In this file, there are responses to the Associate Editor.

We thank the Associate Editor for constructive suggestions.

To better observe communicating our response, we divided our responses into three categories: Agree/Clarification/Disagree.

Responses to the Associate Editor

1.

Suggestion, Question, or Comment from the Associate Editor	**Author's Response**	**Change in the Manuscript**
1. In point one of the revision you state very clearly the differences between Michalak et al. (2021) and this new paper, but do not change any text. I think given the concern of the reviewer it would be sufficient to add your described differences to the Introduction: Line 44: "This paper builds on this work by providing formal mathematical reasoning that a combinatorial algorithm can reduce epistemic uncertainty in sparse environments. Specifically, here we introduce and analyze the effect of elevation uncertainty on the statistical behavior of the method and present formal analysis of two scenarios:" Line 48: "Following the formal analysis, the work further extends from Michalak et al. (2021) by discussing its relevance to real-world geoscientific datasets. Here, we demonstrate the consequences of these theoretical results in the analysis of 2D and 3D (Fig. 2) directional data derived from topographic grids, which typically consist of points with approximate elevations—commonly observed in bathymetric datasets (Gridded Bathymetry Data, 2024)."	**Agree**	Done.

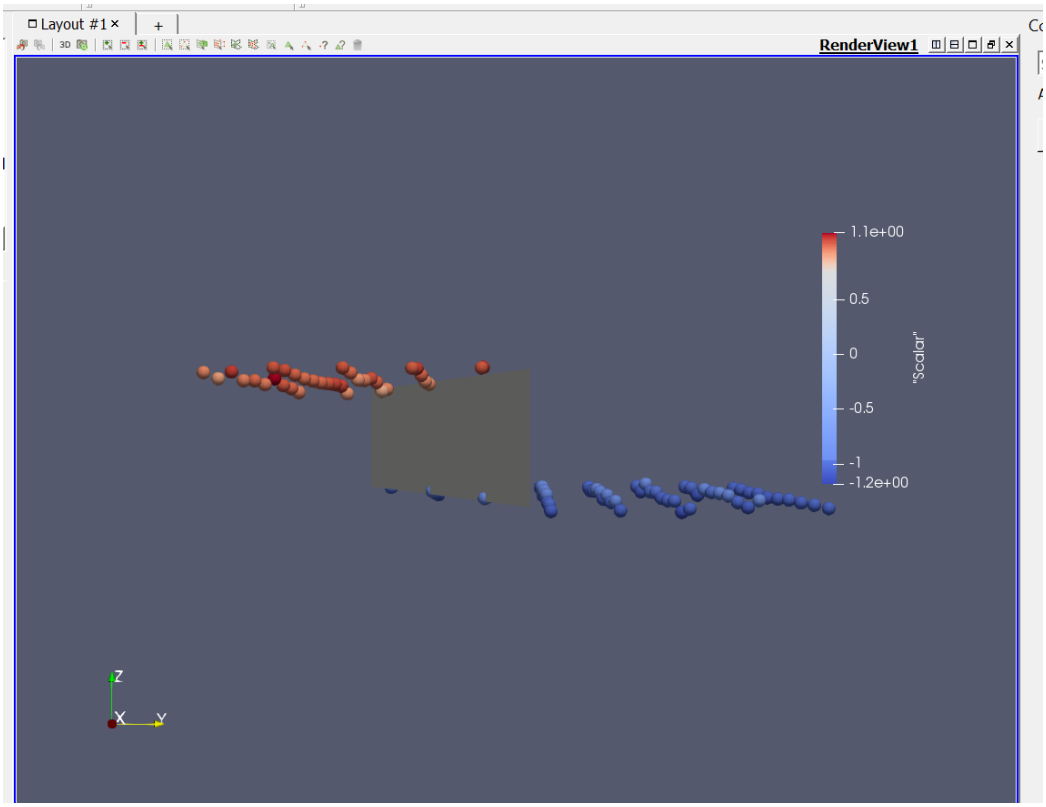
2.

Suggestion, Question, or Comment from the Associate Editor	**Author's Response**	**Change in the Manuscript**
On my point of Figure 6 - I would like to see what the figure looks like without editing the colormap to highlight what you want to show. By having the colourmaps so very different, it is not possible to compare the two panels (which is what you want to do) as they are presented with different colours. Could you please show the data for Fig 6b using the same colourmap. If that image looks exactly the same as Fig 6a, you could produce a figure of % error instead of elevation for panel b? I am happy to hear your thoughts on this.	**Clarification** Yes, it is possible to show the data for Fig. 6b using the same color scale. We have attached two ParaView screenshots below (one with the default color scale and one with an adjusted scale) for comparison. Please note that we applied a side view here (whereas the manuscript uses a top view) to better illustrate the issue. These screenshots show that the data do not have identical elevation. However, the default color scale (b) does not effectively reveal these differences, whereas the adjusted scale makes them more apparent. This distinction is even more critical in the top view, where elevation differences cannot be detected based on point position alone. Therefore, an appropriately adjusted color palette is essential in the top view. We are not ParaView experts, so there may be better ways to differentiate elevation visually, but to the best of our knowledge, this is the most effective approach available. We prefer to present elevation values rather than "% error" because the manuscript occasionally refers to "identical elevation," and keeping the figure in terms of elevation ensures conceptual consistency.	We have added a clarification to the caption: „Due to the subtle elevation differences, a top view was chosen to better illustrate the spatial layout of the points in map view; in such a projection, elevation variations are not visually evident, hence a carefully adjusted color scale (b) is crucial for interpretation."

Data with elevation uncertainties (Fig 6b, side view – „scalar" denotes elevation):

a) **with adjusted color scale**
b) **without adjusted color scale**

a)



b)