



Local flow under weak trade wind flow regime

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On April 2007, several intense sea-breeze episodes were registered at the eastern islands of the Canary Archipelago (Lanzarote and Fuerteventura). The circulation was primary driven by daytime heating contrasts between land and the Atlantic Ocean. The events show examples of local convection triggered by sea-breeze fronts colliding over the islands. This unusual atmospheric flow is only seen under a weak trade wind regime.

Numerical simulations were carried out using the 3.1.1 version of the Weather Research and Forecasting (WRF) Model. Three different domains with 6.6-km, 2.2-km and 0.7-km horizontal grid spacing and two sets with 27 and 51 vertical sigma levels were defined. The simulations were performed using two-way interactive nesting between the domains, including different land surface model parameterizations (Thermal diffusion, Noah LSM and RUC) for better comparison. Initial conditions were provided by the NCAR Dataset analysis, improved with surface and upper-air observations.