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Computations of convective parameters with the AROME model for the Hautmont (F4) tornado

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A tornado (up to F4) has created severe damages in the region of Boussières-Sur-Sambre and Hautmont during the evening of the 3rd of August 2008, in the North of France. The associated severe convective event has not been forecasted in the suite of (one-way) nested Météo-France models: made of the global ARPEGE NWP (15-18 km over France) ; the ALADIN LAM (9.5 km) and the new meso-scale and non-hydrostatic AROME LAM (2.5 km).

The question addressed in this study is to know if the weak convective features simulated that day in the northern of France by the higher resolution models ALADIN and AROME, even if poorly localized and with the wrong intensity in terms of the wind gust, could serve as a starting point to derive some relevant diagnostic "SCP" values, i.e. the "Severe Convection Parameters" like CAPE, SRH, BRN, EHI, SCP, STP, ...

We will present the "SCP" parameters computed with the ALADIN and AROME models during this Boussières / Haumont (F4) event.

One of the remaining problems is that these "SCP" values must be compared with some threshold values that have been tuned over the Great Plains of the USA. They are not based on climatology valid over France and, as a consequence, additional studies and tunings are necessary before the "SCP" values computed with ALADIN or AROME could serve in the future as realistic possible warning of severe storms over France.