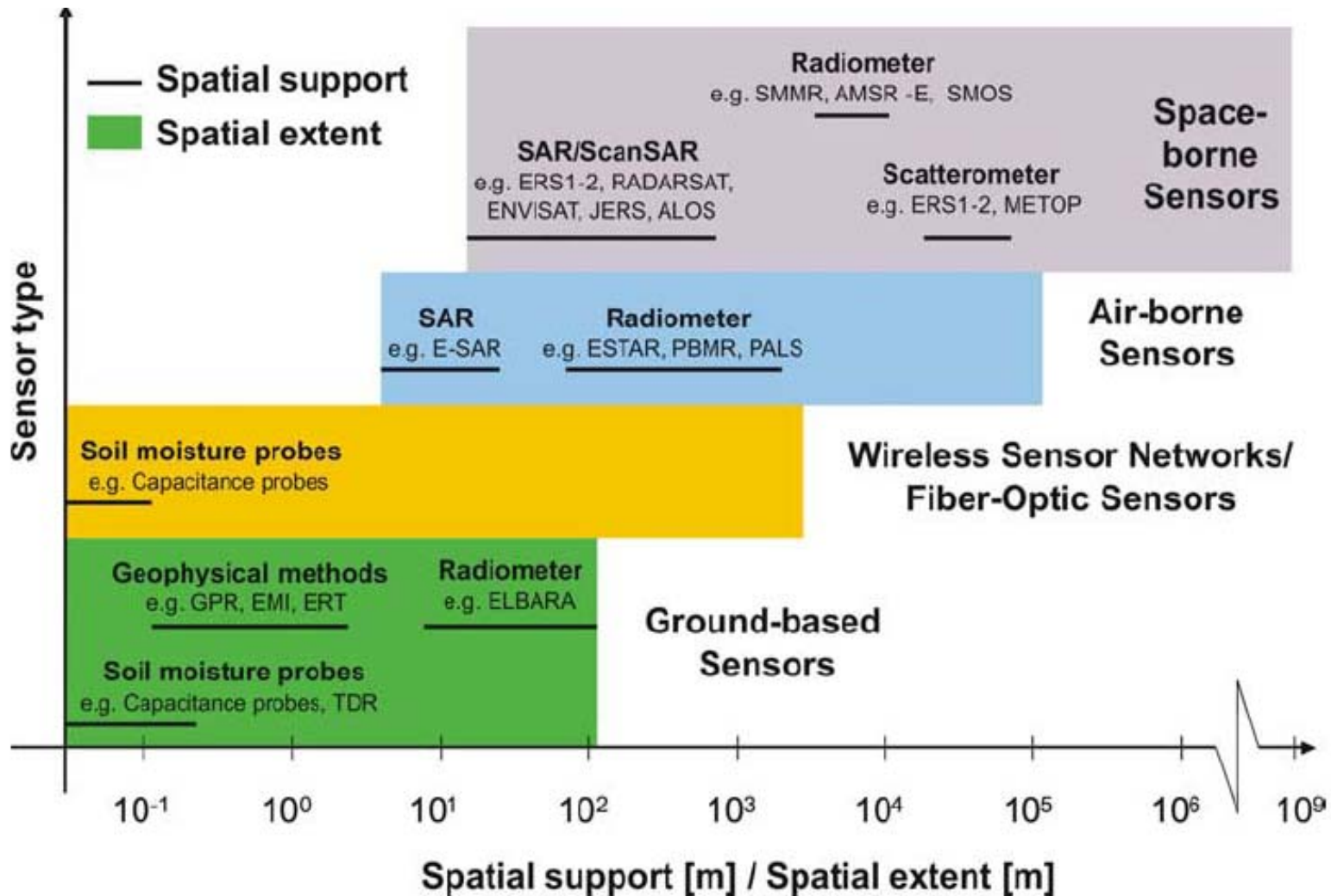


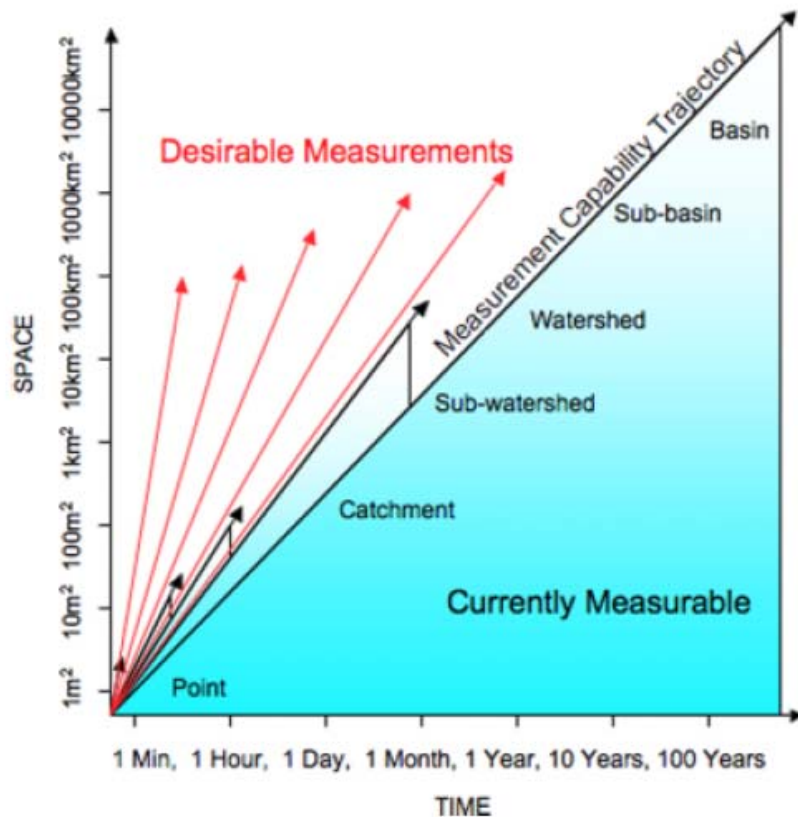
Hydrogeophysics in TERENO

Available measurement techniques



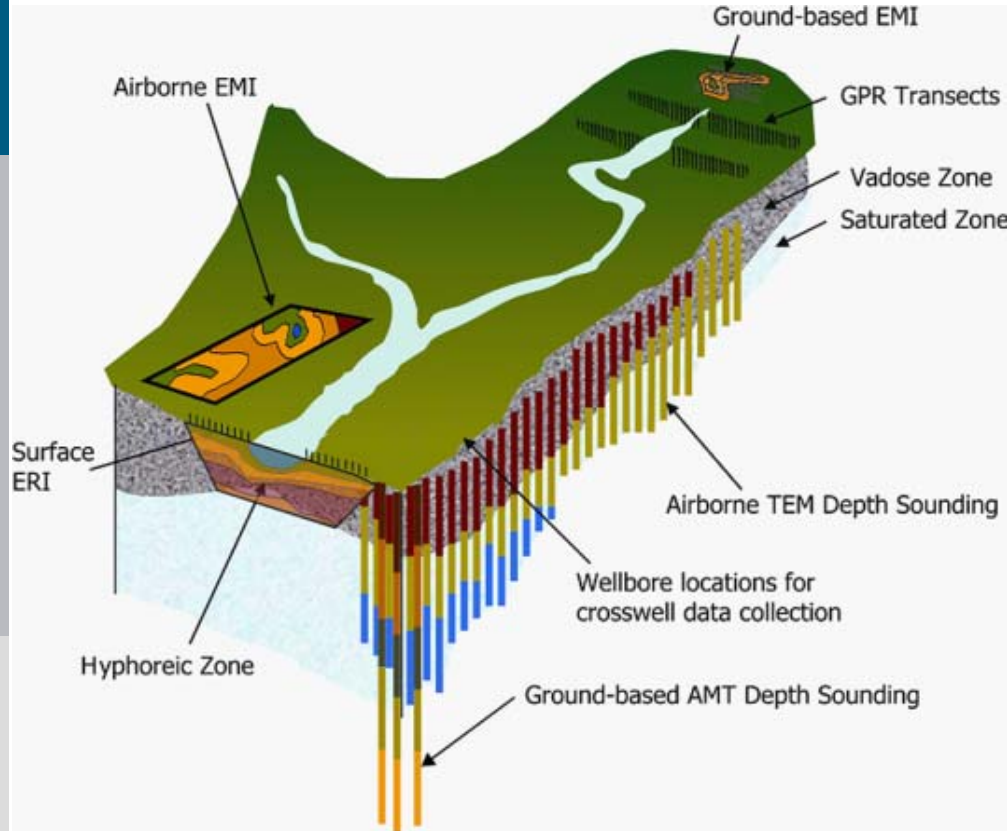
The role of spatial organisation and patterns

- The importance of spatial patterns (e.g. connectivity) for the functioning of hydrological systems is widely recognized.



