

# ***Interactive comment on “Impact of terrestrial reference frame realizations on altimetry satellites orbit quality, global and regional sea level trends: case ITRF2014 versus ITRF2008” by S. Rudenko et al.***

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This article is presenting an important piece of work that even though it is not ground-breaking research, it is of great value to the users of altimetry data and products. When one reads this article one has the feeling that the intent of the authors is to record in high detail the work that was done to compare the difference in the “products” of the authors’ lab between two reductions of the same (or nearly so) data with two different reference frame models. The analysis though is over different periods of time, something quite natural, since you only change reference frame models once the prior

version becomes obsolete. However, the presentation herein would have benefited from a slightly modified presentation of the differences: the one that is already in this version of the article, and a parallel one where the metrics are formed, presented and evaluated over exactly the same time period. This arrangement would remove the effect of the additional data used to develop the products beyond the validity period of the old TRF, along with any issues that that additional data might have. On the other hand, the current presentation demonstrates how the additional data used to develop the new TRF model have extended the expected quality of the TRF model for several additional years over which the old model is clearly not performing nearly as well as during the years used for its development. This proposed rearrangement may or may not be easily achievable, so I would not make it a prerequisite for the acceptance of the article, but it would certainly make it a lot more useful. In general the article is written in very good English, but another read by a separate reader would help correct a few minor issues and make it perfect in that respect. A comment on Fig. 3 is that it is missing a legend, and the caption does not explain what the different colors mean. Adding the values of the displayed slopes would also be nice. Finally, I am chagrined that the authors have left out the required acknowledgements for the SLR and DORIS data that are used to produce the wealth of results that they are presenting! Both communities, ILRS and IDS, depend on getting these acknowledgements and they even have made it simple for the authors to show them exactly how to do it. For example, for the ILRS see:

<https://ilrs.cddis.eosdis.nasa.gov/about/cite.html>

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Discussion paper

