Preliminary results of the Analysis of Precipitation Processes in the Eastern Ebro Subbasin (WISE-PreP) Field Campaign within HILIAISE

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Understanding future changes of the terrestrial water cycle and their interaction with human activity, with emphasis on agricultural areas, was selected as one of the World Climate Research Programme (WCRP) Grand Challenges, entitled "Water for the Food Baskets of the World". Within this framework, the scientific objectives of the "Human Imprint on Land surface Interactions with the Atmosphere over the Iberian Semi-arid Environment" (HILIAISE) are the characterization of evapotranspiration and other key processes of water cycle in semi-arid environments. For this purpose, an international field campaign, scheduled for 2021, has been planned focused on a region with highly contrast surface characteristics (irrigated vs non-irrigated areas), particularly during summer.

An overview and preliminary results of a specific project (WISE-PreP) within HILIAISE is given here. WISE-PreP was designed to study precipitation processes aiming to characterize possible differences in precipitation induced by surface characteristics. For this purpose, planned instrumentation for the campaign includes the deployment of three sites equipped each with a vertical radar Doppler Micro Rain Radar (MRR) and a laser disdrometer (PARSIVEL), covering both irrigated and non-irrigated sites, with three disdrometers (model PARSIVEL-2) and three MRRs (one model MRR-2 and two MRR-PROs). Time series of vertical precipitation profiles will be recorded to study microphysical processes trough the evolution of raindrop size distributions and related variables including precipitation intensity or convective vs stratiform rainfall regimes. Additional observations include raingauge data, C-band Doppler weather radar observations, and satellite products, as well as high resolution

deterministic numerical weather prediction model data plus Ensemble Prediction Systems (EPS) model output. Funding for this research was provided by "Analysis of Precipitation Processes in the Eastern Ebro Subbasin" (WISE-PreP, RTI2018-098693-B-C32) and the Water Research Institute (IdRA) of the University of Barcelona.

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