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KlimaCampus Kolloquium

Stefan Kollet

Groundwater-to-atmosphere simulations including human water use: sustainability concepts revisited

Groundwater-to-atmosphere simulations are useful for closing the terrestrial water and energy cycles at the continental scale and interrogating anthropogenic impacts at different space and time scales. We want to understand how human water use, in this case groundwater pumping and irrigation, changes the natural terrestrial cycles over the European continent including local effects, such as changes in water table depths, evapotranspiration, and air temperature, and non-local effects, such as base flow, continental discharge and precipitation. In particular, we study whether these changes are systematic in space and time, and ultimately impact and potentially redistribute water resources across the continent. We present technical aspects of our work related to model coupling and high-performance computing technologies, and results illustrating the significant impact of human water use beyond individual watersheds.

Stefan Kollet from Research Centre Juelich, is guest of Bjorn Stevens (MPI-M).

Bundesstraße 53, Room 22/23 (ground floor)