Dear Mr. Tyler, thank you for your time and willingness to review this manuscript and for your encouraging words. Please see the detailed answers to your questions below.

General:
The review posted by Jakub Velimsky provides an excellent overview of this paper as well as general comments I agree with. My review here concerns only a few extensions to these comments as well as some technical points.

Recent interest in the ocean tidal generated magnetic signal is important as both the tides and seawater conductivity are expected to be fairly stable, with the result that the ocean tides probably provide the most predictable large-scale, naturally occurring EM source for probing the mantle and possibly the ocean conductivity. Given that the EM wavelengths in the open ocean are long for periods above 10 minutes, the tidal EM process is essentially 2D and the recoverable ocean parameters from magnetic data involve only conductance and conductivity transport. These in turn may translate as ocean heat content and heat transport and so this study is extremely relevant to analyzing the potential exploitation of magnetic observations in ocean/climate variability studies. (In a sense, the salinity dependence on conductivity is diminished when considering these depth integrals.) This study largely confirms this expectation and provides useful quantified values, as well as quantification of uncertainties inherent in the variation in tidal models.

Q: A concern I have (which only makes the study incomplete rather than incorrect) is in the assumption that the 3D tidal model of Kuvshinov is the most appropriate. As mentioned above, at tidal periods the EM process is 2D and so there is no benefit to a 3D model on this ground (when interest is in the remote magnetic fields).

A: Actually, we do not state that x3dg is the best model for tidal modelling. However, we think it is sufficient for this study. As stated in the manuscripts we project only the errors from the tidal sources onto the magnetic fields. These errors would exist even with a perfect induction-model. Nonetheless, a detailed model inter-comparison study (including 2D, 3D. galvanic coupling and so on) is out of the scope of this paper and should be done in a separate manuscript.

Q: As mentioned by Velimsky, the interpolation to 1 deg. resolution (from the native 1/6 of the tidal data) is a concern. This concern affects not just small scales but also large scales as the induction equation clearly shows communication of energy between scales (i.e. large scale results can be affected by lack of sufficient high resolution). Most importantly, with the transfer of sources to lower resolution, the fluid-dynamical properties implied may not retain the conservation principles they had in the original form on the native ocean model grid. (In my own modeling of tidal magnetic signals, I adopt the full 1/6 degree resolution and native grid of the ocean tidal model for these reasons—even though interest remains in the large scale aspects of the final results).

A: True. However, given the different grids and resolutions of the used models one has to interpolate at some point. TPXO is available with 1/30° resolution. Doing all calculations on this resolution would take a big amount of RAM and CPUh. On the other hand the manuscript's results showed to be insensitive to reasonable choices of resolution. Please see our answer to Mr. Velimsky where more details and figures can be found.

Q: The 3D Kuvshinov model does provide galvanic contact with the mantle. While my modeling approach has high resolution, it has inductive but not galvanic contact and this is potentially a weakness—though not yet apparent in comparisons with observations.
As there are different strengths and weaknesses in these and other EM modeling approaches, the variability in ocean tidal magnetic signals needs to consider not just the variability in the oceanographic tidal modes but also in the EM models used to generate the magnetic signals. The study here considers one of these, which is a reasonable start.

A: True. How to correctly tidal magnetic fields is somewhat out of the scope of our paper. The paper claims not to present all errors in EM tidal modeling but studies only the influence of the range of existing ocean tide models on a given/robust induction set-up. These errors would still show up even if a perfect induction set-up (even without any regridding) would be used. We did try to choose the manuscript's title to reflect exactly that.

However, we now stress this point more detailed in the introduction. We mention other possible sources of errors (choice of modelled physics, resolution, conductances etc.) and how this study is focused only on a subset of the total EM error budget. As you mention it is a reasonable start to focus on the errors of the sources first. Studying the effects of different induction set-ups on oceanic magnetic signals in general would be a very good idea.

Technical Points:
L7: "analyzes" is the verb "analyses" is the plural noun. Subtle for sure.
L12: "can not" -> "cannot"
L16/17: Reword for clarity (important because it describes the goal of the study)
L18: "As" -> "As in"
L26: which "that" the second?"
L30: is based on the ephemerides...of the Moon?

A: All corrected, thank you very much.

Thank you again on behalf of all authors,

Jan Saynisch