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Reply on RC1

Mario Marcello Miglietta and Silvio Davolio

Author comment on "Dynamical forcings in heavy precipitation events over Italy: lessons from the HyMeX SOP1 campaign" by Mario Marcello Miglietta and Silvio Davolio, Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2021-206-AC1>, 2021

Major Comments

The manuscript presents a review of the lessons learned from the first special observation period of the HyMeX programme regarding heavy precipitation events (HPEs) in Italy. The main findings of this measurement campaign are contextualised and broken down separately for the three Italian target areas that were defined within the research programme. The text is clear and well-constructed; the references are complete and appropriate. The main conclusions are adequately set out.

In all, this is a very interesting article that provides an excellent synthesis of the state-of-the-

art knowledge of HPEs occurring in Italy and more broadly (but in less detail) around the western Mediterranean basin. I have only essentially technical remarks (see below) and I therefore recommend that the manuscript be accepted once these technical corrections have been made.

We would like to thank the reviewer for the very positive evaluation of the manuscript and the constructive comments raised.

Minor Comments

Although not much troublesome, the abstract is a bit long and the authors could consider

shortening it.

The Abstract has been shortened.

Figure 2 could benefit from the addition of geographical references mentioned in the text that are not included in Figure 1 either, such as Algeria, Sardinia, etc.

We added some additional geographical references in Fig. 1, including some regions in and around Italy that are mentioned in the text.

There are some typos in the citations ("Nuissier", not 'Nuisser'; "Bougeault", not "Bougealt") as well as in the rest of the text ("these effort"; "Cévennes-Vivarais", not "Cévenne-Vivarais", "strokes", not "strikes"; etc.).

Changed.

Page 18, Lines 466–467: Can the authors clarify a little how the correlation between graupel and lightning may improve the modelling of convection? As currently written, the sentence is not very explicit.

We agree that the sentence is ambiguous. Since this part is not strictly related to the dynamical forcing, which is the focus of the paper, we decided to remove it.