

We are extremely grateful for the insightful comments made by the reviewer, which improve the quality of Manuscript. We were particularly encouraged by the reviewer comments, which compelled us to revise the optimal GCP number from 9 to 13 due to certain inconsistencies. The clear and concise questions made correction of the minor revisions highly efficient. Below we give a point-by-point response to each of the comments made by the reviewer.

Comments	Author comment	Changes
Consider changing the title - seems like it would make more sense to mention channel conveyance rather than hydraulic rating. Perhaps 'Evaluation of low-cost topographic surveys for computations of river conveyance'?	Noted	Corrected to the proposed title 'Evaluation of low-cost topographic surveys for computations of river conveyance.'
clarify what 'these' is referring to	Noted	Clarified to indicate these refers to 'open source software'
on hydraulics' should just be 'hydraulics'	Noted	Changed to just 'hydraulics'
measurement' should be 'measurements'	Noted	Changed to measurements
unclear what is meant by 'time validity of the measurement	The statement 'time validity' was indeed unclear. It was referring to changes which might affect the rating curve after due to factors such as flooding , siltation, bed degradation, channel rerouting etc.	An explanation has been added to line 54 which states that what is meant by time validity is the correctness of the rating curve after a period of time
I think 'measurements' should be 'calculations' – you are discussing doing a calculation (not measurement) of discharge her	Noted	Changed measurements to calculations
Here are more factors to consider' – for what?	The explanation was missing	Corrected to state that factors to consider are for conveyance measurements
I believe this is the first place 'GCP' is used in the paper. This should be defined/introduced earlier.	This was indeed the first mention of GCPs and should be mentioned before	We initiate the use of the term GCP in full in line 77
unnecessary apostrophe in 'points'	Noted	Corrected to 'points'
not clear what 'high-water bed' means	The term was indeed confusing	We correct the term to mention floodplain instead of high water wet
'know' should be 'known'	noted	Corrected to known
Confused about the comparison of Agisoft and ODM RMSEs – with 9 GCPs, the bootstrap box plot appears to indicate that ODM has significantly larger error than Agisoft – approximately twice the error, with non-overlapping box plots. Yet the authors make a point that the results are comparable. Am I missing something? Having 2x error seems like a significant downside to me.	We acknowledge the confusion that might come from the conclusions drawn from selecting 9 as the optimum GCP number. Our selection of this value was based on 3 questions. <ol style="list-style-type: none"> 1. Is there an improvement from the previous GCP RMSE values 2. Does increasing the GCP value to the next value improve on the RMSE value 3. How does the RMSE value fair in terms of absolute magnitude. In our situation we concluded that	The comment presented by the reviewers compels us to adjust the optimum GCP combination to 13. <p>13 GCPs satisfies most of the factors we had based our arguments on. With respect to the 2 factors proposed by the reviewer, (a) 13 GCPs has overlap in the box plot and the error. (b) With respect to having 2X the</p>

	<p>1. There was indeed an improvement from 5 to 9 GCPs with respect to RMSE.</p> <p>2. There was no improvement from 9 to 13 GCPs</p> <p>3. According to the box plot, the lowest value of RMSE was noted on 9GCPs</p> <p>The reviewer however makes two valid arguments 1, there is no overlap in the box plot and 2, the error of ODM is twice that of Agisoft</p>	<p>error we identify that ODM is able to limit the RMSE to less than 0.20 m. This is particularly useful because for the purposes of merging with the wet bathymetry <0.20m is sufficient since the accuracy of the wet bathymetry is generally not as accurate because of interpolation. Line 418</p>
<p>The results indicate a decrease in the RMSE as we increase the number of GCPs’ – in general yes, but the RMSE increases when going from 5 to 9 GCPs before going down. Given 9 GCPs is presented as the optimal number to use, this seems problematic.</p>	<p>In line with the previous comment on the boxplot, we adjust the optimal number to 13 GCPs so that there is consistency in the arguments presented.</p>	<p>In line 418 we justify the use of 13 GCPs as a correction from the previously mentioned 9 GCPs</p>
<p>In Figure 14, there appears to be a substantial topographic artifact/mismatch in the upper part of the study area where the wet and dry bathymetry are merged, with noticeably higher elevations in the ‘wet’ bathymetry relative to the adjacent ‘dry’ bathymetry. This isn’t addressed in the paper, but seems like it may be an important issue, especially if this were to be used for hydraulic modeling at some point.</p>	<p>The mismatch in elevations on the northern section is noted. It is increasingly evident that there is a need to affirm the importance of accurate wet bathymetric surveys if merging and subsequent accurate hydraulic modeling is to be achieved.</p>	<p>We propose to add this comment into the conclusion and recommendations section. The proposal is to either cut off the section which present significant mismatches in elevations or to increase wet bathymetry transects such that algorithms used to merge the two bathymetries (in this case Cloud Compare) have access to more transects which improve interpolation of the elevations. Line 544</p>
<p>this text on FCP was already presented in the introduction.</p>	<p>This text was indeed unnecessary repetition.</p>	<p>We removed it from the text.</p>
<p>it seems that the point of this slope analysis is to say that for these conditions the slope should not be estimated from the SfM data under any circumstances. Suggest saying something explicit like this when the data are presented.</p>	<p>This is noted</p>	<p>We add a statement affirming the inapplicability of SfM for slope derivation in line 509</p>
<p>relatively – relatively what?</p>	<p>Noted, an omission of the word ‘quickly’</p>	<p>The word has been added to line 517</p>
<p>seems that the conveyance is more impacted by the quality of the ‘wet’ bathymetry collected by the GNSS than the ‘dry’ SfM bathymetry. This point could be emphasized a bit more when discussing the results.</p>	<p>This is noted and is interestingly related to the previously mentioned comment on figure 14 were a mismatch in elevation could affect the quality of results for both conveyance and discharge modelling. We are however encouraged to note that our study moves towards accurate reconstruction of not only the dry bathymetry but the wet bathymetry as well.</p>	<p>We add a statement in line 540 to emphasises the importance of the wet bathymetry</p>