- Lack of spatially dense data with appropriate temporal resolution

A conceptual model for watershed characterization

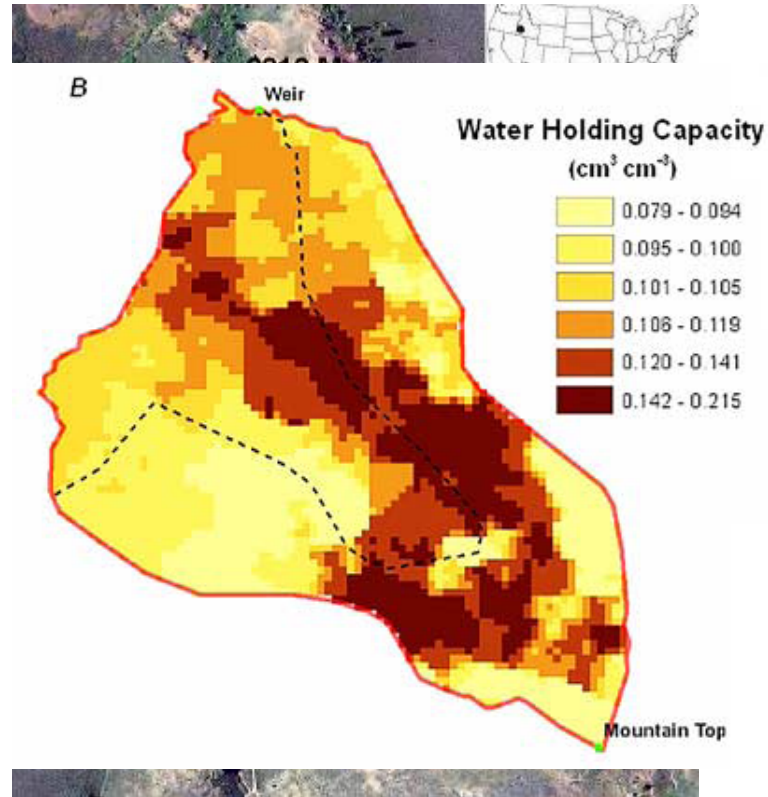


- Determining structures and properties (e.g. bedrock depth, water holding capacity)
- Monitoring state variables (e.g. soil water content, solute/tracer concentration)

