Natural Hazards and Earth System Sciences Discussions

Nat. Hazards Earth Syst. Sci. Discuss., author comment AC1
https://doi.org/10.5194/nhess-2021-96-AC1, 2021

Reply on RC1

Matthieu Plu et al.

Author comment on "An ensemble of state-of-the-art ash dispersion models: towards probabilistic forecasts to increase the resilience of air traffic against volcanic eruptions" by Matthieu Plu et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2021-96-AC1, 2021

The authors thank RC1 for her positive evaluation of the manuscript and for her comments about the text.

The authors could consider re-writing the Introductory section as it is jumping from ATM

to ash forecast to costs in circular manner.

The introduction has been re-written and is now organized following the plan: Impacts of volcanic eruption on air traffic, warnings and general aspects of decision-making, ash forecasts state-of-the-art, ensemble approach, probabilistic approach, and cost/loss rationale for ATM. We expect this introduction plan to be clearer and more straightforward for the reader. A new introduction is proposed as an enclosed pdf file.

"*[…] Based on this, I would suggest the authors to change the references from the*

"conservative ATM" (i.e. line 410) or ATM to the flight planning or airline choices, as this is currently the case."

A general comment on the fact that this is airline choice has been added: "The ICAO (2016) plan and latest versions spell out that the airlines are those that choose how to address the volcanic ash hazard, provided they have their safety risk assessment for operations in the presence of volcanic ash accepted by appropriate authority."

Besides, "ATM" has been replaced by "flight planning" in this section and in many parts of the manuscript.

RC1 added some specific comments in a pdf copy of the manuscript:

- *line 28 "at three vertical levels"* replaced by " in the Flight Level (FL) bands FL000-200, FL200-350, FL350-550,"

- *lines 37-39* : the cost/loss argument has been reformulated following the new introduction plan, and the climate-related argument has been removed,

- lines 414-415 : replaced by “However, the models provide useful guidance in the sense that flying above the predicted clouds and also around highly contaminated regions may be possible.”.

- lines 467-468 : reformulated as “so they can introduce in their risk management plan some acceptance to fly at least through regions which are below the safety-critical pollutant concentration threshold.”

Besides, the typos have been corrected.

We hope that we have addressed RC1’s comments satisfactorily and that, after implementation of theses changes in the manuscript, it can be accepted for publication.

Please also note the supplement to this comment:
https://nhess.copernicus.org/preprints/nhess-2021-96/nhess-2021-96-AC1-supplement.pdf