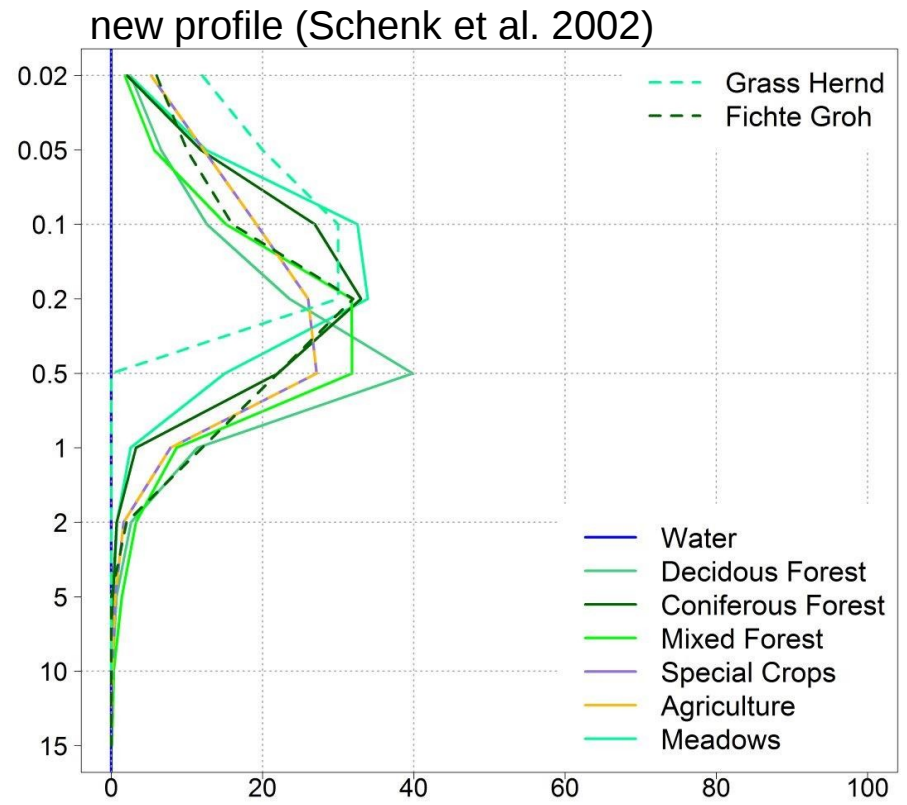
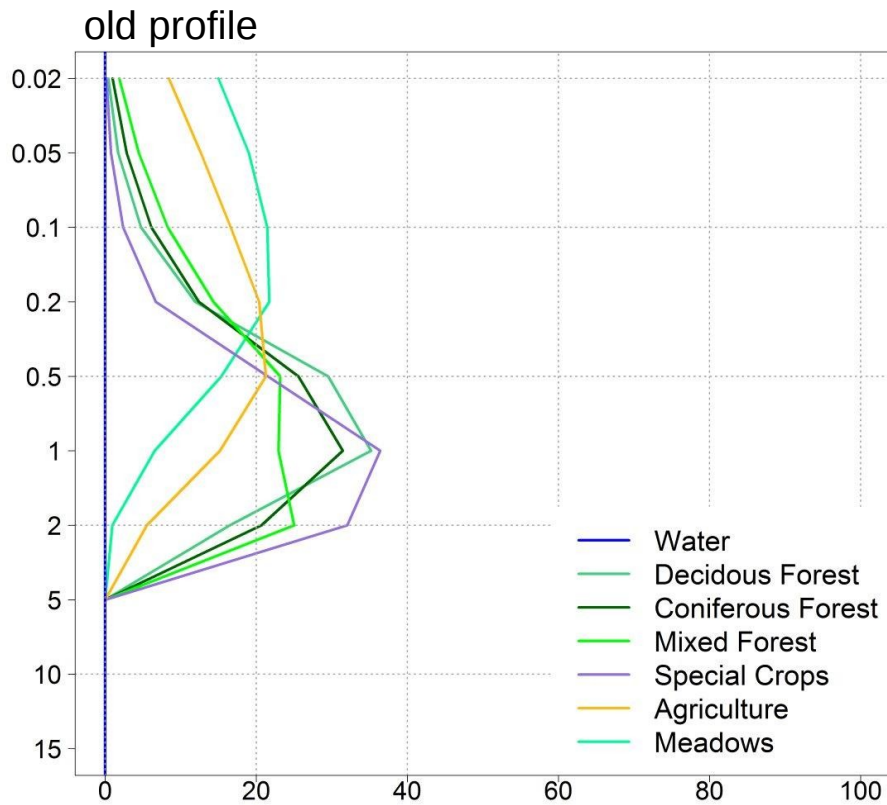