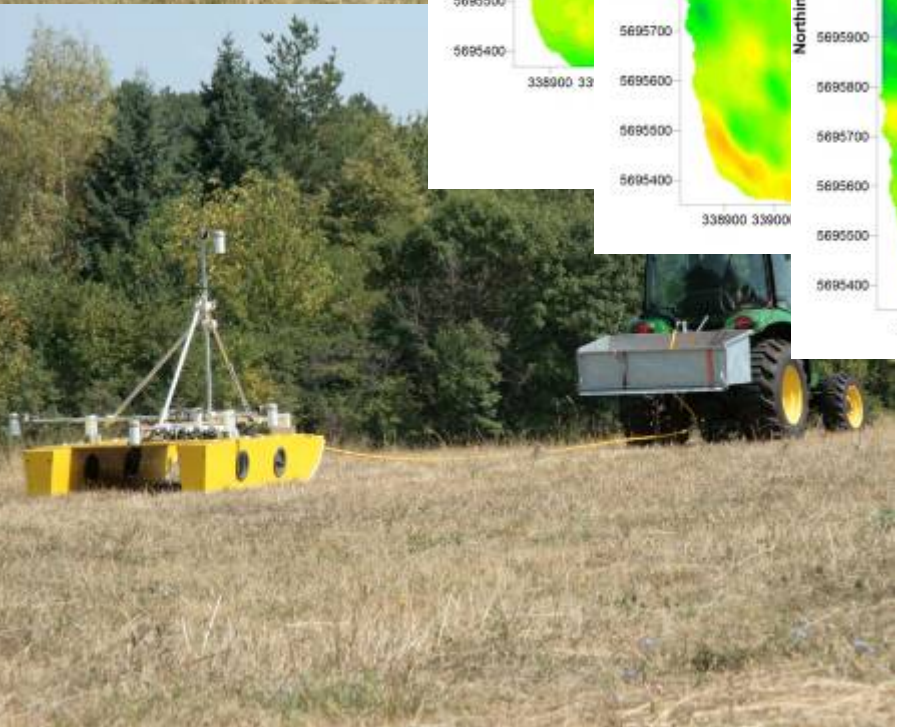
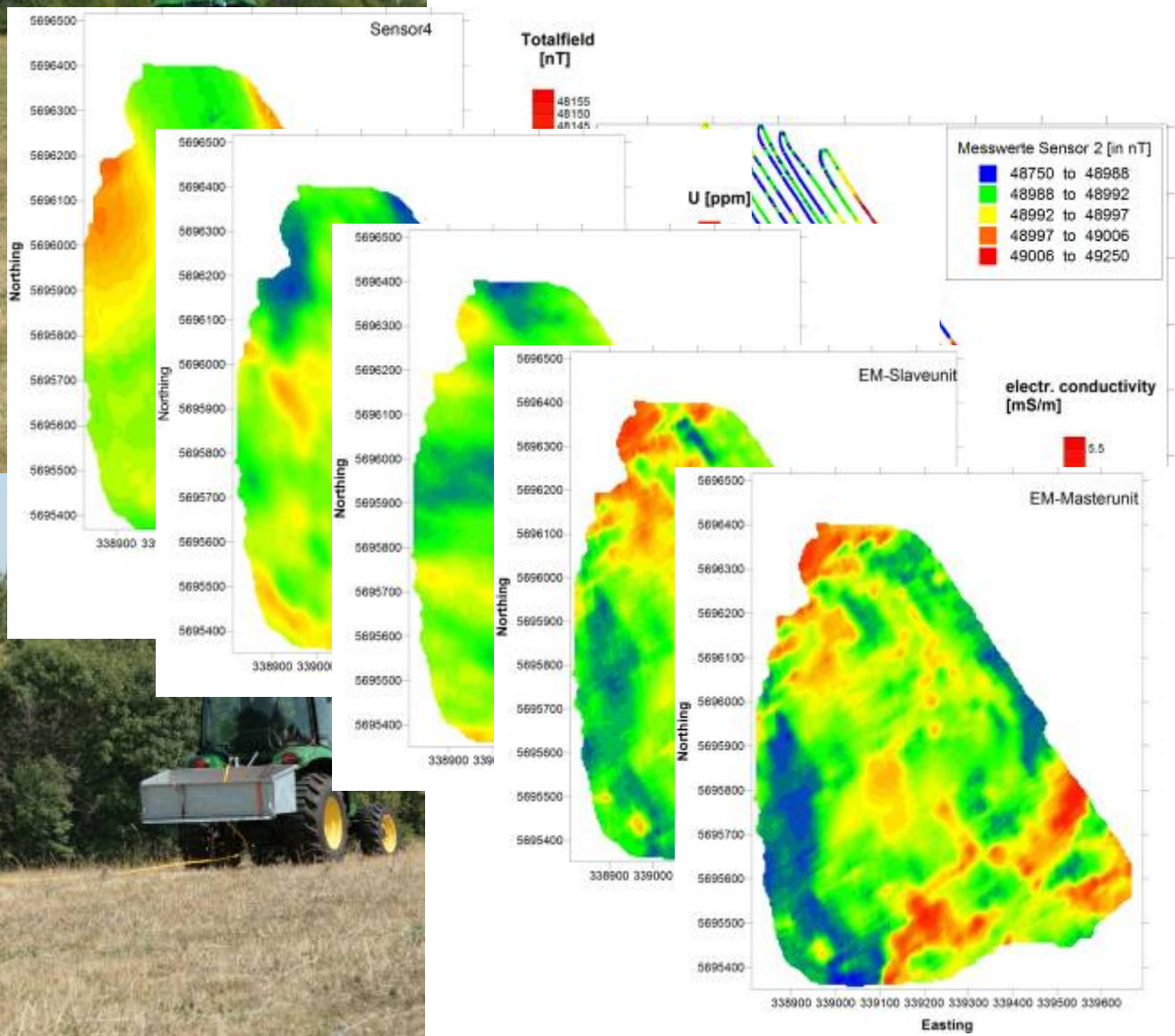
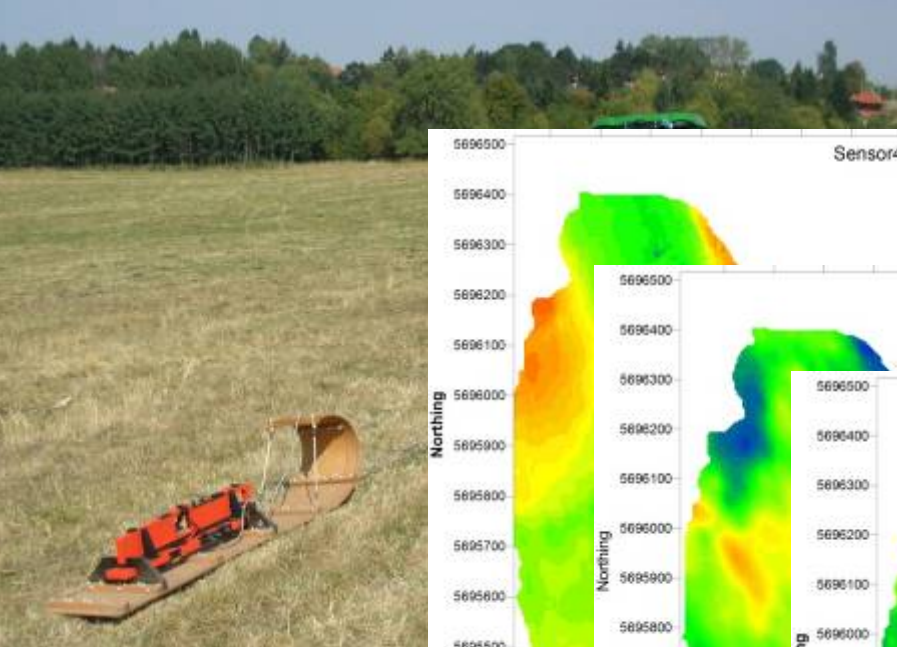
Catchment-wide mapping using EMI



