

***Interactive comment on* “The impact of lightning and radar data assimilation on the performance of very short term rainfall forecast for two case studies in Italy” *by* Stefano Federico et al.**

Anonymous Referee #2

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Review of nhess-2018-319: “The impact of lightning and radar data assimilation on the performance of very short term rainfall forecast for two case studies in Italy.” by Federico et al.

Recommendation: major revisions

General comments: this manuscript addresses an interesting and challenging topic, moreover rerepresents a substantial contribution to the understanding of natural hazards and their consequences matching the scope of NHESS. However the scientific and presentation quality are poor, above all because the results are presented in a “repetitive and heavy” manner and the English language needs a deep revision.

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The scope of the paper is sufficiently clear, less robust is the novelty, although the introduction is rich of references. Chapter 2 on the case studies are widely described and supported by a lot of details and figures. Also chapter 3 about data and methods is enough detailed and quite well written. Results in chapter 4 should be rewritten and differently organized to make the speech more fluid and less “arduous” to read (sometimes it appears boring), for example showing less figures and, in some cases, summarizing the scores in tables. Specific comments: please see the notes on the pdf for each section and also for each figure’s caption, moreover please deeply motivate the reason why: a) radial velocity is not assimilated: the operator is not implemented or the data are not available?; b) data assimilation is performed in the domain D02 only; c) you used a background error matrix of fall 2012 for case studies of late summer 2017. Technical corrections: please see the notes on the pdf for each section and also for each figure’s caption.

Please also note the supplement to this comment:

<https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2018-319/nhess-2018-319-RC2-supplement.zip>

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-319>, 2018.

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