



Development of Combined Drought Indicator in Cereals to use its predictive value in the Agricultural Insurances: CDI_Cereal

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The agrometeorological or agricultural drought is one of the most severe problems of agriculture. Drought damage is defined in terms of harvest loss due to precipitation shortage that limits soil moisture availability for the crops, substantially reducing crop yield.

A method is proposed to identify the rain fed cereal agricultural drought in several Andalusian regions, based on the combination of three indices or anomalies: (i) standard precipitation index (SPI-3) based on Mishra and Desai (2005), (ii) soil moisture described with a water balance model based on the hydrological model by Brocca et al., 2008, and (iii) the normalized difference vegetation index (NDVI) based on Kogan (1995).

Coupling the three anomalies, a Combined Drought Indicator -for rain fed cereals- (CDI) has been obtained. This indicator characterizes different warning levels of agricultural drought, which has been successfully assessed with the data of the period 2003-2013 (Jiménez-Donaire, 2014).

The final aim of the proposed CDI is to design a warning system based on its components' combination to forecast the drought risk helping both farmers and agricultural insurance agencies.

Keywords: drought, SPI, soil moisture, NDVI.

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