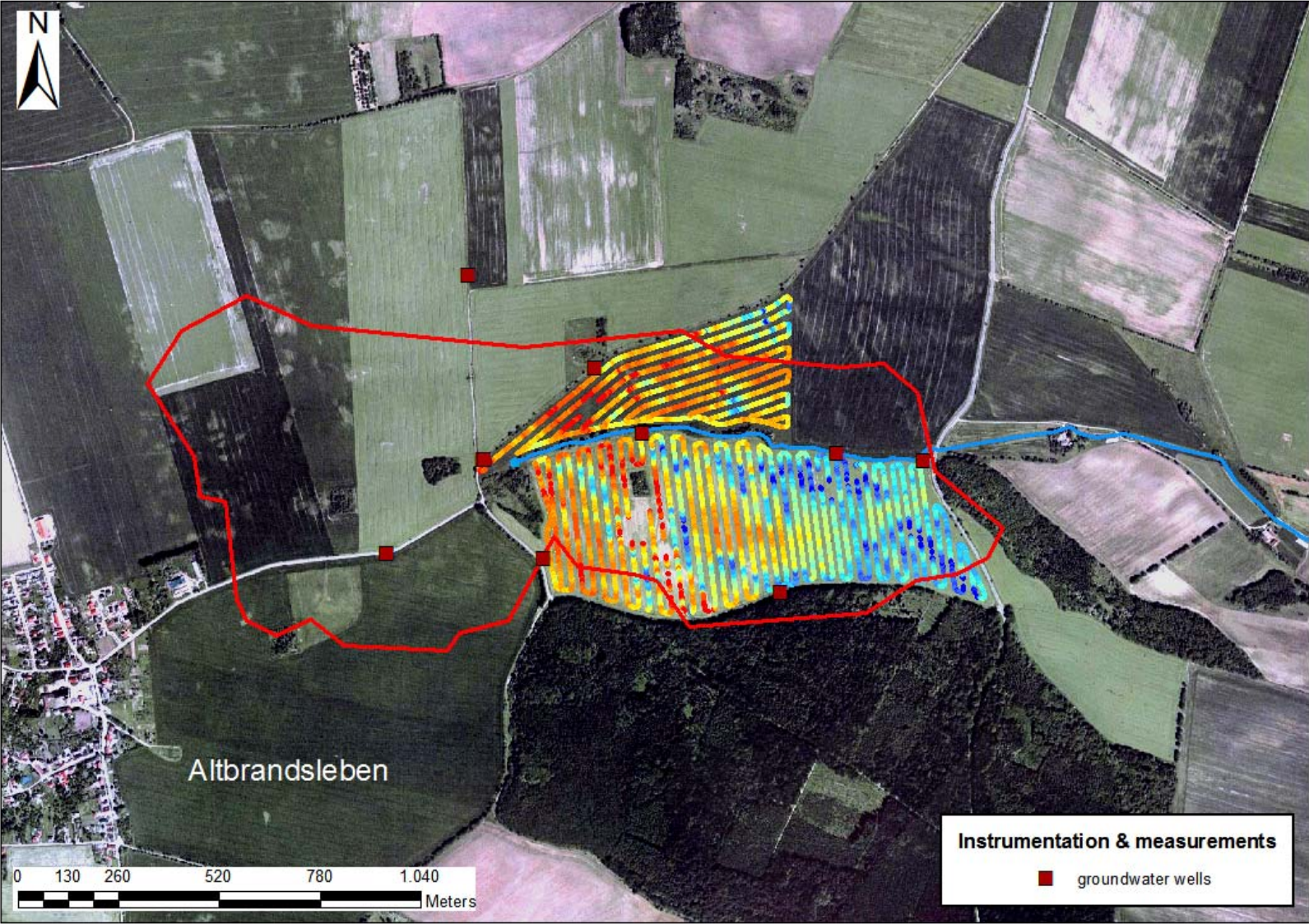
Abdu et al. (2008)



