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Natural Hazards and Earth System Sciences
Discussions
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Interactive comment on "Accuracy of geodetic site velocities from repeated GPS measurements: relative positioning over long baselines" *by* Huseyin Duman and Dogan Ugur Sanli

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Reviewer

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.

Authors

The Abstract has now been shortened excluding unnecessary statements (see the

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supplement file).

Reviewer

2) (a) In the Introduction the authors should try to highlight the added value and the novelties 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.
(b) Then, they should define what they want to improve with their study and at the end of the introduction how they achieved it.
(c) 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.

Authors

The introduction has now been recompiled taking into account the above suggestions. The above stated literature was also included in the new introduction (see the supplement file).

Reviewer

3) (a) 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.

Authors
With also recommendation by Reviewer 1 we now include some details about our GAMIT/GLOBK processing. The text also has now been modified accordingly (see the supplement file).

Reviewer
(b) Also, have they combined their loosely-constrained daily solutions with daily global solutions for the whole IGS network in their second processing step?

Authors
Since our network contained IGS stations from globally scattered stations we did not extra combine our loosely-constrained daily solutions with any other global solution.

Reviewer
(c) 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 to eliminate bad sites and to compute station weights for the reference frame stabilization?

Authors
Yes, "generalized constraints" were applied in the analysis. We selected 18 globally

distributed IGS stations and applied four iterations to eliminate bad sites as well as computing station weights. Then 13 reliable stations were left to realize the reference frame. The text has now been modified accordingly (see the supplement file).

Reviewer
(d) What criteria they have used to characterize the set of IGS stations that they used as reliable? Please be more specific.

Authors
To characterize the set of our IGS stations we used GPS days in which ionospheric kappa index is smaller than 4 (as also stated in the manuscript body), IGS stations that are distributed globally, 3 consecutive days with common data for all stations, over 95

Please also note the supplement to this comment:
https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2018-258/nhess-2018-258-AC2-supplement.pdf

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