



Ecosystem Studies within the German network TERENO

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Many future environmental changes will be caused by global climate change. To find solutions which help to deal with alterations in climate, ecosystem productivity, and water resources, an interdisciplinary and long-term research programme involving six Helmholtz Association Centers, was established in Germany. TERENO (Terrestrial Environmental Observatories) spans an Earth observation network that extends from the North German lowlands to the Bavarian Alps. This large-scale project aims to catalogue the longterm ecological, social and economic impact of global change at regional level.

In this contribution we mainly describe the infrastructure which is used to determine the atmosphere-biosphere exchange of trace gases and energy in four German regions with different land use and climatic and edaphic conditions. A strong focus will be on the terrestrial water budgets, such as variability of precipitation and soil moisture, but also on the partitioning of evapotranspiration with the help of intensive sap flow measurements. Some of the TERENO sites do also contribute to the ICOS infrastructure where the main focus is the quantification of greenhouse gases with standardized measurement techniques. The TERENO sites involved are located in the Northeastern German Lowland (GFZ), Central Germany Lowland / Harz (UFZ), the Lower Rhine Valley / Eifel (FZJ) and in the Bavarian Prealps (KIT).