- Depending on site conditions, catchment-wide relevant information can be obtained (WHC, soil depth, etc.)



Sauerbach Catchment



Mapping of surface water content using GPR

Handheld system

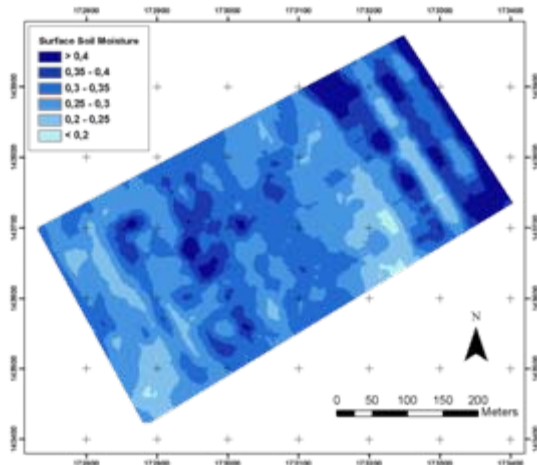


Automated platforms

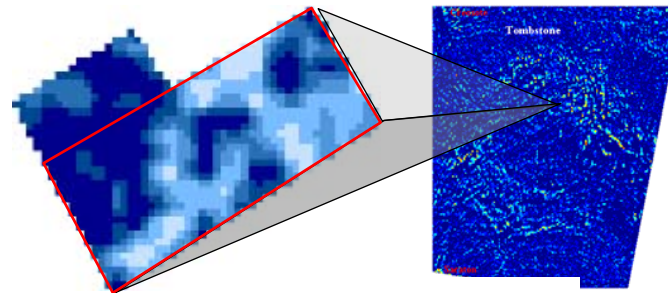


↓ Field scale

(Lambot et al., 2008)



Surface Soil Moisture Maps Derived from SAR Images



(from Hans Lievens)

