Geosci. Instrum. Method. Data Syst. Discuss., 2, C152–C153, 2012
www.geosci-instrum-method-data-syst-discuss.net/2/C152/2012/

Geoscientific Instrumentation Methods and Data Systems
Discussions

Interactive comment on "Inner structure of the Puy de Dôme volcano: cross-comparison of geophysical models (ERT, Gravimetry, Muonic Imagery)" *by* A. Portal et al.

Anonymous Referee #1

Received and published: 13 September 2012

The manuscript describes the cross comparison between ERT, gravimetric and muonic data. The result is clearly shown and provides useful scientific information to the readers, and thus, I recommend the editor that the manuscript should be accepted for final publication after minor revisions that I describe as follows.

As shown in Fig. 5, the authors clearly showed that the dense core region at the top and the low density scoria-originated region on the southern slope are consistent between ERT, gravimetric, and muonic data. However, I can hardly see the consistency between the ERT and gravimetric data for an anomaly on the northern slope, as described by the authors. Please provide more concrete reason why the authors think there is an

anomaly at this site.

More detailed remarks are:

It is helpful if you could show a topographic map of the volcano as well as Fig. 1.

p.708, l.9-10: The two models shown on figure 3 have an accuracy of 7% for the north-south 10 section and 20% for the east-west model. What accuracy? Does it refer to the spatial resolution or to the measured value itself?

p. 709 l. 12-14 The gravity models were obtained using an inversion package, GROWTH2.0, developed by Camacho et al. (2011).

Although there is a desctiption about the errors in the ERT measurements, there seems no corresponding description in this section. I assume there are some errors associated from the measurement itself and the one produced in the process of the inversion. Please indicate the accuracy of the density values shown in Fig. 4.

p.709, l. 14-15 A dense core is identified under summit area and is probably rooted bellow 500m into the volcano.

I cannot see the dense core rooted below 500m in Figure 4. If it is the information from some other reference, please provide it.

p.709, l. 16 On both sides of this core, low density structures form a ring-like pattern.

It is not so clear to me which low density region the authours mean: D3 and D5 or inside of them? Please indicate it in the Figure or in the text.

Fig. 5. All the cross sectional images: (a), (b), and (c) look different, and the units for the horizontal axis are also different. Please unify them. If it is difficult, please add some arrows or something that indicates the same position in (a), (b), and (c) so that the readers can compare the anomalies between these panels.

Interactive comment on Geosci. Instrum. Method. Data Syst. Discuss., 2, 703, 2012.