VEG3D - Overview

Institute for Meteorology and Climate Research - Troposphere Research

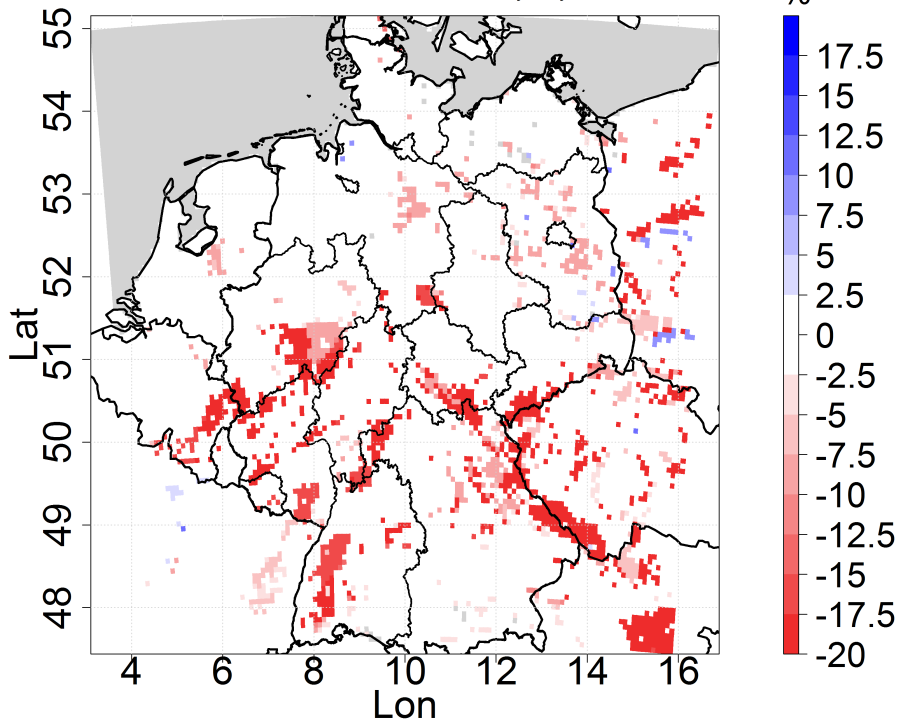
Marcus Breil
Institute of Meteorology and Climate Research,
Karlsruhe Institute of Technology (KIT)

