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Analysis of the preconvective environment and monitoring of two severe weather events that produced supercell type thunderstorms in the Iberian Peninsula

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On 8-07-2005 and 27-06-2006 two severe weather episodes that included supercell type thunderstorms took place in mainland Spain. Both events produced severe surface weather, including large hail, heavy precipitation and damaging winds. This work tries to analyze the key factors for the onset of the two episodes. To assess the preconvective environment, information from several sources has been gathered, including MSG derived products (like INM nowcasting SAF and Eumetsat global instability indexes), radiosonde information, and high resolution model output. The evolution and structure of the systems from radar and satellite perspective is presented and discussed, as well as the impact and role played by the different mesoscale and synoptic scale ingredients. Pictures that were taken on the go by a Spanish “storm chaser” (Antonio J. Galindo) and a meteorologist from INM (Antonio Conesa) are also shown for the two events. Some of the material presented has been found and gathered thanks to the efford of Jose Antonio Quirantes, also from INM, the nowcasting SAF and STAP (forecasting techniques) teams, and Marianne Koenig (Eumetsat).