Review de Morgane Mignot

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1   Overall content

1. Is the overall purpose of the study and /or central question clear?

The overall purpose of the study is clearly stated in the abstract: "The present study is devoted to confirm the validity of this multi- bistatic and multi-frequency instrument". However the purpose of the study should also be clearly stated in the Introduction (I think), but it's not really.

2. Does the interpretation of the findings answer the overall question of the paper?

The interpretation of the findings answers the overall goal of the paper. Figures 3, 4 and 5 are very clear for that.

3. Is every paragraph and sentence in the paper relevant to the overall question?
4. Are there portions of the text that could be omitted?

To me all the paragraphs are relevant to the overall study. However, in "Methods" (paragraph 5), "concentrations" and "flux" are mentioned whereas the study is focused on velocities and shear stress. I wouldn't introduce these quantities which are not mentioned elsewhere in the paper.

5. Is the overall organization of the paper clear and effective?

Globally, the organization of the paper is clear. My only comment is about page 3: it is a bit confusing to have on the same page paragraph 10 which is cut into two parts that are next to each other. Then the figure. And then another paragraph (11) cut into two parts next to each other. In my opinion, the reading flow should start at the top and end at the bottom of the page for the left side, and same thing for the right side.

2   Individual sections

1. Does the title adequately represent the content of the paper?

In my opinion the title is related to the study, but it doesn't really represent the overall study. The title mentions "sediment flux profiling", but the study is more about verifying the relevance of the ACVP measurements compared to the mono-frequency tool. I would emphasize a bit more on this verification.

2. Does the abstract clearly and concisely summarize the paper and state the main results? Does is contain all needed information (context, need, task, object, findings and

conclusion)?

The abstract contains almost everything needed in my opinion. However I would add a more explicit context (I think the first sentence is more the "need" sentence). Also, the main results/findings are not stated. The last sentence of the abstract is about the object/purpose of the paper.

3. Does the introduction provide enough context to the readers? Does it state the need for the work? Does it state clearly what has been done to address it?

The introduction is short but it provides all the required information in my opinion: context, need for the work, and what has been done. But the last sentence ("It allows coherent observations for hydroacoustic intensity, normal velocity and, Reynolds shear stress profiles.") states the results, and I'm not sure it should be in this part. I would put this last sentence at the end of the abstract.

4. Does this paper put the progress it reports in the context of existing published work? Is there adequate referencing and introductory discussion?

I think we have adequate referencing about the tool used in the study (beginning of the "Method" part). However we don't really know why the validity of the ACVP has to be confirmed. It would have appreciated a sentence explaining that.

5. Are the material and methods used in the study clearly explained? Can you point out what is special, unexpected, or different in the approach compared to existing published work? Does it contain too many technical details?

The "Method" part clearly explains the materials used in the study. There is no "unexpected" or "different approach" since the paper is about confirming the validity of a tool. And I don't think there are too many technical details. This part is really good to me (except my comment in questions 3/4 of the "Overall content").

6. Is the results sections(s) clearly and concisely written? Are there logical and smooth transitions between sections, subsections and between paragraphs?

The results section is clearly and concisely written. Each paragraph has a different topic, and all the figures are mentioned and useful to the overall understanding.

7. Does the conclusion clearly state the most important outcome of the work? Does it address the questions stated in the Introduction? Does the conclusion just summarize the results or does it interpret the findings and explain what they mean?

The conclusion clearly states the most important outcome of the work and answers the overall question of the paper: "The obtained mono and multi-frequency measurements are coherent for the frequency range [500 kHz - 1 MHz]." There is no interpretation of the results but I don't think we need one because the validation is confirmed. Furthermore there are some perspectives for the future that give some relevance to the work done in the paper.

8. Are the interpretations and conclusions adequately supported by the evidence presented? That is, are the assumptions valid, is the methodology sound, is the evidence adequate, and do the conclusions logically follow?

Yes, everything sounds scientifically correct to me.

9. Are all parts of the text, references, graphics and tables necessary for the new results and main points to be understood?

Yes, everything was necessary for my own understanding of the paper.

