Natural Hazards
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Discussions

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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Title

Reviewer
recommended the title as being "Assessment of geodetic velocities using campaign measurements over long baseline length"

Authors
The title will be changed to "Assessment of geodetic velocities using campaign

C1

measurements over long baseline lengths" with a little modification to the last word "length" as suggested by the reviewer.

Abstract

Reviewer
Line 1, Remove "Currently" and "(i.e. repeated GPS measurements)" from the text
Authors
The abstract has now been rewritten considering the recommendations from Reviewer 2. Therefore only "Currently" and "(i.e. repeated GPS measurement)" have been removed from line 1 and the rest of the abstract has been recompiled (see the supplement file attached).

Introduction

Reviewer
Replace "The coordinates of a new point installed in a study area are usually found either by using relative point positioning or precise point positioning (PPP)" with "The coordinates of a new established site (benchmark or GNSS station) are usually found either by using relative point positioning or precise point positioning (PPP).

Authors
The introduction, as with the recommendation from Reviewer 2, has been rewritten. While recompiling the introduction, as recommended by the reviewer we used the term "campaign" but not "repeated" and added the reference Bitharis et. al., 2016 and Hollenstein et. al., 2008 (see the supplement file attached).

GPS data analysis

Reviewer
Please give me more details about the GPS data analysis strategy. For example:
1) which Mapping function you use?
2) A very important issue in relative positioning is the resolving ambiguities, can you provide these values/percentage of Wide lane and Narrow lane?
3) Which OTL model you choose?

Authors
1) We used Global Pressure and Temperature 2 (GPT2) (Lagler et. al., 2013) for both GAMIT and GIPSY processing. We modified the text accordingly.
2) Wide and Narrow lane phase ambiguities are provided for GAMIT processing with Figure 1 attached.

For GIPSY processing, unfortunately we only kept stacov (i.e. the file containing only position information and correlations between coordinates) files.

3) FES2004 ocean tide loading model from OSO Chalmer and the ocean tide model developed by Desai (2002) were used for the processing of GAMIT/GLOBK and GIPSY/OASIS II respectively.

Page 3, Lines 4-6

Reviewer

These is a very sensitive step, You use GLRED for Time-series daily reliabilities or

GLOBK? Also, you choose to estimate both EOPs? or you use weighted constrained, may have these values? Please take care on this step, because the recommended method/parameters dependents on the GNSS network scale.

Authors
GLOBK module was used for the combined solution. We chose to estimate the IERS (International Earth Rotation and Reference Systems Service) Bulletin B values for Earth rotation. The text has now been modified accordingly. Initially 18 IGS stations were selected for the realization of the reference frame. A reliable set of the stations was determined applying 4 iterations. Bad stations were eliminated and about 12 through 14 IGS stations were reliably used. This information is now included in the text (see the supplement file).

Reviewer
Can you provide some values of the daily Transformation residuals, a simpe a?

Authors
Daily transformation residuals for all sub-sessions listed in Table 1 are 0.095, 0.059, and 0.055 mas (milliarcseconds) for X, Y, and Z rotations as well as -15, 8, and -12 mm for X, Y, and Z translations. Given values are the mean of the translations for all days from 2000 to 2015.

Please also note the supplement to this comment:
https://www.nat-hazards-earth-syst-sci-discuss.net/nhess-2018-258/nhess-2018-258-AC1-supplement.pdf
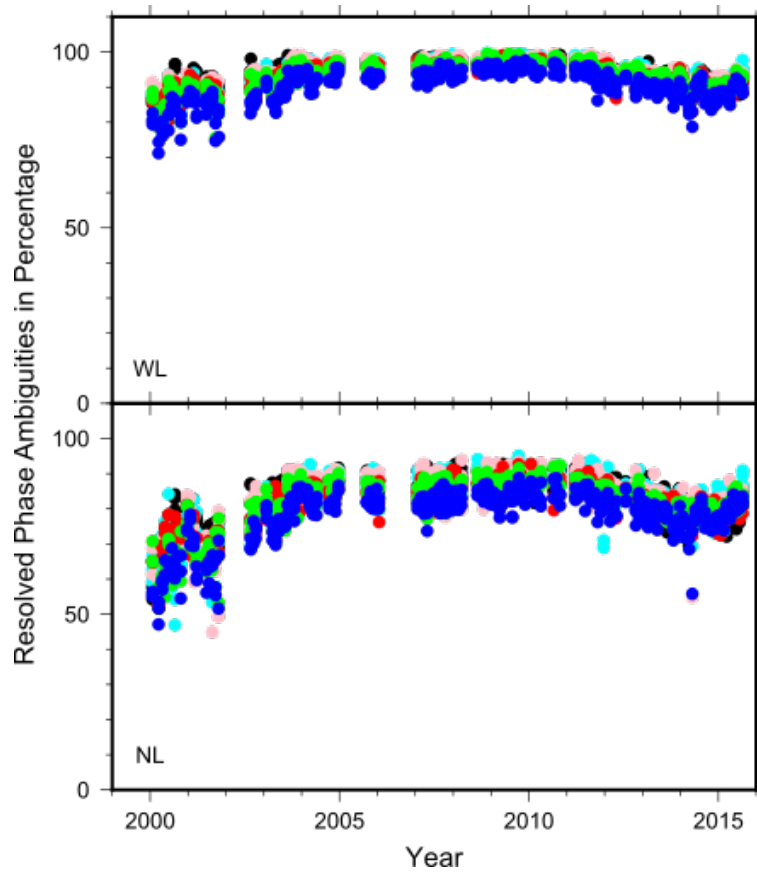
Fig. 1. Wide and narrow lane fixed phase ambiguities in percentage