Solid Earth Discuss.,
doi:10.5194/se-2016-78-AC3, 2016
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Solid Earth Discussions
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Interactive comment on "3D GPS velocity field and its implications on the present-day postorogenic deformation of the Western Alps and Pyrenees" *by* Hai Ninh Nguyen et al.

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Received and published: 22 August 2016

Answers to reviewer #3:

R#3: "The authors present a remarkable correlation plot between vertical velocities and site elevations (Figure 10). As suggested by the authors the Alps have significant relief at short spatial wavelengths, while the vertical velocities are probably more sensitive of a regional response of the lithosphere to loading variations (erosion, deglaciation, mantle dynamics). It would thus be interesting to plot vertical velocities versus some kind of filtered "low-pass" topographic elevations to see if the correlation still holds."

A: To make a low pass filter we have averaged the topography with 10x10 km windows

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and the correlation still holds. We have modified the manuscript accordingly by adding: “To check this later assumption, we have filtered the topography by averaging it over 10x10km windows and the correlation is consistent with the results presented in Figure 10.”

R#3: “The lack of an extensional strain rate signal in the Western Alps can also be explained by the absence of GPS stations on the Italian side, required to completely sample the deformation signal at the scale of the entire mountain belt. A couple of stations on the Italian sides were present in the velocity field used in Walpersdorf et al.(2015), possibly explaining the observed extensional signal.”

A: This possibility is now stated in the manuscript: “. . . and to the fact that we have less sites in Italy in our solution.”

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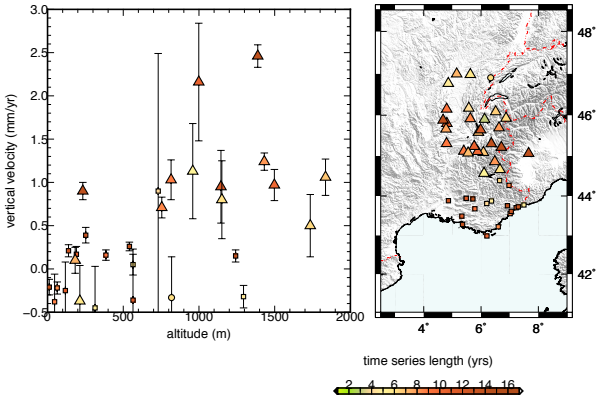

Fig. 1.

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