Interactive comment on “Lightning and electrical activity during the Shiveluch volcano eruption on 16 November 2014” by B. M. Shevtsov et al.

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Received and published: 24 December 2015

Q: question
R: reply

Q: The manuscript presents a analysis of electrical activity detected by the WWLLN on 16 November 2014, which is related by the authors to the explosive eruption activity of Shiveluch volcano, Kamchatka occurring during that time. The authors make use of meteorological, seismological and satellite data to correlate the electrical activity to the onset of the eruption at Shiveluch and the following evolution stages of the ash plume and ash cloud. The work presented is surely valuable and present further evidence of electric activity generated by volcanic plumes. Given the growing number of observations of this phenomena and the many questions still open on the interpretation of
such phenomena and related geophysical and volcanological observations, I strongly support the publication of this work. However I think the manuscript at this stage is not yet ready for publication and needs a major revision in terms of structure and form data are presented (including usage of english), technical terminology used and interpretation of data. Here follow some general comments to the manuscript while specific comments and corrections are attached in the annotated manuscript file.

R: The authors are very grateful to Dr. C. Cimarelli who read the manuscript thoroughly and made significant comment. Almost all the remarks and advices of Dr. C. Cimarelli have been taken into account. The given references are partially known to the authors, and the gaps will be corrected. The literature will be useful to the authors in their future work.


R: The authors did not aim at investigation of the physic of ash cloud electrification. The paper makes emphasis on the experimental data obtained by the WWLLN network and

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by the fluxmeter at KZY site.

Q: The terminology used to describe the volcano phenomenology is inappropriate. I understand the authors are not volcanologists therefore I have made some corrections in the text. In particular the authors often refer to "ash fragmentation" when referring to the initial stages of the eruption. Ash is already a product of magma fragmentation. The fragmentation process usually happens within the volcanic conduit. Several experimental studies have investigated the occurrence of electrical discharges by fragmentation of magma/pyroclasts (fracto-electrification) and by rubbing/collision (tribo-electrification) of volcanic particles ejected during an eruption.

R: The incorrectness is due to the bad quality of translation.

Another thing that is not really discussed in the review). Please also note the supplement to this comment:

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 3, 6745, 2015.