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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Wind shear over the Nice Côte d'Azur airport: case studies" *by* A. Boilley and J.-F. Mahfouf

Anonymous Referee #2

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Wind shear over the Nice Côte d'Azur airport: case study Boilley and J.F. Mahfouf

The paper describes two types of wind shear which can happen over the airport of Nice. The particular location of this airport at the boundary between the sea and complex topography substantially increases the risks of accident during landing of the planes. A better nowcasting of low-level wind shears would also improve the landing and takeoff rhythmus. Two main IOPs conducted during the LIDAR2009 campaign are presented and compared with MesoNH simulations.

I think that the paper if worth of publication after modifications. The topic is very interesting and complex and the analysis of the case studies is of interest.

In the introduction I would be happy to have a better definition of the various types of

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wind shears, some which can be measured by ground-based remote sensing systems like wind lidar and some which cannot (like micro-bursts). If I well understood, the paper focuses on long lasting wind shears (several hours).

I have the feeling that there is a problem in the way to compare measurements and model outputs: - The 2.5km horizontal resolution of the model does not seem to be adapted to the scale of the phenomena analyzed (low-level wind shears), both for the temporal and the spatial scales. The conclusion related to 500m resolution tests without improvement did not convince me (lines 685-690). - The paper focuses mainly on the verification of a MesoNH model with measurements. An essential topic to consider in such analyses is the effect of assimilation of such data into the model in order to improve its ability to describe (and forecast) the phenomena (see reference below), especially in complex topography. The authors just mention it.

Minor comments: - Line 100: it is quite presumptuous to determine the capability of a model to predict wind shear on the basis of two events only (one being rare) - Line 112: in “the following section” instead of “the following of the section” - Line 202-208: the sentence is not clear to me (10m ?) and the comparison is not very impressive (references to comparisons between wind lidars and other observations should exist . . .) - Line 254: “value is” instead of “value eis” - Line 260: add “(not shown)” - Line 321: did the wind profiler show the two layers for this event ? - Line 387-389: why ? do you have a reference to explain this fact? - Line572-575: weak statement (see my comment on assimilation and model resolution above) - Line 612-615: doe a 10m difference make a difference on a 2.5km grid model ? - Figure 8: the simulated and observed wind barbs are on the right!

Reference Calpini et al. Ground-based remote sensing profiling and numerical weather prediction model to manage nuclear power plants meteorological surveillance in Switzerland. Atmos. Meas. Tech., 4, 1617–1625, 2011, www.atmos-meas-tech.net/4/1617/2011/ doi:10.5194/amt-4-1617-2011.

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