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Interactive comment on "Mitigation of ionospheric signatures in Swarm GPS gravity field estimation using weighting strategies" *by* Lucas Schreiter et al.

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Dear Reviewer,

thank you very much for your detailed comments, they are very helpful. To address your major concern about the comparison to a static solution instead of comparing to monthly solutions I added a supplement. For reference the monthly GRACE RL06 JPL was now used. In the supplement I have reproduced the geoid hight plots, as well as the difference degree amplitudes and added a small statistic to quantify the differences. Differences in the lower degrees may be seen in the geoid hight differences as well as in the difference degree amplitudes. It should be noted, that the difference degree

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amplitudes improve in the low degrees. The high degrees stay almost unaffected. In comparing the statistics, it may be seen, that the numbers stay on a similar level. In general the geoid RMS improves by 0.3-0.5 mm, but the weighted std over the ocean is degraded by 1.6 mm to 6 mm. For the disturbed Month(March 2015) the results show the same trend. The best performance can be archived by using the second derivative in combination with the ROTI approach. For the clean month (June 2016) using the second derivative leads to an 0.32 mm worse geoid RMS. The ROTI 1 leads again to an improvement of approx 1.3 mm.

My final conclusion on this concern is, that regarding the equatorial artifact the differences between a static GRACE gravity field and a monthly GRACE field are negligible. The static solution is alway available, in contrast to the monthly solution. But of course comparing to a monthly GRACE solution is a cleaner approach.

Best regards, Lucas Schreiter

Please also note the supplement to this comment:
https://www.ann-geophys-discuss.net/angeo-2018-91/angeo-2018-91-AC1-supplement.pdf

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