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InfoDROUGHT: Technical reliability assessment using crop yield data at the Spanish-national level

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Drought monitoring (DM) is a key component of risk-centered drought preparedness plans and drought policies. InfoDROUGHT (www.infosequia.es) is a a site- and user-tailored and fully-integrated DM system which combines functionalities for: a) the operational satellite-based weekly-1km tracking of severity and spatial extent of drought impacts, b) the interactive and faster query and delivery of drought information through a web-mapping service. InfoDROUGHT has a flexible and modular structure. The calibration (threshold definitions) and validation of the system is performed by combining expert knowledge and auxiliary impact assessments and datasets. Different technical solutions (basic or advanced versions) or deployment options (open-standard or restricted-authenticated) can be purchased by end-users and customers according to their needs.

In this analysis, the technical reliability of InfoDROUGHT and its performance for detecting drought impacts on agriculture has been evaluated in the 2003-2014 period by exploring and quantifying the relationships among the drought severity indices reported by InfoDROUGHT and the annual yield anomalies observed for different rainfed crops (maize, wheat, barley) at Spain. We hypothesize a positive relationship between the crop anomalies and the drought severity level detected by InfoDROUGHT. Annual yield anomalies were computed at the province administrative level as the difference between the annual yield reported by the Spanish Annual Survey of Crop Acreages and Yields (ESYRCE database) and the mean annual yield estimated during the study period. Yield anomalies were finally compared against drought greenness-based and thermal-based drought indices (VCI and TCI, respectively) to check the coherence of the outputs and the hypothesis stated.

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