New root profiles in VEG3D

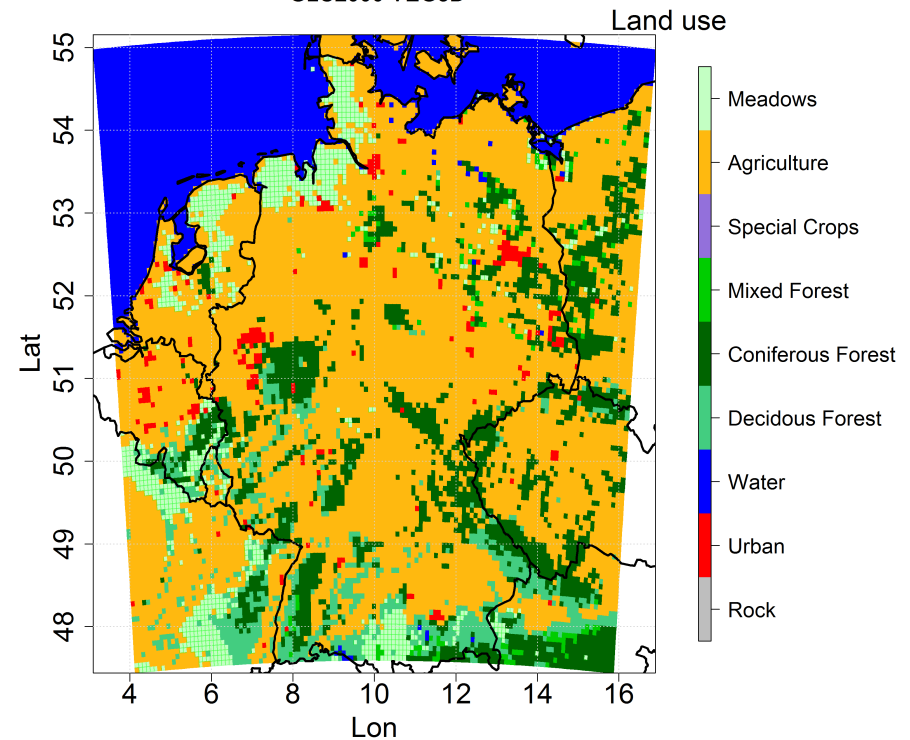


New root profiles in VEG3D

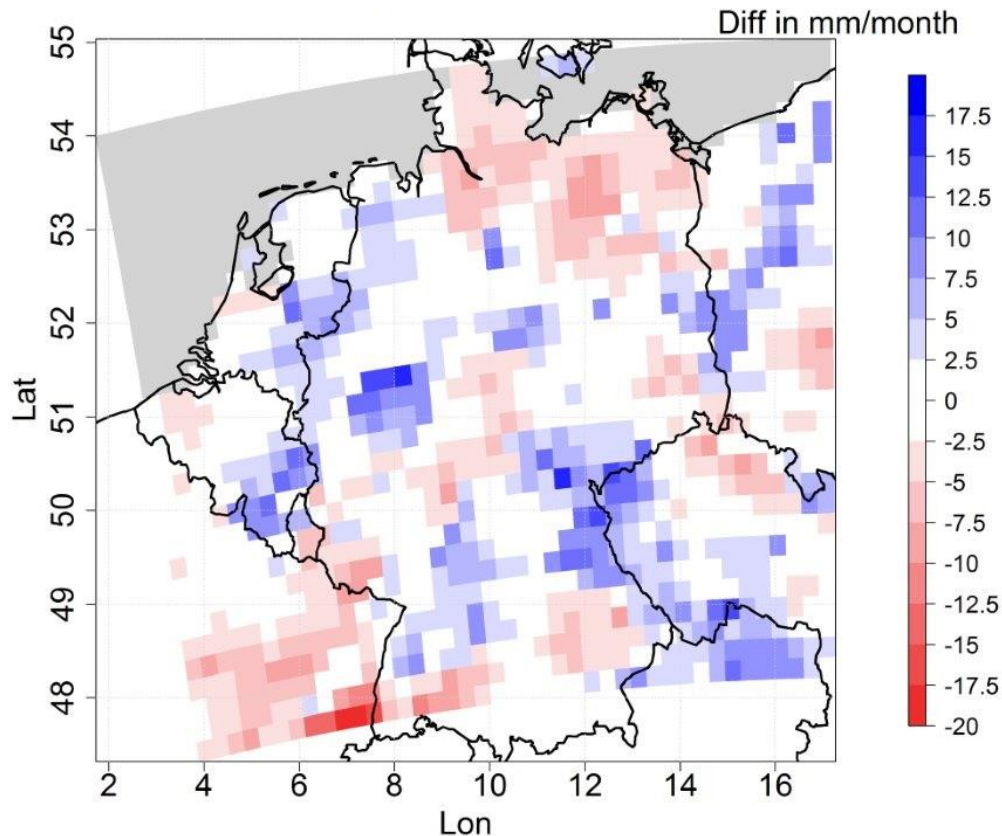
VEG3D NEW ROOT - VEG3D OLD ROOT 7KM avg.
ANN Soil Water Content for Germany Layer 0-0.5 m



