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Preliminary results of irrigation impact on precipitation forecasts during the LIAISE-2021 field campaign

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The LIAISE (Land surface Interactions with the Atmosphere over the Iberian Semi-arid Environment) field campaign was designed to study the effects of irrigation on a semi-arid area in NE Spain (Boone et al. 2019). Within the framework of LIAISE, the WISE-PreP project was conceived to examine precipitation processes, on the one hand collecting high resolution data using Parsivel disdrometers and Micro-Rain Radars complementing operational rain-gauge and C-band Doppler weather radar observations and on the other one, carrying out numerical simulations to improve our understanding of physical processes involved. In this presentation we explore the irrigation impact on precipitation in Weather Research and Forecasting (WRF) model simulations during the intensive period of the LIAISE field campaign (15-30 July 2021). We quantify the precipitation accumulation and distribution by including the irrigation parameterization (Valmassoi et al 2020) and varying its parameters (days of irrigation, amount of irrigated water, hours of irrigation, etc.). First results indicate that fractional area of precipitation is greater if the irrigation parameterization is activated and if the irrigated amount is greater as well. Finally, we explore differences in stratiform vs convective fractions of precipitation. This work was partly funded by the project "Analysis of Precipitation Processes in the Eastern Ebro Subbasin" (WISE-PreP, RTI2018-098693-B-C32, MINECO/FEDER) and the Water Research Institute (IdRA) of the University of Barcelona.

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