

## ***Interactive comment on “An assessment of GIA solutions based on high-precision GNSS velocity field for Antarctica” by Wenhao Li et al.***

**Anonymous Referee #2**

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The influence of a common mode error (CME) and noise model on GPS analyzed in this study using more than 79 stations with a long time series (around 9 years). The applicability of some GIA models is also assessed using the derived GPS velocity field, which shows that CEM and noise models are not negligible. GIA influences the plate tectonics, crustal displacements, geoid, etc. Differences in predictions of GIA for Antarctica exist due to the uncertainties in de-glacial history and Earth rheology. Hence, it is necessary to determine the applicability of different GIA models. However, the actual GPS velocities are somewhat affected by the CME and the optimal noise model. In general, this manuscript addresses an interesting topic and has significant contribution in this research field. Hence, I recommend its publication after considering the following minor comments.

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Minor comments: (1) The elastic model does not overlap fully in time with the GPS time series, will it influence the results? (2) The introduction needs more complete review of the assessment GIA models. (3) Can you more precisely describe the noise models before and after filtering? (4) GNSS and GPS are inconsistency, GNSS in title but GPS throughout all the paper. (5) P6L7-14: the discussed stations need some introductions to explain further. Are these stations with large differences to previous results? (6) P4L17: the definition of 'residual' is same as the residual series in Section 2.1? (7) Figure 2 and Figure 5 are not clear, difficult to see the details. It is better to expand the scales.

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Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2019-101, 2019>.

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