Response to comments by Dr. X. Song

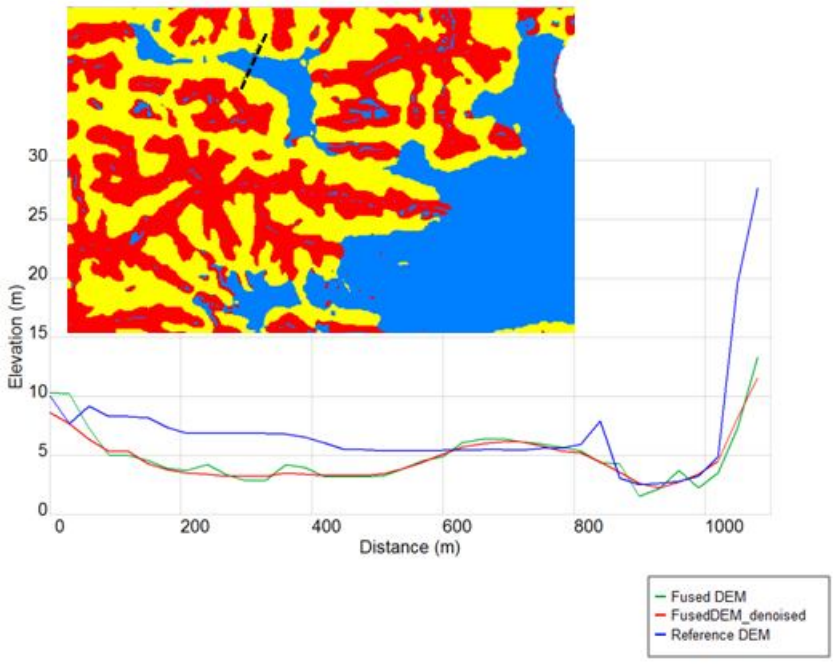
Item wise responses to comments by Dr. X. Song are given below. We have also incorporated necessary corrections and additional explanations in the manuscript to address the comments made.

1. Along a transition zone between two neighbor landform areas, I wonder whether a boundary line or 'terrace' might be presented in the output DEM. In my understanding, the landform map used to guide the fusion is a 'thematic' map not a 'continuous' map.

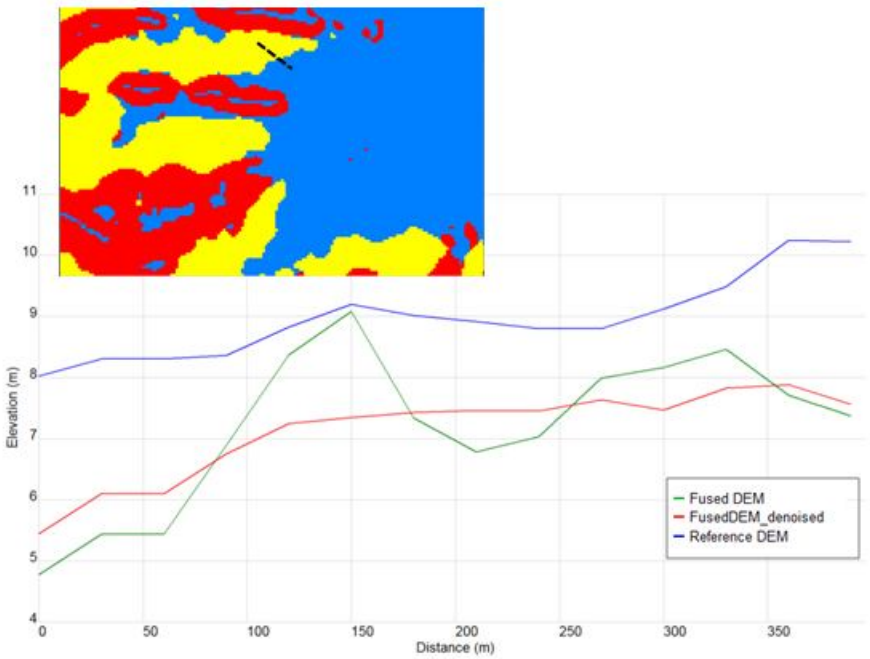
Yes, sometimes mismatching does exist in few transition zones between the landform areas, due to different weights applied. Such mismatch is minimized by smoothing the final DEM output as shown in Figure 1 below. We agree fully that landform map is "thematic" and does not represent a 'contiguous' surface and the DEM fusion algorithm presented in this manuscript effectively uses the landform map to produce better quality DEM.

2. Did the noise-removing tool enable to reduce the impact of it on the resultant DEM? or such an impact is not serious at all.

Yes, the noise filtering enabled to reduce mismatch in transition zones as explained above. In the revised version of paper, Figure 16 shows the slope, profile curvature and tangential curvature maps of fused DEM. In these DEM derivative parameters, no major anomaly or terrace artifacts can be seen in the transition zones between landform classes.



(a) Matched surface in the transition zone



(b) Mismatched surface in transition zone

Figure 1: Profiles of fused DEM and fused DEM after denoising compare to Reference DEM