Dear authors,

Thank you for your thorough response to reviews and revision of the manuscript. I find that you have addressed Reviewer 2's main concerns through the following statement '*Previous studies have primarily estimated supraglacial runoff through direct discharge observations or runoff models driven by meteorological data (Muthyala et al., 2022; Yang et al., 2019). Yang and Smith (2016) demonstrated that catchment area is a dominant control on runoff, with larger basins generally producing greater discharge. However, when catchments originate from high elevation mountain glaciers, steep and complex glacier surfaces may weaken the dominant relationship between catchment area and glacier runoff. The supraglacial channel morphology is more strongly influenced by local topography, which is one of the reasons we retained gradient as a variable. Building on established physical principles, we focus on supraglacial channel geometric parameters (e.g., sinuosity and lateral deviation) as predictors of glacier runoff, and establish quantitative relationship between supraglacial channel geometry and annual glacier runoff'* which highlights the novelty of your method, and the applicability to high mountain glaciers.

However, there are a few minor amendments that would improve understanding of your error calculations, and also enable readers to understand the future applicability of the method. Please find my suggestions below.

I look forward to reading the next version of the manuscript.

Dr Liz Bagshaw, Editor.

L93: 'According to our regular meteorological, hydrological, and mass balance observations (June to August) starting in 2002, the Qiyi Glacier has suffered from an obviously increasing ice-melting trend since 2016 (Chen et al., 2024)'.

Rephrase: 'we have undertaken regular meteorological, hydrological, and mass balance observations on Qiyi Glacier from June to August since 2002, which have demonstrated an increase in melt, particularly since 2016 (Chen et al. 2024).'

I have some concerns about your response to the reviewer on their query of mean and median. This may be a translation issue, but mathematically, mean and median are both averages. I would like assurance that your statement *'Reply: The term "mean" is used to denote the average value. We have replaced "averages" in the text (line 209 and 214).'* Is correct, and that you do report mean.

L317: 'of great importance' is a very subjective statement without evidence. Please rephrase to 'significant', 'useful' or something more circumspect.

L340: grammatical improvement: 'In regions without UAV data, deriving the channel gradient derived from lower resolution DEMs (e.g., 30 m GDEM, SRTM) requires careful evaluation'

L342: 'commercial optical satellite imagery at a centimeter resolution' – are there commercial satellites with a single centimetre resolution? Instead suggest 'at centimetre scale resolution'

L367: 'These results indicate that, although spatial extrapolation uncertainty isthe dominant error source, it does not affect our finding that channel geometry can be used to estimate glacier runoff.'

I find this statement a bit vague. Instead, could you give an idea of the practical change in discharge estimates with your maximum error? I know this is in the boxplots, but it would be useful to see an example value in the text.

L392 ‘However, the applicability of this approach is limited for some other glacier types. For example, on maritime glaciers with extensive crevasses and relatively stronger subglacial hydrological processes (e.g., in the southern Tibetan Plateau and the Greenland Ice Sheet), some supraglacial rivers often terminate in crevasses or moulins, which makes our regression model less suitable for estimating glacier runoff. Similarly, temperate glaciers, debris-covered glaciers, and glaciers with strong surface structures are likely too complex to be represented without substantial modifications to the model’

To me, this discounts quite a significant proportion of glaciers! Could you rephrase this paragraph to highlight the glaciers it can do, rather than those it can’t? For example: ‘this approach is very well suited to polythermal or cold-based glaciers with limited subglacial hydrological activity or surface structures. However, it is likely to struggle in regions with large crevasses or numbers of active moulins, such as….’

L414: ‘five-point moving filtering’ should there be a ‘mean’ or ‘average’ in this sentence?