

Interactive comment on “Active faulting, 3-D basin architecture and Plio-Quaternary structural evolution of extensional basins: a 4-D perspective on the central Apennine chain evolution, Italy” by Stefano Gori et al.

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In the Discussion section of the manuscript se-2016-103 by S. Gori et al., the authors report the reconstruction of the deep architecture of some of the main fault-controlled basins in the central Apennines (Italy). Among them, they discuss the geometrical characteristics of the Fossa-San Demetrio depression (figure 8 in the manuscript), located south of the L'Aquila town area, and speculate on its possible tectonic evolution.

My coauthors and I recently carried out an extensive geophysical campaign integrating time-domain electromagnetic soundings and ambient seismic noise recordings in

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the Middle Aterno Valley (central Italy), where the Fossa-San Demetrio depression is located. We imaged the deep architecture of the Middle Aterno Valley and its relations with the 2009 L'Aquila earthquake causative fault. The results of our work have been published as two extended abstract and as a poster presentation, and are currently under review on Journal of Geophysical Research - Solid Earth.

Reading the manuscript it clearly appears that the sources of the data for imaging the Fossa-San Demetrio depression at depth are neither documented nor properly cited. The authors presented ambient seismic noise data supporting exclusively the reconstruction of the deep architecture of the Subequana Valley, their core study area.

At a closer look the overall subsurface geometry of the San Demetrio-Fossa depression fully matches the reconstruction made by Civico et al., 2015 for the same area, presented in a published extended abstract (http://www.earth-prints.org/bitstream/2122/9773/1/Civico_et_al_2015_INGV_miscellanea.pdf). In more detail, both the shape at depth of the Fossa-San Demetrio depression and the outline/mask of Figure 8 in that area clearly resemble what presented in Figure 3 by Civico et al., 2015 (see above-mentioned abstract). Although the manuscript (Line 4, page 12) cites Civico et al. (2015), we think that the citation is not fully appropriate. In fact, our data do not represent only a support to gravimetric prospection, instead we reconstruct for the first time the 3D image of the Middle Aterno Valley, including the estimate of the depth of the main buried depocenters. The authors of the manuscript under review should thus remove the portion of the text where they discuss the main findings on the Fossa-San Demetrio depression or add a section (including the caption of Figure 8) in which these data are properly attributed to the original sources.

In addition, the thoughts and concepts expressed in the final part of the Discussion section (lines 1-7 and 11-15 of page 12) are very similar to those presented both in the above-mentioned extended abstract by Civico et al. (2015) and in the related conference poster presentation (DOI: 10.13140/RG.2.2.11186.20160) as well as to those found in the Pucci et al., 2016 (Page 203 of the Proceedings of the 7th International IN-

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In the following, we report the portions of the text that contain ideas and concepts already presented in Civico et al., 2015 (both in the extended abstract and in the poster presentation) and in Pucci et al., 2016: - Lines 1-2, page 12 “the available literature suggests that one of these structures may have determined the early nucleation of the Fossa-San Demetrio depression. . .”. This statement, for the Middle Aterno Valley area, has been proposed by Civico et al., 2015 in the “Preliminary results and discussion” section of the extended abstract, as well as in the “Conclusions” of the related poster presentation. Similar findings are also reported by Pucci et al., 2016. - Lines 5-7, page 12: “This “low” shows very steep, quite linear and sharp boundaries towards the north and south (Fig. 8). These boundaries coincide with an abrupt deepening of the carbonate bedrock (which sharply sinks into the basin) and seem to align with local NE-SW trending cross-basin faults”. This concept has been already proposed by Civico et al., 2015 in the “Preliminary results and discussion” section of the extended abstract, as well as in the “Conclusions” of the related poster presentation. Similar findings are also reported by Pucci et al., 2016. - Lines 11-15, page 12: “it is possible to hypothesise that the early phases of formation of the Fossa-San Demetrio depression have been led by cross-basin structures that have been subsequently cut by the Quaternary NW-SE trending normal fault occurring in the area (e.g. Bosi and Bertini, 1970; Falcucci et al., 2015). The older structure may presently play only the role of “structural boundary” between the Paganica fault, to the northeast, and the MAVF-SVF system. . .”. Again, this section contains observations and ideas presented by Civico et al., 2015 in the “Preliminary results and discussion” section of the extended abstract, as well as in the “Conclusions” of the related poster presentation. Similar findings are also reported by Pucci et al., 2016.

In wider terms, the imaging of the deep geometry of the Fossa-San Demetrio depres-

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sion and the related discussion elements are the original results of Civico et al., 2015 and Pucci et al., 2016. We ask the Editor to protect the integrity of our published works by urging the authors to give proper credit to previously published works, clearly indicating the sources of the data presented in Figure 8, as well as of the ideas and concepts expressed in the final part of their Discussion section.

Regards,

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