I recommend the paper:

Volcanic ash modeling with the NMMB-MONARCH-ASH model:
Quantification of off-line modeling errors
by
Alejandro Marti and Arnau Folch

for publication in Atmospheric Chemistry and Physics after a minor revision.

General Comments

1. The paper adresses issues that are highly relevant for modeling atmospheric transport of aerosols and particulate matter with the emphasis on volcanic ash. In particular, the off-line (Lagrangean trajectory based) and the on-line (Eulerian) approaches are compared and the accuracy of the off-line method is assessed and quantified versus that of the on-line one. In this way excellent data points are obtained for choosing the most adequate approach for research and operational applications. Such a study has been long overdue.

2. The scientific methods and assumptions are valid and clearly stated. The results of the comparisons are illustrated by an idealized and two well designed and thoroughly described and examined real data test cases. The discussion and conclusions are well supported by the data.

3. The title is adequate, and the abstract gives a concise and clear summary. The presentation structure and the language are generally very good, but some minor polishing at few places would be benefitial.

Specific comments

1. p. 2, line 30-31
There are on-line operational systems, e.g., for dust transport.

2. p. 10, line 15 and elsewhere in the manuscript
The prase "... decreases with coupling frequency..." may be misunderstood to mean the opposite of what is actualy meant, i.e. "… decreases as the coupling frequency increases …" Therefore, I would recommend to say "... decreases with decreasing coupling frequency ..." instead.

Suggestions for technical corrections

1. p. 1, line 20
Replace "credited to" by "due to"

2. p. 1, line 20
Replace "that" by "as"

3. p. 2, line 14 and elswere in the text
Leave out “of” in “require of”