Land use distribution for Germany 7KM res.
GLC2000 VEG3D



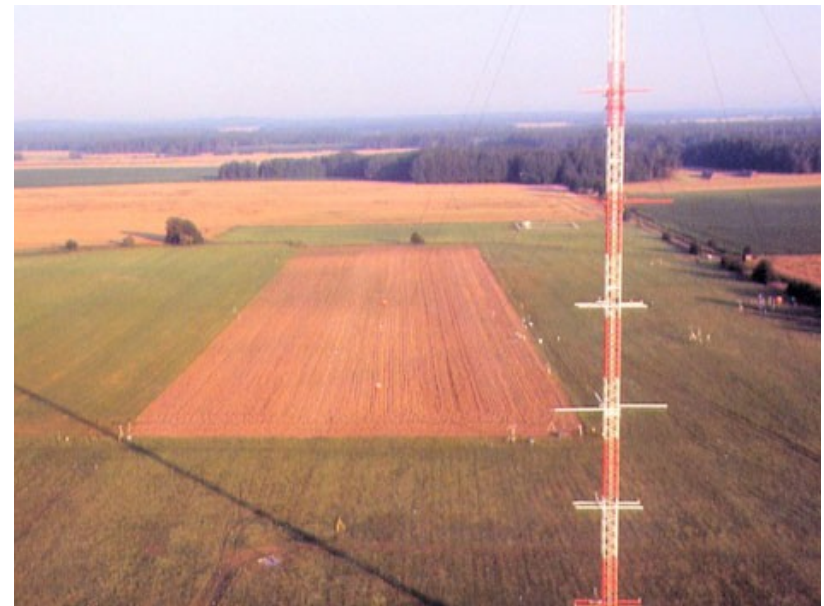
VEG3D vs. TERRA



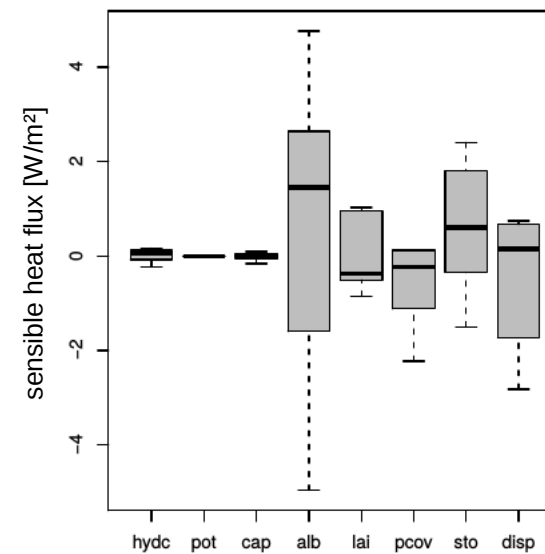
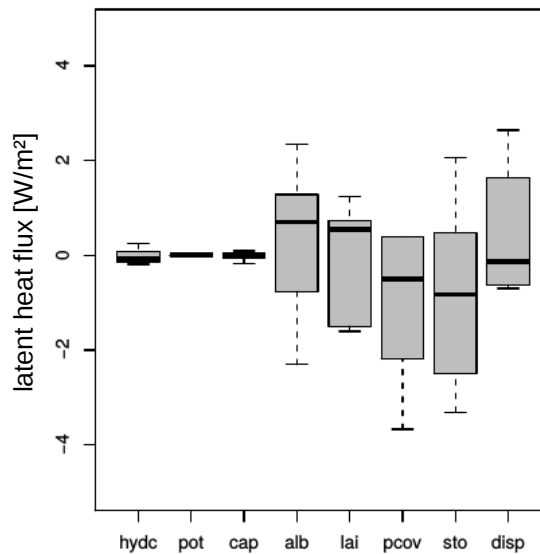
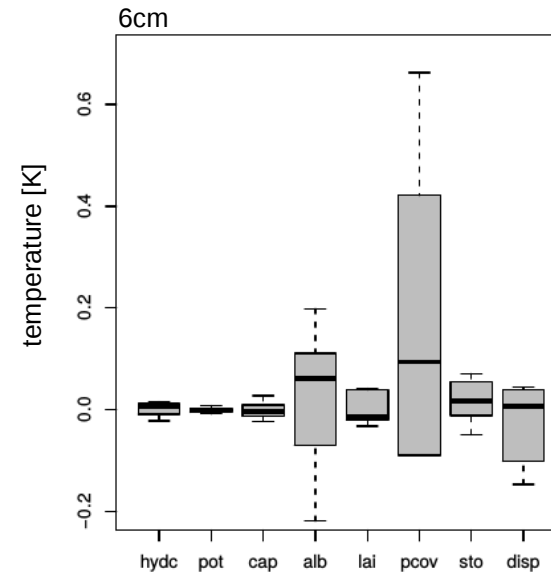
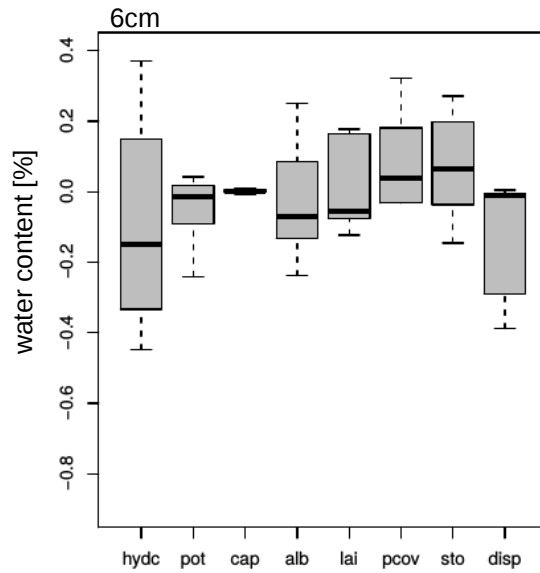
- spatial differences in precipitation sums between VEG3D and TERRA
- Soil-vegetation-atmosphere interactions affect development of convective processes
- improve convective variance by stochastic variation of the CAPE
- improve convective processes by stochastic soil and vegetation parameterizations?