Radarsat-1

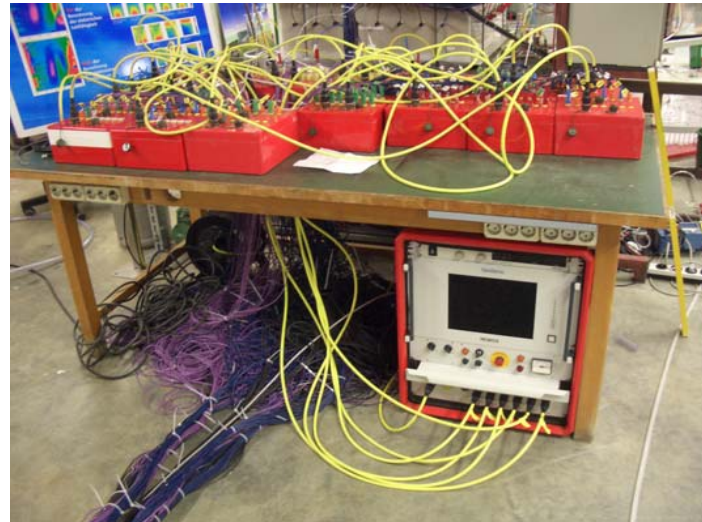
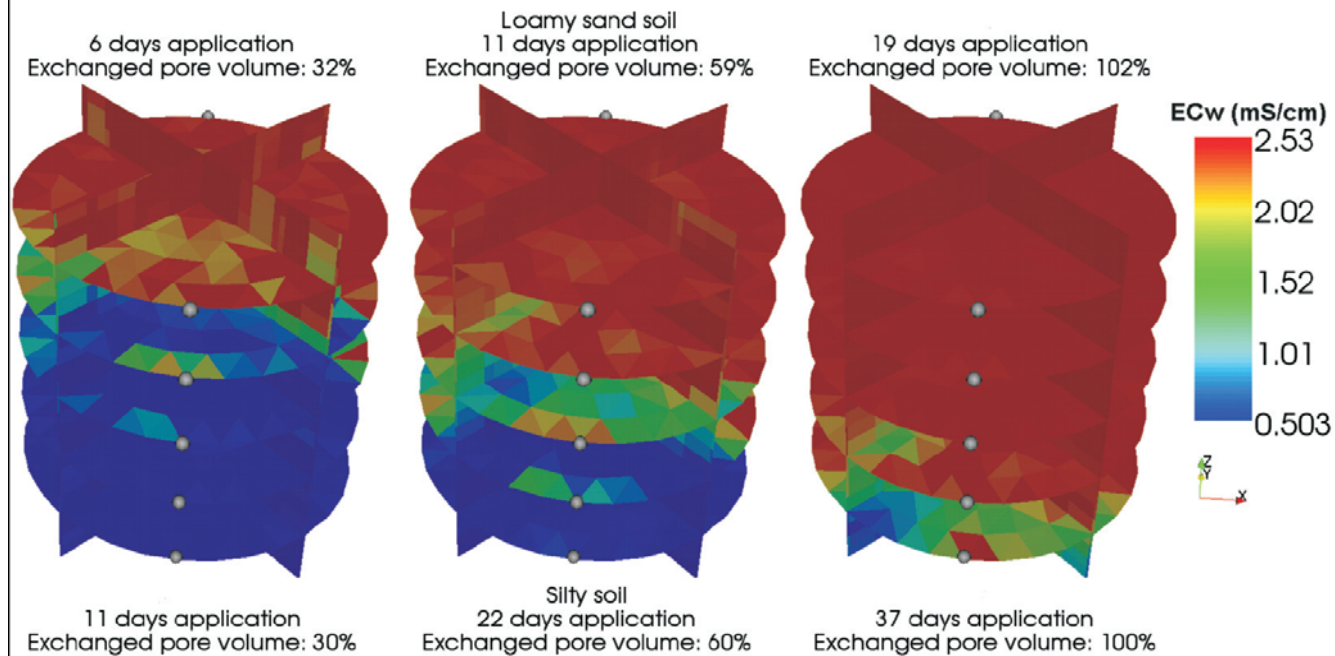


Catchment scale

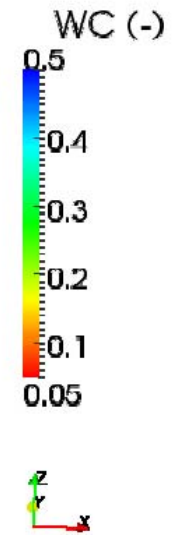
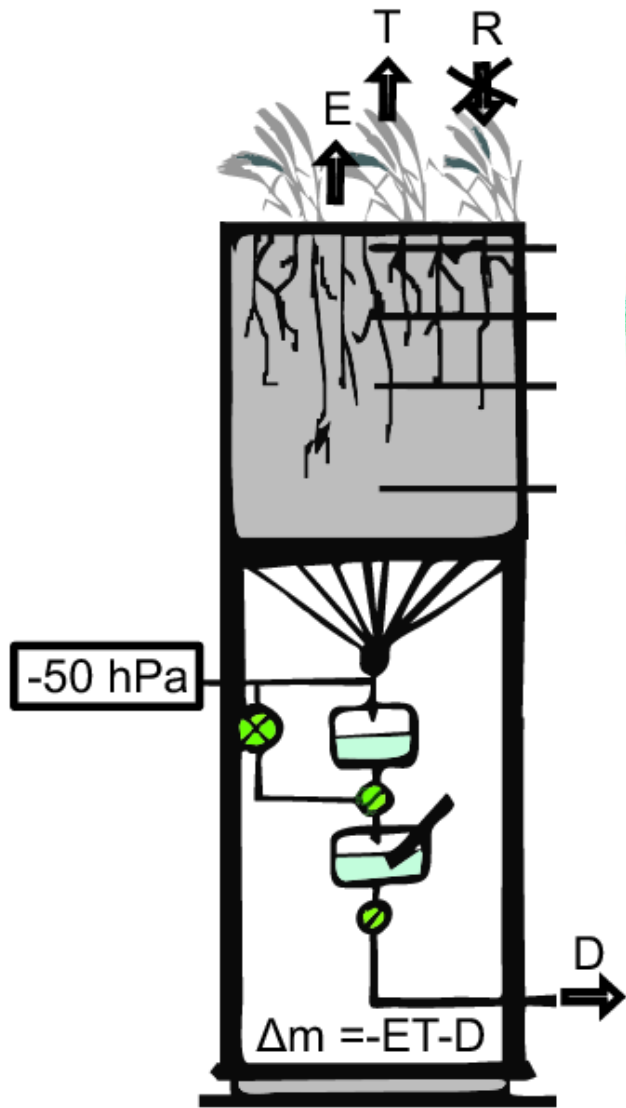
→ Validation of remote sensing data products

