



## Analysis of May 13th 2015 tornado event at Gerbépal (France) using radar, lightning and NWP model data

Tony Le Bastard (1), Michael Kreitz (), Sébastien Baille (), and Daniel Prévot ()

(1) Météo France, Toulouse, France (tony.lebastard@meteo.fr), (2) Météo France, Toulouse, France (michael.kreitz@meteo.fr), (3) Météo France, Aix-en-Provence, France, (4) Météo France, Villeneuve d'Ascq, France

Late in the afternoon of the 13th of May 2015 a long-lived supercell hit northeastern France producing an EF2 tornado in the small town of Gerbépal (Vosges) that inflicted significant damage along its 16 km path to the area.

The present study re-examines the different stages of the event using radar and lightning observations and high resolution numerical simulations of the event.

The parent storm started to develop at around 16 UTC and quickly split into two cells. Two hours later, the right-moving cell produced a tornado.

Doppler data gathered from two dual-polarisation C-band radars located in Montancy and Nancy allow to follow the track of the well defined mesocyclone more than 30 minutes before the tornado appears and show a strong intensification of the supercell a couple of minutes before tornadogenesis. Polarimetric signatures reveal a medium sized hail core. The strengthening of the storm is also shown by the observed lightning activity that brutally increased (lightning jump). The french operational NWP model AROME (operating at 1.3km resolution) was able to simulate a textbook supercell at a close location to the observed one in a previous model run (3 UTC). A hook echo signature with all principal supercell features (RFD, FFD...) is clearly visible in the simulated reflectivity and wind fields.

The presentation of this case study will be the opportunity to show the products available or being developed at Météo France for tracking and forecasting storms.