

## ***Interactive comment on “2-D tomography of volcanic CO<sub>2</sub> from scanning hard target differential absorption LIDAR: The case of Solfatara, Campi Flegrei (Italy)” by Manuel QueiBer et al.***

### **Anonymous Referee #2**

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General comments: The paper is well written and well organized. The topic is relatively new, because although both the idea behind this study (scanning soil gas emissions) and the method used (hard-target differential absorption LIDAR) is now novel, its application to the scanning of diffuse soil CO<sub>2</sub> degassing in order to produce 2-D maps of diffuse CO<sub>2</sub> degassing is a new concept that opens a wide range of potential applications both for volcano monitoring and more generally for the study of natural degassing from soils. The measurement method is sound and easily applicable to a large number of volcanic areas. The main drawbacks of the techniques used are objectively listed and their possible solutions offered. The results are in line with previous works and underline the great potential of the proposed approach. Specific

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comments: There is not much to say, just I would like to see some more general citations in line 3 of page 2 of manuscript. I gave an example directly on the text (see attached file). Technical corrections: I indicated some technical corrections directly on the text (see attached file), also listed below: Page 2, line 25: “-2” has to be formatted as superscript; Page 3, line5: add “(Fig. 1)” before the first full stop; Page 3, line5: “Scarpati et al., 1999” to be corrected to “Scarpati et al., 1993”; Page 6, line 5: some parts (highlighted in yellow in the manuscript) are set as superscript, whereas they should be set as normal text; Page 9, line 32: probably, “extend” should be corrected to “extent”; Page 10, line 10: “principle” in my opinion should be replaced by “main”; Page 11, line11: the citation to “d’Auria L. 2015” is not in the text and should probably be either deleted from the references list or added to the text; Figure 1c: the meaning of the red numbers in the figure should be explained in the figure caption; Caption to Figure 3, line 4: add “The range of measurement in each profile is indicated by the red dashed line” after the third sentence; Figure 5c: I see numbers that I interpreted as line numbers wrongly placed inside the plot. They should be deleted when editing the final document.

Please also note the supplement to this comment:

<http://www.atmos-meas-tech-discuss.net/amt-2016-166/amt-2016-166-RC1-supplement.pdf>

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