Stochastic soil and vegetation parameterization

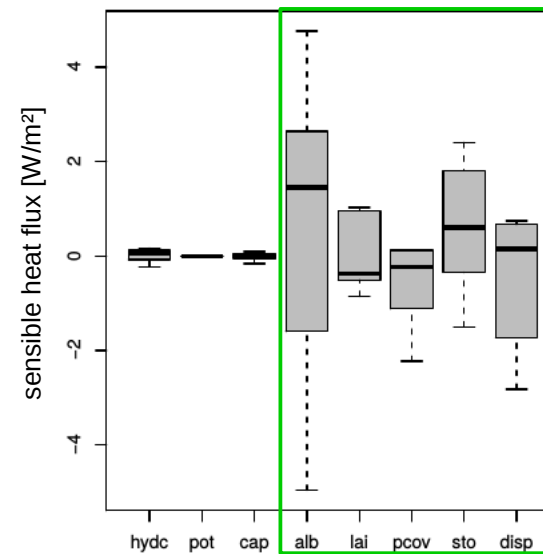
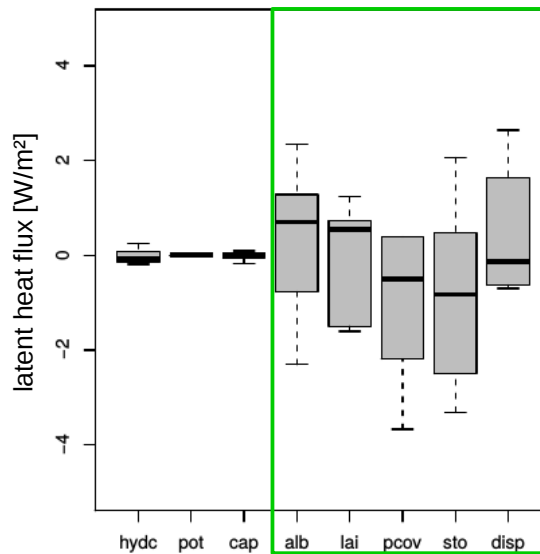
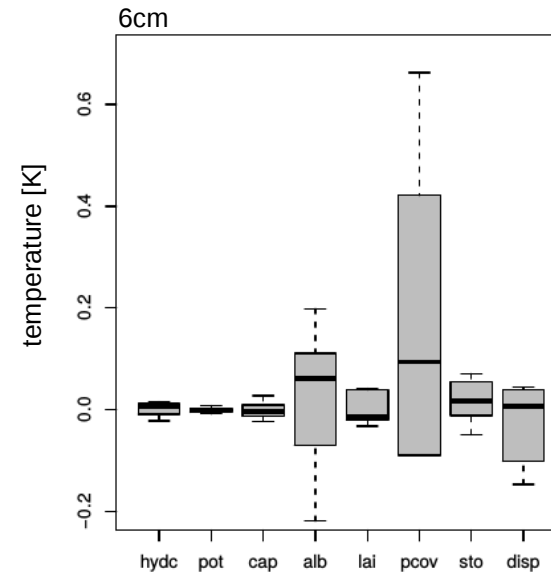
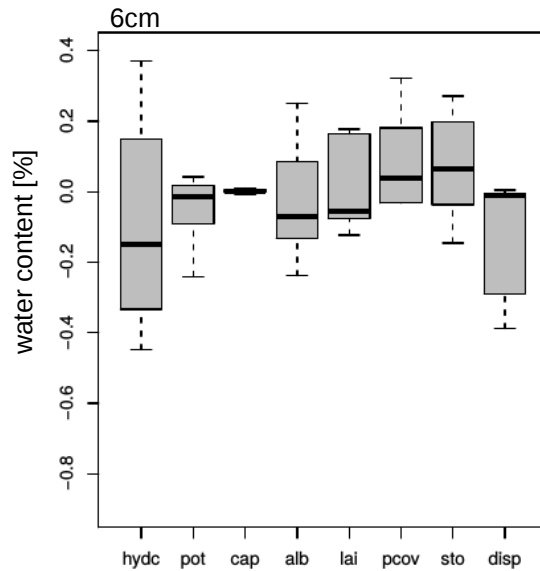
- Random number generator
 - random variation of parameters in a useful range
- Identify sensitive parameters
- Stand-alone simulations with VEG3D:
 - Lindenberg
 - year 2008
 - observational and simulated (TERRA) data for validation and comparison



