

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

**M. Cuffaro et al.**

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We thank the reviewer for spending his valuable time on our work and for writing his "encouraging" revision. Sorry but we do not agree with the definition of our paper as not-scientific. Is our paper in some respects wrong? Is it based on not-scientific methods? These would be good reasons to define a paper as not scientific. But none of these aspects have been raised by the reviewer.

The reviewer complains that what we describe is obvious, but nobody has ever compiled and quantified the ratio between horizontal and vertical velocities worldwide, both for present-day and past plate motions. Or are we wrong? (if so why doesn't the reviewer provide us with a reference?). In this case the work can be defined as boring or old fashioned, but not not-scientific.

Answering to the specific comments of the referee: one of the main aims of science is to generate questions in order to find good answers. That is what epistemology

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has taught us. The fastest subsidence rate of any geodynamic setting (about 1-2 mm/yr) occurs along the foredeep or trench of W-directed subduction zones. We refer to this velocity as a still very slow velocity when compared to horizontal plate velocity, particularly when the engine of the plate motion is assumed to be the slab pull. The problem of the driving forces in geodynamics has not been solved yet, and the quantification of all parameters is a necessary step. The reviewer jokes on the uplift of the Pacific plate, but we discuss plate boundaries uplift, no plate or intraplate uplift. The observation that plate boundaries deform 10-100 times slower than plate motions is, to our opinion, an important indication of their passive role in geodynamics, and this is the main conclusion of the paper, clearly stated in the abstract.

We tried to condense our paper in a readable way, showing the main data and commenting their geodynamic implications. The expansion of the ms he is requiring is not allowed by the space limitations of eEarth. For the moment we maintain our opinion of the robustness of the research as it is, waiting for further reactions.

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Interactive comment on eEarth Discuss., 1, 63, 2006.

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