



Assessing weather related risks for crop production in Austria

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Agricultural production is very sensitive not only to changes in mean climatic parameters, but to a shift or changes in the occurrence and severity of weather extremes. Climate and climate variability however differ in their characterization by location significantly as shown by the manifold methods of climate zoning and mapping. Austria has strong climatic gradients due to orography, and related high spatial variation and differentiation of cropping and farming systems. Therefore, complex and serious shifts in weather related agricultural production conditions can be expected under climate change conditions in Austria. In the Austrian project of the Austrian Climate Research Program “COMBIRISK” the approach of identifying and mapping the potential weather based cropping risks in selected agricultural production regions by using adequate agro-climatic indicators is applied. Agro-climatic indicators, either crop specific or not, are widely used in operational forecasting to express crop production risks related to specific weather phenomena. Well-known examples are indicators for frost risk, drought and heat, overwintering, sowing and harvest conditions and pest and disease algorithms. In research studies agro-climatic indices were already used to express conditions under climate change, such as for drought and heat extremes. As a precondition for regional testing of risk indicators, a consolidated database on reported or measured weather related crop damages or failures at the relevant sites and regions in Austria is going to be established. As a main aim an indicator model of single or combined abiotic and biotic weather related risks will be established and implemented in an operational cropping risk monitoring system.