



Contrasting lagrangian and eulerian approaches for moisture source identification in extreme precipitation events in the Mediterranean area.

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Concern about heavy precipitation events has increasingly grown in the last years in the South of Europe, especially in the Mediterranean region. These occasional episodes can result in more than 200 mm of rainfall in less than 24 h. One of the consequences of these extreme hydrometeorological events is the occurrence of floods or flash floods, with very high social and economic losses.

The identification of the main humidity sources for the intense rains is a still subject to important uncertainties, which limit our understanding of the genesis of these extreme precipitation events. We compare here and evaluate the commonly used Lagrangian FLEXPART-WRF model for moisture tracking with the online Eulerian WRF-WVT method. The same regional atmospheric Weather Research and Forecasting (WRF) model simulation feeds the FLEXPART model while running with the eulerian tracers, thus enabling us to directly compare results from both strategies and to accurately assess the lagrangian model skills.