



Impacts on cropping systems of present and future extreme events assessed with various regional climate models in the Iberian Peninsula

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Climate variability and extreme events in particular, are expected to increase with climate change. Several types of extreme processes, such as freezing, heat or cold waves, droughts or heavy precipitation situations are of special relevance for agricultural impacts. Not only the frequency and intensity of these events but also their timing compared to the crop development will determine their impact. Mediterranean agriculture has been reported to present important climate change impacts with related high uncertainty. In this work, crop simulation models of maize and wheat were applied in several agricultural locations of the Iberian Peninsula using climate data from a group of regional climate models (RCMs) participating in the European Project PRUDENCE. The objective was to analyze the effect of extreme events in agriculture in future climate (A2 IPCC SRES scenario for 2070-2100) in relation to current conditions (1960-1990). The use of several RCMs allows for one uncertainty evaluation associated to these processes. The analysis enabled identifying periods with maximum and minimum probability of risk related to crop development, and will help to design adaptation strategies in cropping systems to match minimum risk periods.