We thank the reviewer for their constructive comments. We address the reviewer’s comments point by point in this letter, and corresponding changes will be made to improve the manuscript.

(1) 3-16: Please add the time period treated (month, year), here or later at page 6, line 22.

Reply: We have provided additional information on the treated time-span by adding “The analysis is carried out on the whole ITSG-Grace2016 time-span (April 2002 – June 2017). However, due to low data quality before 2004 and several data gaps and degraded quality of the measurements after 2016, these time periods are excluded from the illustrations.”

(2) 7-18: In Figure 11b, only a part of the time series is shown, not the complete GRACE timespan. Please modify.

Reply: We updated the manuscript accordingly.

(3) 8-13: Please specify over what time period the simulation was performed.

Reply: We followed the propositions of the reviewer and clarified this issue by adding “The simulation is carried out for the time period 2008-2009, when GRACE delivered high-quality measurements and comparison of the actual data with the output of the simulation is more relevant”.

(4) 9-17: the same magnitude and spatial pattern => comparable magnitude and spatial pattern

(5) 2-15: contributes => contributors

(6) 2-29: no reference to Fig. 1a

(7) 5-15: described => described

(8) 7-14: umbra shadow => umbra

(9) 10-3: were also identified => were identified

(10) 10-19: mainly are => are mainly

Reply to 4-10: We updated the manuscript accordingly.