

Dear Elham Freund,

Thank you for your kind response and corrections to the manuscript. Please see in red text below the alterations made to the manuscript to address your corrections.

Warm regards,

Stephanie Bringeland

On behalf of the co-authors

Before the paper can proceed to production, I would appreciate it if you could address a few minor technical points:

In the study area description, please indicate the elevation range covered by the study area.

The elevation range has been added to the Study Area section.

L102-103: “The land surface elevation ranges from approximately 580 m to 3510 m (CVGD2013)”

It would also be helpful to briefly describe the groundwater system, including whether groundwater is generally shallow or deep in this region.

Text has been added to provide brief context for the groundwater systems in the SSRB.

L131-135: “The hydrogeology of the SSRB is tied to the glacial history of the region. Deep buried valley aquifers, glacial tills, and moraines are characteristic of the groundwater system. Fluvial deposits in incised valley systems are common especially in the western, high-relief regions of the SSRB (Hartman, 2015). Groundwater in the SSRB is stored in both shallow, unconfined aquifers and deeper bedrock systems.”

In line 167, you refer to "Level-3 solutions" for the first time. If the JPL Mascon product mentioned in line 148 is a Level-3 solution, please indicate this when it is first introduced.

This has now been indicated at the first introduction of the JPL mascon product.

L146-148: “The GRACE and GRACE-FO (henceforth ‘GRACE’) data used in the analysis are derived from the Jet Propulsion Laboratory Level-3 (JPL) monthly global mascon solutions

(RL06.1M.MSCNv03) and extend from April 2002 to December 2019, which is the end of the HGS simulation interval.”

Notification to the authors:

Please ensure that the colour schemes used in your maps and charts allow readers with colour vision deficiencies to correctly interpret your findings. Please check your figures using the Coblis – Color Blindness Simulator (<https://www.color-blindness.com/coblis-color-blindness-simulator/>) and revise the colour schemes accordingly. --> Fig. 3

Markers have been added to the plot in Fig. 3 so the lines can be easily distinguished.