Soil Heterogeneity Characterization with ERT

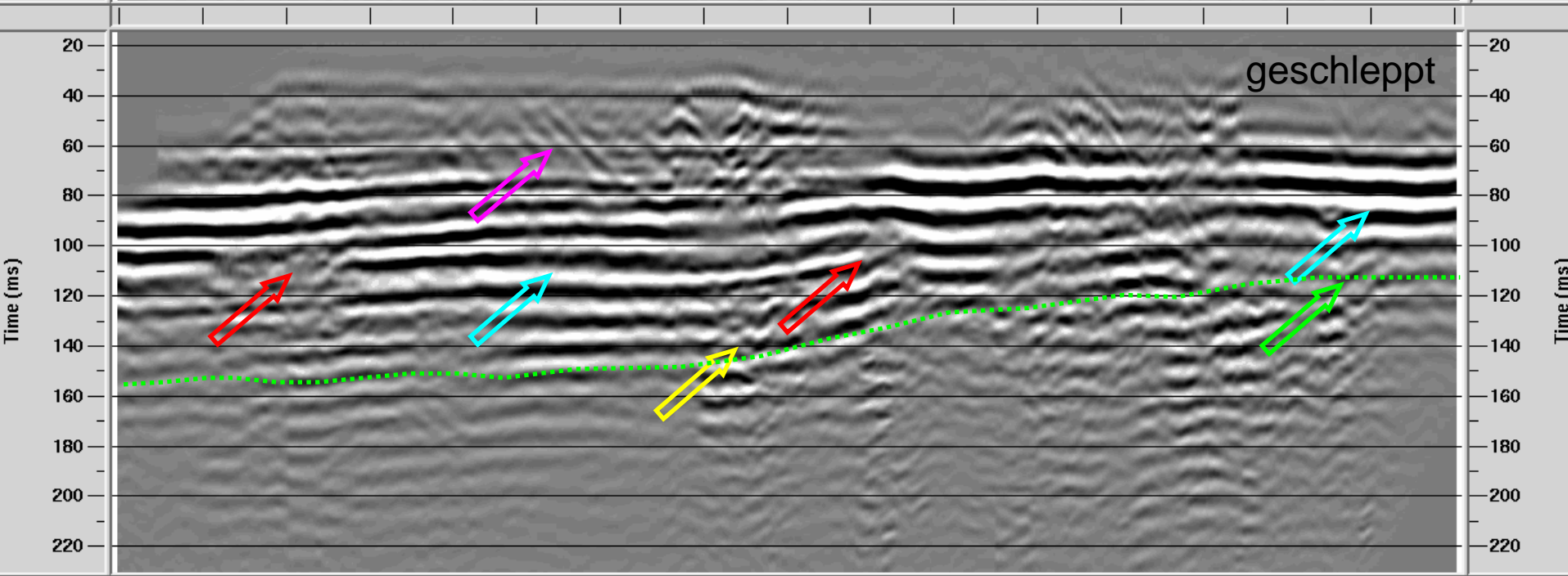
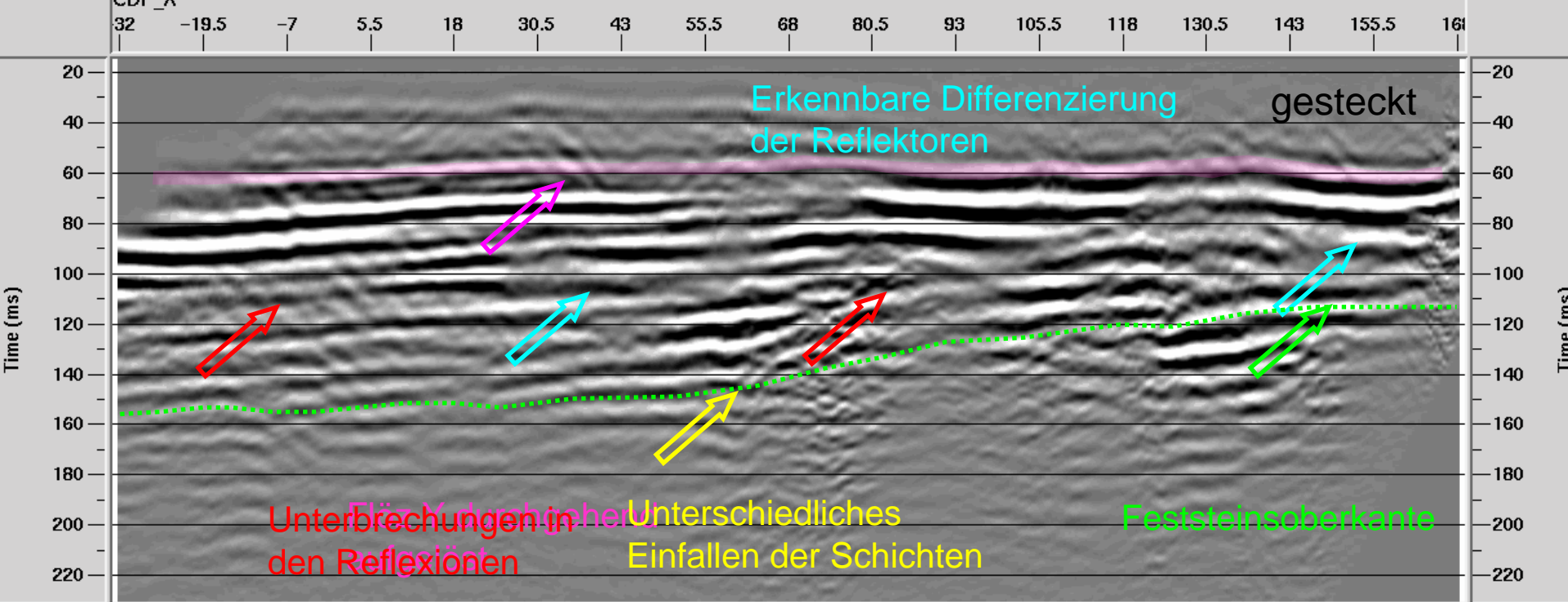
Loamy sandy soil