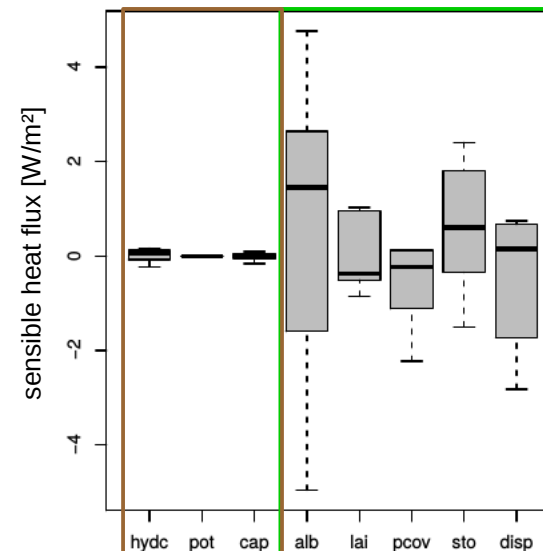
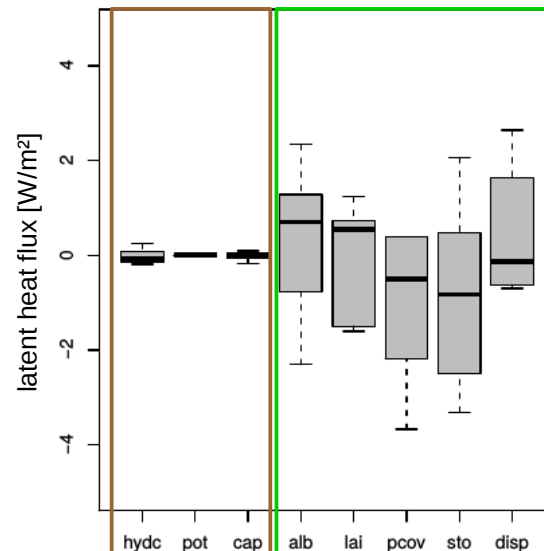
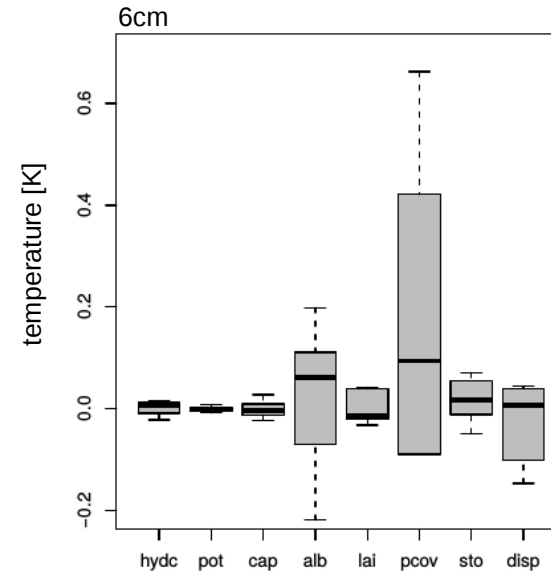
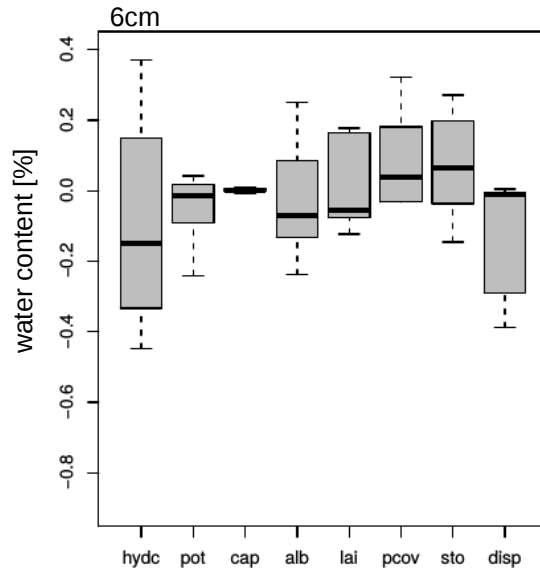
Sensitive parameters



