



## **Importance of different climate projections for the analysis of climate impact on agricultural production**

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The impact of climate change on agriculture is a matter of great debate. Adaptation of agriculture to climate change requires knowledge of the impact at the regional or local level. Future climate is described by different climate projections. Projections of the same area and time period differ with respect to boundary conditions of the global climate models, the approaches of nested regional climate models, the underlying emission scenarios, the initial conditions of model runs or the statistical basis of climate models. Further, the performance of weather differs in climate projections. Up to now it is unclear, in how far the variation of climate projections for the same study period results in a similar, larger or smaller variation of plant response. During the last years, the model-based decision support system LandCaRe (Land, Climate and Resources) DSS has been developed. It consists of data bases related to past and future regional climate or climate projections, agricultural and ecological models, plant parameters and GIS-based data of land use, topography, hydrology and soil characteristics. The statistical and process-based models are for example predicting information on climate statistics, plant phenology, crop ontogeny, and crop yield. The DSS further allows to investigate plant production and other processes at field, farm and regional level. Here we present the impact of different climate projections and weather realisations on plant production in agricultural ecosystems of Saxony, Germany. The representation and effect of “model weather” in climate projections compared to measured weather is discussed.