

Interactive comment on “Accuracy of geodetic site velocities from repeated GPS measurements: relative positioning over long baselines” by Huseyin Duman and Dogan Ugur Sanli

Anonymous Referee #2

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Review of “Accuracy of geodetic site velocities from repeated GPS measurements: relative positioning over long baselines” by Duman and Sanli.

In this paper, the authors performed and tested relative positioning at cGPS stations in an effort to assess the accuracy of the geodetic site velocities when these are derived by means of episodic measurements, i.e. as in GPS campaigns. Their analysis was applied at IGS stations and the obtained results were additionally compared with PPP solutions. The topic of this study is of interest for the “Natural Hazards and Earth System Science” readership. The manuscript is slightly novel and accordingly in order to warrant publication, the authors should address a number of important comments

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that lead to “major” revisions, although in fact my suggestions are straightforward. My comments are reported in the following and I hope these may be of help to the authors for their revision work.

1) The authors need to rework the abstract. The problem with the abstract is that it reads too much like an introduction. Abstracts should concisely say what the authors did and what they found, so I suggest to rewrite it keeping in mind that abstract doesn't need to be verbose.

2) In the Introduction the authors should try to highlight the added value and the novelities of the present paper. In this context, they need to state the problem better, i.e. why is this study needed, and they need to make a better case for their study in this section. The case can be made by first reviewing what has been done in other studies towards the comparison of the geodetic velocities derived from continuous and episodic measurements. Then, they should define what they want to improve with their study and at the end of the introduction how they achieved it. They should also add a few more references about studies where GPS velocity fields have been used to facilitate tectonic and geodynamic research (e.g. Vernant et al. 2004 *Geophysical Journal International*; Serpelloni et al. 2007 *Geophysical Journal International*; Chousianitis et al. 2015 *Journal of Geophysical Research*) and make a brief assessment of the uncertainties in the velocity fields of these studies in comparison to velocity fields derived only via episodic measurements.

3) The authors do not mention sufficient details about their processing scheme in Gamit/Globk. Accordingly, they should add info about this, since Gamit/Globk has numerous options and the potential readers should be aware of the critical choices that the authors made. Also, have they combined their loosely-constrained daily solutions with daily global solutions for the whole IGS network in their second processing step? Finally, they should add more details regarding the realization of the reference frame and the way they adjusted their velocity data in the ITRF. Have they implemented the frame realization through “generalized constraints”, have they applied a few iterations

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to eliminate bad sites and to compute station weights for the reference frame stabilization? What criteria they have used to characterize the set of IGS stations that they used as reliable? Please be more specific.

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