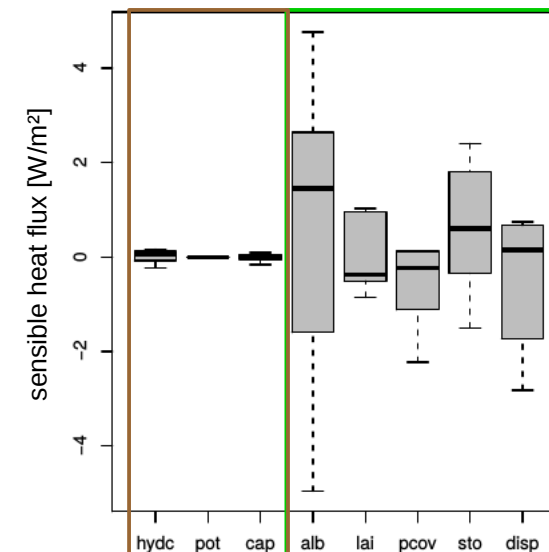
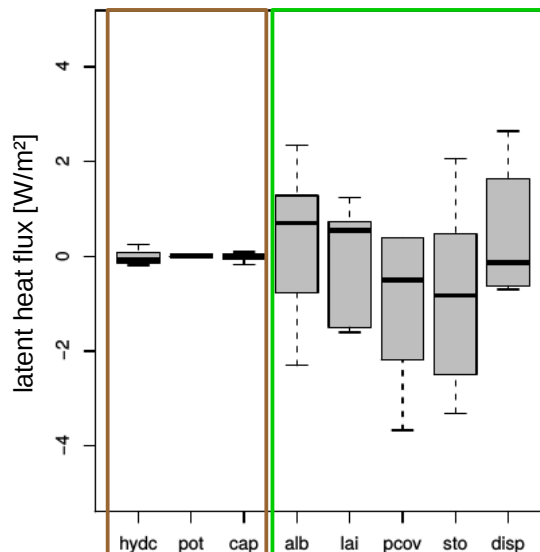
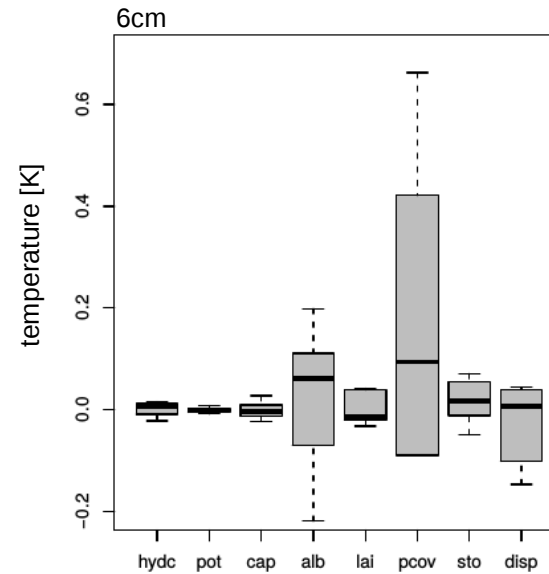
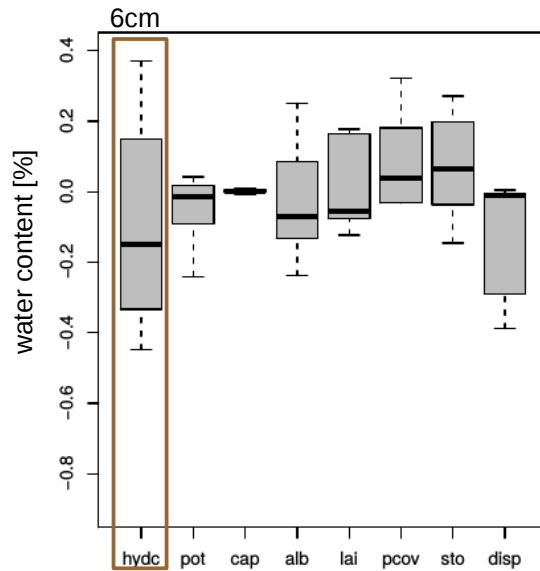
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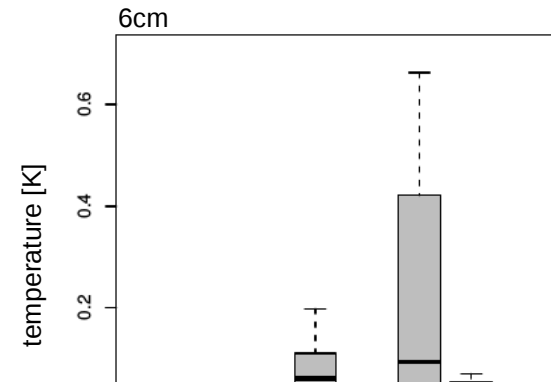
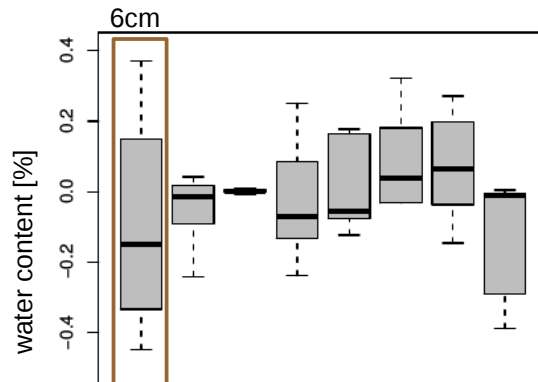
Sensitive parameters



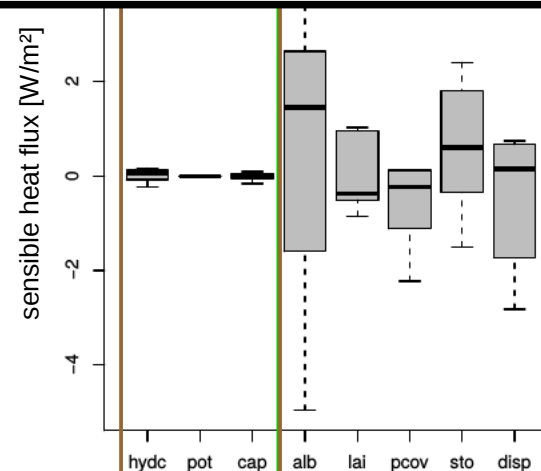
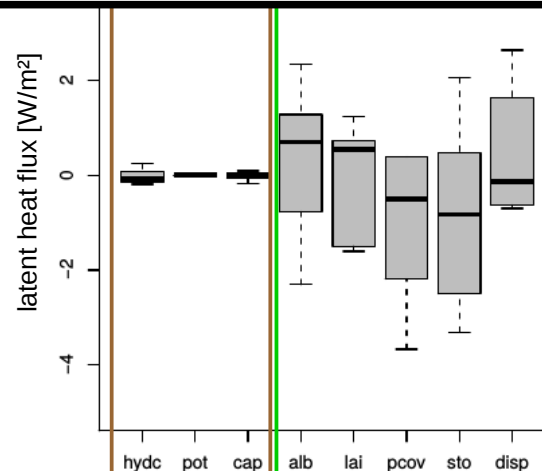
Sensitive parameters



