

Interactive comment on “Quality aspects of the measurements of a wind profiler in a complex topography” by M. Maruri et al.

Anonymous Referee #2

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This is an interesting study and should be published. Wind profiler radars are increasingly being used in complex terrain as this report highlights the complications that can arise due to non-homogeneity in the wind fields at these sites. The study reports on useful indicators that can be used to diagnose non-homogeneity and discusses their use in different situations. The paper is not groundbreaking but the authors did do a thorough job investigating the problem and should be encouraged to continue this useful work. Unfortunately the authors evidently struggled with the English language usage in the paper making it difficult to read. This is unfortunate as the paper contains useful techniques and observations that should be of interest to wind profiler users and researchers.

Here are some suggestions for improving the paper:

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Page 5217: Title: Suggest rewording the title to read “Aspects of quality control of wind profiler measurements in complex topography”.

Page 5218: Line 13: Replace “is useful to look for” with “provides useful indicators for”
Line 24: Omit “Besides” and replace “were” with “have been” (so that the sentence reads: “Several quality studies have been proposed . . .”)

Page 5219: Line 6: break up this sentence. Eg, “. . . derived from the oblique beams Wns and Weo). The study also classified . . .” Line 10: replace “had to be” with “were” and replace “as” with “along with” Line 13: replace “must” with “should”

Page 5220: Line 2: replace “sends microwave pulses towards the sky” with “transmits microwave pulses upwards” Line 8: Omit “In spite of the fact”, instead note how long the system has been used by E-Winprof. Line 9: Omit “Aside from this” Line 10: Add “also” after “has” Line 11: replace “know” with “monitor”

Page 5221: Line 8: Omit “Besides” Line 9: replace “was” with “were” Line 16: replace “was” with “were” and omit “a” Line 17: use “episodes” and replace “was” with “were” Line 18: omit “allowed” and replace “defining” with “defined” Line 19: add “multiple” after “of” and replace “episode” with “analysis” Line 21: omit “one”

Page 5222: Line 1: not clear what is meant here Line 2: instead of “convenient”, perhaps you mean “thorough”

Page 5223: Line 6: omit “Besides” and swap the sentence around so that it reads “The differences between these three vertical velocities (W_v - W_{ns} , W_v – W_{eo} , W_{ns} - W_{eo}) were calculated.” Line 17: Omit “In spite of this” Line 21: Omit “Besides this”. I’m not sure what this sentence is saying – perhaps reword to “The predominance of the low mode produced biases in the results” Line 22-23: replace “On the other hand, during certain periods . . .” with “There were certain periods . . .”

Page 5224: Line 3: Perhaps insert “sorted”, ie: “sorted according to” Line 17: perhaps replace “repetitive” with “typical” or “predominant”

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Page 5225: Line 8: It's not clear what this sentence means – perhaps reword along the lines of “This technique provided a means to identify standard features associated with a particular meteorological process or characteristic signal pattern”. Line 16: Omit “At this stage” Line 17: replace “were” with “are” and replace “corresponded” with “correspond” Line 22: omit “occurrence of”

Page 5226: Line 23: replace the phrase from “which . . .” with “which is more consistent with the behavior of Wv”. Line 24: “This pattern had a correlation with it . . .” is unclear – it appears to refer to a correlation between variability the different vertical velocities and wind speed and direction.

Page 5227: Line 9: Replace “outstanding peak of the mismatch” with “greatest mismatch . . .” Line 22: replace “surrounding signals (clutter) prevailed over the echo sounds” with “clutter signals dominated over atmospheric signal”. Also omit “On the contrary”

Page 5228: Line 4: Replace these two sentences with something like “Precipitation case produced the most inhomogeneous situations because the nature of precipitation varies greatly in both time and space.” Line 19: Omit “Besides” Line 24: Replace “were parts of this section” with “were required” since this section implies just this section of the paper, whereas these topics were discussions of the whole work.

Page 5229: Line 2: replace “these two cases are the only ones included in this section” with “these two situations were the focus of this work”. Line 4: figure 16 appears to be missing – although perhaps this is just tables 1 & 2. Line 11: confirmed by? Line 19: omit “Besides”

Page 5230: Line 8: Rearrange the sentence “Under different” to read something like “Data should be examined under different wind regimes in both low and high modes to test if the homogeneity assumption is valid”. Lines 18 – 21: this could be more concisely stated – something like: “Comparisons of the vertical velocity measured directly by the vertical beam with vertical velocities derived from opposing oblique beams were

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found to be useful diagnostics in this study. Differences in the vertical velocities were taken to indicate inhomogeneous conditions.”

Table 2: The notation for the Hqp parameter is not used in the paper, it would be useful to include it in the relevant section (eg, 3.4).

Almost all figures have labels that are too small.

Figure 1: The maps are not well chosen. It is not useful to show a map of much of Europe, just the Bay of Biscay is sufficient. The other two maps are okay, although a 3D map or a terrain map would be more useful.

Figures 3, 4, 7, 8, 9, & 12: note in the captions what the over-plotted lines indicate.

Figures 4, 7, 8, 9, 11, & 15: label the vertical axes

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