Nat. Hazards Earth Syst. Sci. Discuss., 1, C749–C751, 2013
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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Tephra hazard assessment at Mt. Etna (Italy)" *by* S. Scollo et al.

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Received and published: 5 August 2013

Tephra hazard assessment at Mt. Etna (Italy)

by S. Scollo, M. Coltelli, C. Bonadonna and P. Del Carlo

General comments

The papers by Scollo et al. deals with the tephra dispersal and relative hazard at Mt. Etna. The topic is particularly valuable in this period of high-level activity of the volcano, for which hazard assessment becomes a primary target. The manuscript is a nicely written informative and correct work. The authors did accept most of the technical points raised during the first stage of the revision process. There are however some minor issues that I think could be solved by revision.

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Interactive Discussion

Discussion Paper

Specific comments

- Introduction Although the OES-WLL maps were compiled based on the 2002-03 eruptive period, a brief update of the eruptive activity of the volcano during the past (2011-2013) years should be inserted (number of events, dispersal. . .).

line 14 (2948) please stated which data were used in this work.

- Model Data wind profiles are every 6h, which in some cases can be a long interval, particularly during long-lasting events. Are there any additional information for the 2001 case study presented as described for the 1998 event? (visual observations on variations of plume height or plume direction).

- Hazard assessment The 5 January 1990 event has been classified as suplinian on the basis of the collection of some samples. However, the deposit shows a rapid decrease in thickness (from 4 m in proximal area to 9 cm at 6 km) which is uncommon for subplinian events. Since the 1990 eruption has been taken as a case study for SSL type, the authors should briefly comment if these features are common for subplinian events at Etna.

Please be consistent in order to facilitate the readers in the comparison of the different reference events (mass of the 1990 event is expressed in kg, the 122 BC in km3, the 2002 in m3).

- Discussion The authors stated that TEPHRA does not reproduce the deposit within the corner, with greater differences between 1.8 and 3.8 km. However, for SSL events fig. 2d shows large discrepancies also for low mass loading (around or below 1 kg/m2) of the same order of the deposit within the corner, and fig. 3 large discrepancies at 22 km. For WLL events, on the contrary, fig. 5 highlights overestimation of the fine fraction for distances $\geq$4 km. Although the best fit is still within 50%, this point should be better clarified at least in terms of possible over- or underestimation in the final maps presented in the work.

NHESSD

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Technical corrections

line 22 (2956) replace ligh with light

line 23 (2957) replace that with who

lines 27 and 28 add deposit after tephra and after thick

line 15 (2958) high instead of tall

line 17 replace falls with fell

line 26 dot is missing after a.s.l.

line 29 add the before volcano

line 21 (2959) replace makes with made

line 4 (2962) replace evaluete with evaluate

line 15 replace occurs with may occur

Please replace www.dbstr.ct.ingv.it/iavcei/ with http://dbstr.ct.ingv.it/iavcei/

Yours sincerely

Marco Pistolesi

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 2945, 2013.