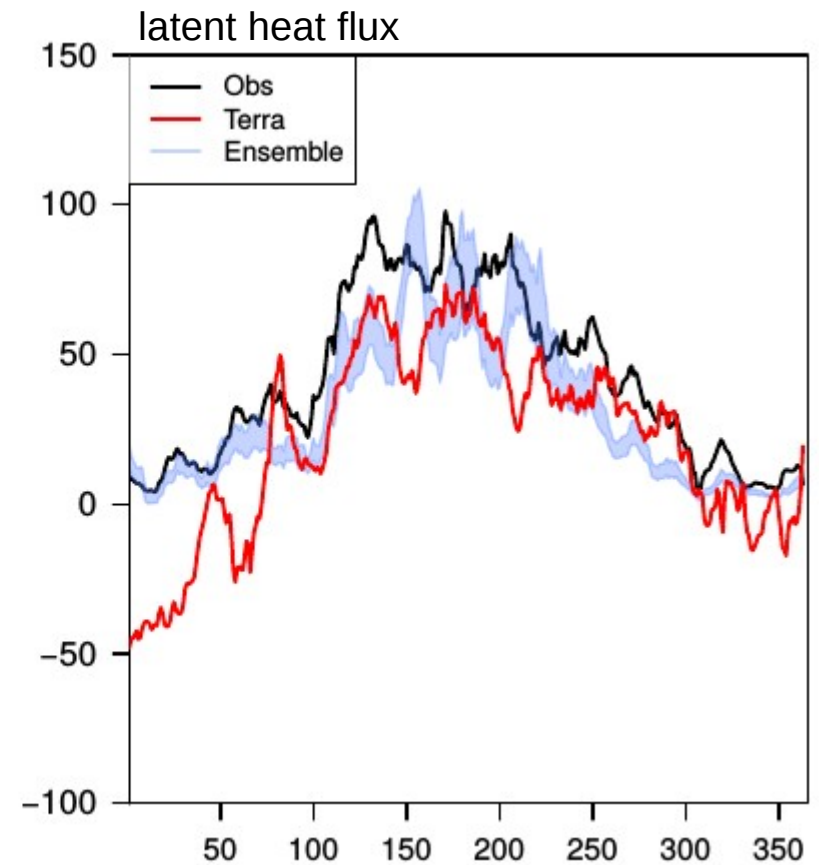
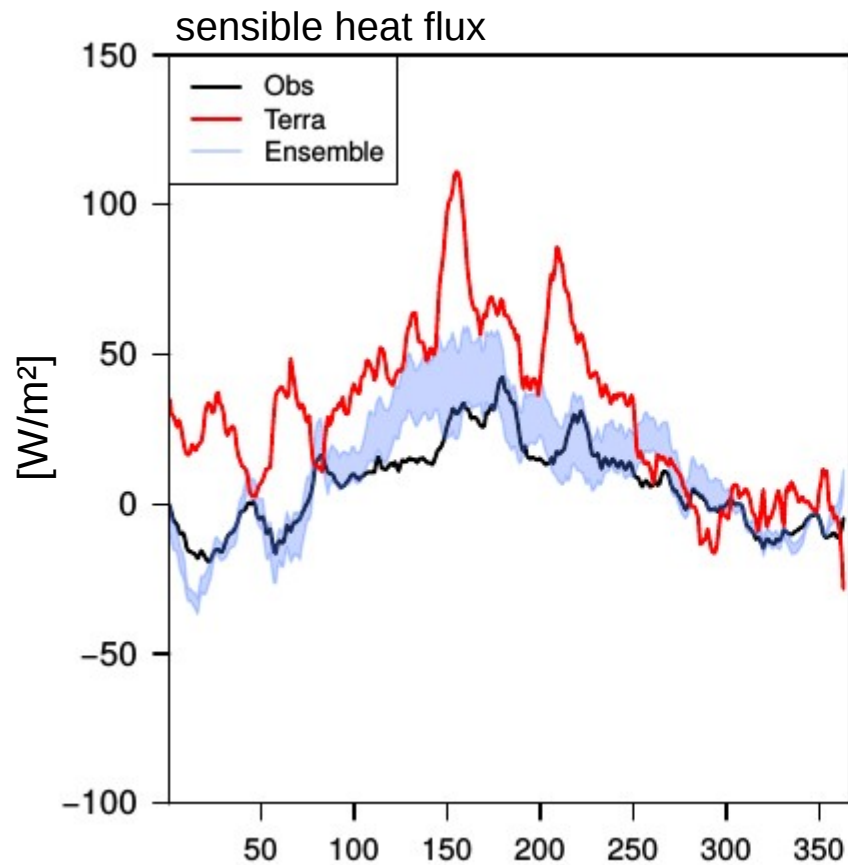
Sensitive parameters



Plant cover, LAI, stomatal resistance, displacement height, hydraulic conductivity, albedo



Seasonal cycle at Lindenberg



Outlook

- Implement stochastic parameterizations in the coupled model
- Further use of VEG3D in MiKlip2
- Further investigate the impact of the new root profiles
- Rewriting and restructuring of VEG3D
 - COSMO coding standards
 - available part of the Unified OASIS Interface