

Response to Editor on "Co-registration and residual correction of digital elevation models: A comparative study"

Comment received: 26 July 2023

5 Key:

Editor comment (black)

Response (blue)

10 Thank you for the further improvement. Most concerns raised were adequately addressed. However, the major criticism about the (too) short discussion was only weakly addressed. The related response "Some changes have been made according to your suggestion" is also not convincing. The authors should write more specifically what they improved.

In general, in this section the authors should provide a more in depth discussion about the pros and cons of the NK and RT methods, the non parametric approach to remove complex systematic errors along with the current literature. They also might consider to move or reconsider some of the parts of 2.3 and discuss it along with the own findings of the comparisons.

15 **Thank you for your constructive comments. All contents in Section 2.3 have been incorporated into Section 5, and the pros and cons of all methods have been clearly stated in the revised manuscript and listed by the following table.**

Task	Method	Pros	Cons
DEM co-registration	NK	Easy to adopt for users with a limited knowledge of statistics	Scale- and rotation- induced errors are not considered
	RT	High precision	None
Residual correction	Parametric	Easy to understand	Limited by the predefined model
	Non parametric	High precision	High computational cost

20 In addition, I have few technical corrections. Note that the line numbers refer to the track change version.

General comment: Include the source of the glacier outlines in the figure captions where shown.

Changes have been made according to your suggestions.

The GrIS boundaries are delineated by Rignot and Mouginot, available at the IMBIE website. The glacier outlines are obtained from the RGI 6.0 (for the peripheral glaciers in Greenland, the connectivity level 2 data are excluded).

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L21: from "the Greenland Ice Sheet"...

L22: the SRTM and Copernicus DEM (include "the" and singular)

L32: I suggest to include the global study by Hugonnet et al. (2021), Nature

- L70f: The sentences “The rest of this paper is organized as follows. Sections 2 and 3 introduce and analyze the main co-registration and residual correction methods. Section 4 provides the experimental results, and Sect. 5 concludes the paper.” Are not needed. Remove.
- L80 Use the abbreviations NK and RT also
- L 152: The heading “Discussion” is misleading. You basically compare the two methods. Adjust the heading accordingly
- 323: Again: SRTM and Copernicus DEM (singular)
- 35 Figure 9: The satellite image is blurred. Make sure it is of high resolution for the final version.
- L. 377: Remove “etc.”
- L 381: Mention the specific section number.
- L382: Substitute “In real-world” with “However” and omit “very”
- At the edge of “an Ice Sheet with little stable terrain”
- 40 [Modified as suggested. Thanks for your detailed review.](#)