



TERENO – A decade of long-term observatory based terrestrial research in Germany

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In 2008 the TERENO project was initiated with the general aim to conduct integrated and long-term observation studies of climate change and global change impacts on the terrestrial system across Germany. Central elements of the TERENO network are “terrestrial observatories” at the catchment scale which were selected in climate sensitive regions of Germany. Within these observatories small scale research facilities and test areas were placed in order to accomplish energy, water, carbon and nutrient process studies across the different compartments of the terrestrial environment. Following a hierarchical scaling approach (point-plot-field) these detailed information and the knowledge gained is transferred to the regional scale using integrated modelling approaches. In addition, mobile ground-based and airborne measurement platforms are used to monitor spatial patterns of dynamic processes at the regional scale. By combining the observatories within Germany, large-scale atmospheric feedbacks and impacts can be investigated, and thus a more pronounced general link to the atmospheric research community can be established. A data policy statement was developed in a common approach by all TERENO partners. As a rule, all TERENO data are freely accessible for the scientific community and a data portal facilitates the online data provision. In the ten years since its foundation, TERENO has become a key infrastructure in the German and international research landscape and has made a significant contribution to the development of integrated approaches in long-term environmental research. In this contribution the concept of TERENO will be illustrated with example key findings of the ongoing interdisciplinary research work aiming to advance the understanding of complex hydrological and biogeochemical processes and interactions.