



## **Sensitivity Study with a Limited Area Model: Extratropical Storm Delta over the Canary Islands**

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In November 2005 an extratropical storm (Delta) affected the Canary Islands. The high sustained wind and intense gusts experienced caused significant damage. A numerical sensitivity study of Delta was conducted using the Advanced Research Weather Research & Forecasting Model (WRF-ARW). The Factor Separation Method was applied in order to identify the major model sensitivity parameters under this unusual meteorological situation. A total of 27 simulations were performed: the dimensions and geographical localization of the domain of study were modified along with the horizontal and vertical resolution and the physical parameterizations. The horizontal resolution varied between 1 to 27 km and the vertical resolution between 31 to 61 layers. The wide range of simulations allows us to explore and to identify the major factors that contributed to the development of strong winds and gusts. The ensemble results depict the performance variability of a state-of-the-art limited area model. With this approach, the major sensitivity parameters of the model configuration are identified.