



Morphology of the triggering and evolution of a deep moist convective system in the Mediterranean Sea.

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Gaining a deeper physical understanding of the high impact weather events (HIWE) which affected the Western Mediterranean Basin (WMB) in the last years (Cinqueterre 2011, Southern France 2011, Genoa 2011, Southern Spain 2012, and Genoa 2014) is strongly motivated by the social request to reduce the casualties and the economical impacts due to these highly-localized and hardly-predictable phenomena.

One of the most recent HIWE observed in the WMB hit the Genoa city center, on October 2014 less than 3 years after the very similar one which already affected the city on November 2011.

Taking advantage of the availability of both observational data and modelling results (WRF-ARW runs) at the micro- α meteorological scale (2 km – 0.2 km and 1 hour or less, Orlandi, 1975), this paper provides new insights about the triggering mechanism and the subsequent spatio-temporal evolution of 2014 HIWE. The major feature that emerged from the very fine grid spacing simulations is the effect of a kind of virtual topography created on the Ligurian sea by the convergence of the cold current outflowing from the Po valley and the warm and moist south-easterly flow.