

REVIEW

GI-2019-24

Monitoring aseismic creep trend in İsmetpasa and Destek segments throughout the NAF with a large scale GPS network

Summary

In this study, the authors established GNSS network İsmetpasa and Destek segments on the NAF (North Anatolian Fault). GNSS measurements were used to understand the tectonic mechanism of these segments and three campaign data were collected in 2014, 2015 and 2016.

GNSS data has been evaluated by GAMIT / GLOBK software. Tectonic modeling has been carried out after GNSS evaluation. For this, they used TDEFNODE. As a result of modeling using geodetic data, it was tried to reveal the tectonic mechanism of these segments. They calculated surface velocities aseismic creep still continues to some rates, ~13 mm/year at İsmetpasa and ~10 mm/year at Destek. Also, they obtained between ~4-6 km for the creep depth layers.

The manuscript is very interesting. Introduction of field and problem as well used method are well written. This manuscript will make a significant contribution to the study of earth sciences. Therefore, I think that this publication is suitable for the concept of this journal and should be printed after minor revisions are made.

Some of my comments and suggested corrections are given in detail below;

- The abstract can be extended with the results of block geometry.
- There are many fault names mentioned in the paper. The fault name should be provided in Figure 4.
- The previous results of the studies conducted to determine creep rate in the İsmetpaşa segment between 1970 and 2016 can be given as figure.
- Some of content is repeated, For example Page 7 last paragraph (line 143-147) same as 'GPS Data Evaluation' section line 158-160. Suggest revising or deleting.
- There are Turkish sentences or word in Figure 7 and in the manuscript. These sentences should be deleted in the paper.
- The citation publications and references should be checked, eg; Poyraz vd. 2011 instead of Poyraz et al. 2011.
- Some figures are not enough resolution. So, these figures should be rearranged. For example, Figure 5,6 and 11.

- The parameter values used in block modeling (such as locking depth, Euler poles) should be explained in a few sentences in the paper.
- The chi-square value can be given in text (between lines 254-263 in the page 16). It will be more meaningful.