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Stratiform and convective rainfall events in the Iberian Peninsula

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The main purpose of this work is to highlight the changing character of convective and stratiform precipitation over Iberian Peninsula and to provide a new framework for quantifying both different types of rainfall. A period comprised between 1997 and 2006 of hourly rainfall observations at 48 stations in the Iberian Peninsula were analysed in order to develop a systematic methodology for partitioning surface precipitation into stratiform and convective components.

An exponential distribution is observed by representing the accumulated precipitation P respect to precipitation intensity. An algorithm is performed in order to determine the critical intensity (Rc, in mm/6h) which separates precipitation into the two components; those rainfall events reporting an intensity higher than Rc are associated with a predominant convective regime, while episodes with an intensity lower than Rc are related to prevalent stratiform regime.

The obtained amounts and trends of convective precipitation allow to distinguish different areas in Spain. In addition, the impact of North Atlantic Oscillation on the convective component has also been evaluated.