10. Are the graphics and tables clear and their captions self-explanatory?

Yes, all the captions are clear and self-explanatory.

3 Sentences and wordings

1. Can you find grammatical mistakes?

Yes there are a few grammatical mistakes in this paper. For example:
- "flume exposed to **under** well-known sheet flow conditions". It's either "exposed to", either "under", but not both.
- "The ACVP is a multi-bistatic instrument which **combined**". I would put "combines" instead.
- "The emitter sends one acoustic pulse **to propagate** in the vertical direction." I would put "that propagates" instead.
- "Depending **of**" instead of "depending on".
- "...and a Reynolds number approximately **equals** to" instead of "equal".
- "**adjusting**" instead of "adjusted"
- I guess it's "advices" instead of "advice" in the "Acknowledgments" section.
There might have other ones, my correction is not exhaustive.

2. Can you point to sentences that loose you (too long/complex) and do you have suggestions for improvement?

- "Sediment measurements are currently doing one by one frequency." I'm not sure about what that sentence means, but maybe "Sediment measurements are done with mono-frequency measures." would work.
- "The walls friction of the flume is negligible regarding to the bed one." I propose: "The flume walls friction is negligible when compared to the flume bed friction."
- "The equation (1) from Von Karman constant is checked." I would use "verified" instead of "checked".

3. Are generally the action in verbs, characters in subjects and subjects near verbs? Can you find counter-examples? Can you point out misused nominalizations?

Generally the sentences are short and effective. However I have a few examples of nominalizations:
- "It allows coherent observations for hydroacoustic intensity, normal velocity and, Reynolds shear stress profiles." I would write: "We observed coherent..."
- "The experimental part was followed by an adaptation of computer programs to process raw data, analyse and, interpret hydroacoustic intensities, normal velocities and Reynolds shear stress along the water column." I would write: "After the experimental part, we adapted computer programs..."
- "Characterisation of its performances and comparison between mono and multi-frequency instruments were made in the same flow conditions." I would write: "We characterized and compared..."

4. Is the writing cohesive? Does it flow well? Is the part of the sentence that links to the previous sentence at the beginning or the end?

5. Are the paragraphs coherent? Do the first and last sentences of paragraphs match? Can you find counter-examples?

Usually the writing is cohesive and flows well. I just have one comment about paragraph 6: "Theoretically, transducers could emit at the frequencies included in the range [500 kHz – 2.5 MHz] with a central frequency equals to 1 MHz. The experiment is governed by a free surface flume (Figure 2) with a 5‰slope and a uniform rugosity on the bed." To me, these two sentences have no logical link: they should be in two different paragraphs.
And even if the first and last sentences of paragraphs do not always match (for instance paragraphs 3 or 7), it doesn't affect the understanding of the paragraphs at all.

6. Is there an abusive use of passive voice?

There are a few examples of misused passive voice:
- "is studied" paragraph 3
- "are made" paragraph 3
- "is checked" paragraph 10
- "were drawn" paragraph 12

7. Can you find a lot of useless words/phrases?

I can find a few, like "much" in "too much empirical" paragraph 3. Or "In a time of climate change", I would write "With climate change". But I couldn't find a lot.

8. Can you find complex words that could be replaced by simpler ones?

We could replace "fluctuations" by "anomalies". But besides that I didn't find anything.

9. Can you find too complex subjects?

Not really, except the very first one ("Advances in flow-controlled sediment transport physics and modelling") that lost me a bit.

10. Can you find inadequately used adverbs/ repetition/ excessive hedging?

I noticed the excessive use of "could" instead of "can" (in "On the one hand, the signal could be saturated" for instance). Sometimes also we can simply remove it : "Theoretically, transducers could emit at the frequencies included..."
I also noticed the use of "permit" which is often repeated, and not always useful.

11. Is the use of tenses (past/present/future) adequate?

Most of the time it is. However I found some examples of misused tenses:
- "Combined" instead of "combines" in paragraph 2
- "permit to deduce" in paragraph 10. We should have a passed tense here, such as: "We deduced"
- "find" instead of "found" in paragraph 10
- "deduce" instead of "deduced" in paragraph 12
There might have other examples, my correction is not exhaustive.