Ecohydrology with ERT

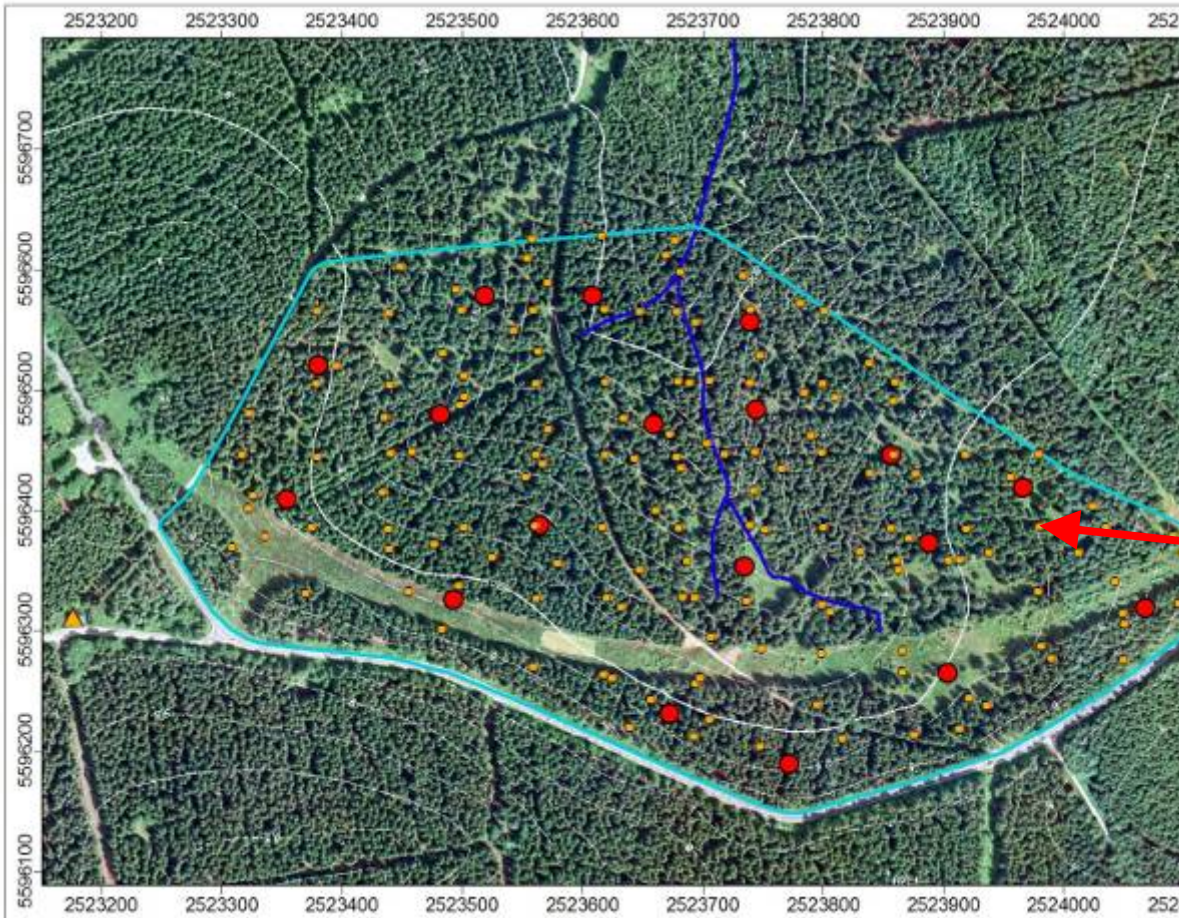






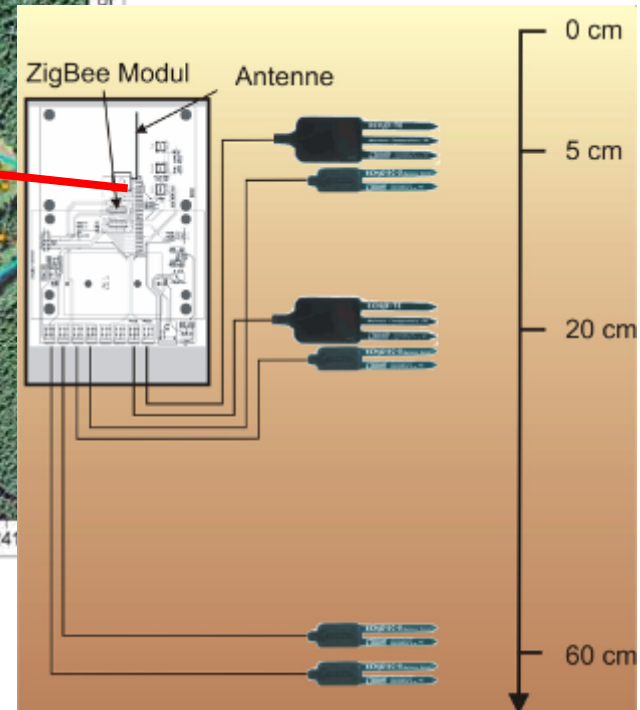
Wireless Soil Moisture Sensor Network

Data can be viewed at www.tereno.net



SoilNet configuration:

- 150 Measurement stations
- 900 Soil moisture sensors
- 300 Temperature sensors



Temporal dynamics of soil moisture pattern

Mean soil water contents from August to November 2009

