

Interactive comment on “A new model of the upper mantle structure beneath the western rim of the East European Craton” by M. Dec et al.

Anonymous Referee #1

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This is an interesting study of velocity structure beneath Poland. It is well-written and presented. I have some questions and overall a bit more about methods and assumptions could be included.

The authors compare to AK135, but there must be surface wave models of the region that would be more appropriate for comparison. For instance comparison to the Berkeley global model (French et al., Science, 2013) might be useful since it is published online? But other regional models are also likely available.

How have you accounted for anisotropy? Or, how does that affect your result?

What were the criteria used to determine the number of discontinuities you would look for in the data? Some discontinuities are not observed everywhere, even if they exist in

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global models like PREM – for instance the 220. The process you went through should be described more.

0.5 – 2 Hz – is that a range frequently used in this type of study? Can you describe the other bands you tested?

Why use 1997 – 2010? Does the data not exist before/after this?

Page 6, line 3: During alignment, is it aligned on absolute amplitude? Or just amplitude?

A longer description of assumptions and steps taken would be useful in the methods section. What are you aligning on? What are you picking? How do you get to the velocity model? Is there a spherical earth/flat earth conversion?

I am a bit confused about the 1-D 2-D parts here. Could you describe this better in the methods section (rather than interspersed in results). It looks like you assume a 1D model, except for the case where you have an ocean-continent path, in which case you allow for different crusts. But you don't allow for different crusts in the other cases, does this affect your results especially for shallow events? Also, is a 1-D model appropriate for such a large area? Could you separate effects from source-side and receiver side, to get a 1-D model just beneath the station?

All the detail on events and also SNR before/after filtering is probably unnecessary.

Page 1 line 24, add “back-azimuthal” before “seismic section.”

More discussion of error bars on the model would help. What is the error in velocity and also depth?

Can you define how kurtosis provides more information in this context (Is there a physical intuition of what that means)?

Interactive comment on Solid Earth Discuss., 6, 559, 2014.

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