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Interactive comment on "The sensitivity of GNSS measurements in Fennoscandia to distinct three-dimensional upper-mantle structures" *by* H. Steffen and P. Wu

Anonymous Referee #1

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A quick response to #2, "The reason is that as long as the problem is linear, the principle of superposition works. Such finding was considered too trivial to be mention in the paper of Wu (2006)."

Varying the coefficients of a linear diff equation is not a linear problem where superposition works. See the supplement to this comment. You might happen to start from a reference solution where the results due to small variations can be linearized. My example shows that it's not trivial to have that good luck. Especially, it's far from a general rule.

If something is regarded too trivial to have a deeper look into it while violations of the

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assumptions cannot be verified, the proposition thus not be falsifiabl, you just might get away with it for a while. The day when Bifrost is precise enough will come, even though with the standards of the sensitivity threshold used in the paper, it'll be our children to find out where the train derailed and never reached the central station.

As far as this reviewer is concerned, a there is improper use of maths and no proof that the bounds for viable linear approximation haven't been crossed.

Please also note the supplement to this comment:
http://www.solid-earth-discuss.net/5/C965/2014/sed-5-C965-2014-supplement.pdf

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Interactive comment on Solid Earth Discuss., 5, 2389, 2013.