Ocean Science Discussions

Ocean Sci. Discuss., author comment AC1
https://doi.org/10.5194/os-2020-117-AC1, 2021

Reply on RC1

Sandrine Mulet et al.

Author comment on "The new CNES-CLS18 global mean dynamic topography" by Sandrine Mulet et al., Ocean Sci. Discuss., https://doi.org/10.5194/os-2020-117-AC1, 2021

Thanks a lot for your positive comment and for your specific questions that will help us to clarify the manuscript. Below you will find answers to your comments that will be taken into account in the revised manuscript.

94: there should be a citation or acknowledgement for the SD-DAC. Lumpki et al, 2013: Lumpkin, R., S. Grodsky, M.-H. Rio, L. Centurioni, J. Carton and D. Lee, 2013: Removing spurious low-frequency variability in surface drifter velocities. J. Atmos. Oceanic Techn., 30 (2), 353—360, http://dx.doi.org/10.1175/JTECH-D-12-00139.1.

113: what does "section 0" mean? Should this say section 5? Yes indeed

168: is there a reason why the undrogued drifters were not used for z=0m? Is this due to slippage (noted later in the manuscript)? Exactly, we have noted in previous studies (Rio et al., 2014) that Argo floats are much less affected by wind slippage compare with undrogued drifting buoys certainly thanks to their design. Consequently, we do not need to correct Argo float drift from wind slippage and thus we can use them to estimate Ekman model at the surface (z=0). We will clarify that in the revised manuscript.

Rio, M.-H., S. Mulet, and N. Picot (2014),Beyond GOCE for the ocean circulation estimate: Synergetic use of altimetry,gravimetry, and in situ data provides new insight into geostrophic andEkman currents,Geophys. Res. Lett., 41, doi:10.1002/2014GL061773.

170-172: no lowpass is applied to the Argo data, because the floats aren't at the surface long enough to allow for this. The authors should note that explicitly, and that these data thus include much more noise from high frequency motion. This again makes me wonder why the ~hourly undrogued drifter data wasn't used for z=0m. [NOTE: the authors address this on lines 265-268. I left this comment as a notice that readers may be wondering about this earlier.] We will then mention this point earlier in the manuscript.

263: how does this work at very low latitudes? Wouldn't max(Pi, 24h) go to infinity? We've forgot to say that in practice an upper bound is set at 6 days for the cutoff wavelength. We have to add this information.