

Review of: *Valley longitudinal profiles record the fluvial landscape evolution and geological structure of the Gamburtsev Subglacial Mountains, East Antarctica* by Paxman and others, submitted to *Earth Surface Dynamics*

R.G. Bingham, University of Edinburgh, 4 April 2026

This is a clearly-written and valuable manuscript that, through its combined consideration of geomorphology, geology, and fluvial and glacial processes, comprises an excellent fit to the journal *Earth Surface Dynamics*. I found the paper extremely readable and valuable due to being written with a clear structure throughout – all sections following a consistent pathway; with assumptions clearly stated and well-supported from the literature throughout; and with figures very clear. I very much liked the use of Figure 10 to provide a schematic summary of the overall development of the region.

I think the paper is publishable as it stands and only offer some very minor thoughts or suggestions for changes in phrasing as follows:

L42-44: I wouldn't look at Fig 1b and describe SPB as being "sandwiched" between GSM and RSH. SPB is south of both GSM and RSH. It's only later in the paper that I appreciate why you describe it this way, with the suggestion that the southern tip of the RSH blocked drainage from SPB. I think you might rephrase this sentence, being more nuanced to describe the west of SPB being bounded by the southern RSH.

L248: I don't follow at this point why Basin 10 is described as the only "fully resolvable" basin. From later in the paper I think I understand that the downstream point of the Basin 10 thalweg is defined as the intersection with RSH where topography leaps up. Maybe something can be clarified already at this line as to what distinctively makes Basin 10 fully resolvable.

L276: Probably a typo that e.g. is in brackets.

L277: I am curious as to whether you also looked at REMA. I would think this is even more accurate than RAMP for looking at surface patterns, although maybe I am wrong.

L289-290: As currently worded this sentence simply restates a method sentence, and could be reworded already moving on to what the results show. It could be reworded: Figure 4 shows the longitudinal profiles of the 10 trunk valleys and their tributaries that we extracted from the GSM.

Fig 4: A bit distracting that the plots for Basins 6 and 7 include so much white space / extra km. Given that you vary the km scale throughout the whole figure I think that with a bit of compression of the scales in the two rows above you could fit Basins 1-7 into two rows.

L361-362: When you factor in the error bars on Fig 6 these ranges would more correctly be reported as ~350-~975 and ~250-450 respectively.

L388: Segment (singular)

Sect 5.2 You may wish to start this section by already drawing reader attention to Figure 10, something like: In this section, supported by Figure 10, we discuss..."

L622: I would always try to avoid split infinitives where it doesn't make the phrasing awkward. This could read: "...evidence to rule out any of these scenarios definitively."