

Interactive comment on “Horizontal versus vertical plate motions” by M. Cuffaro et al.

B. Steinberger (Referee)

bernhard.steinberger@ngu.no

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This is my initial comment. I will have very limited time to contribute to this discussion between July 8 and August 8, but will be available in the final phase of the open discussion.

General comments: This paper compares horizontal and vertical plate motions. At the present, this manuscript falls well short of being publishable as a scientific paper, and I don't think this can be corrected within eight weeks of discussion. The only "conclusion", namely that horizontal plate motions are substantially faster than vertical ones, is entirely obvious. Imagine what the Earth would look like if the Pacific plate had moved with about 10 cm per year vertically, instead of horizontally, over the past 100 Ma! Also, the data on horizontal and vertical motions are just extracted from the literature and a website and listed, and not analyzed in any way, except for the above-

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mentioned "conclusion". This isn't scientific research, and therefore not appropriate for publication in the scientific literature. Also, there is no clear relation between the data compilation and rest of the paper, which is a rather disorganized description of various observations and models related to horizontal and vertical motions. There is no "red thread" and after reading the paper I am just lost wondering what is the point of it all. What would be needed, at the very least, would be some analysis of the data, and not just listing them, perhaps in association with models and data regarding plate driving forces. And then the paper would need to be much more logically organized, discussing new results in the context of what is known from the literature. But it isn't my job to tell the authors what they should do. In fact, I am not at all happy to review this paper. I think in principle the discussion format of eEarth is o.k., but I regard submitting a manuscript that is in such a poor shape, and to somehow expect that the reviewer comments will fix this, as an abuse of this format, and of the reviewers' time and good will. I strongly urge the authors to retract this manuscript, and possibly submit something more substantial at a later stage.

Specific comments: I don't think this is the time for specific comments, since the paper totally lacks scientific content. And this content would be needed first before it could be addressed with specific comments. Leaving that aside, there is also a lot to be improved about the style. For example, there are questions asked, which creates some expectation, but then the questions are never addressed in what follows. The manuscript is an inconclusive melange of reporting observations and models. I don't understand what is a "smaller subsidence rate, even if it is the fastest subsidence rate of any geodynamic setting." I don't understand why the result "points for a stronger tangential component in plate tectonics than previously inferred". Inferred by whom? It is entirely obvious that no work has to be done against gravity for horizontal motions, whereas non-isostatic vertical motions require work.

Technical corrections: I am not going into this at this initial stage, but I recommend to have this paper read and corrected by a native English speaker.

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