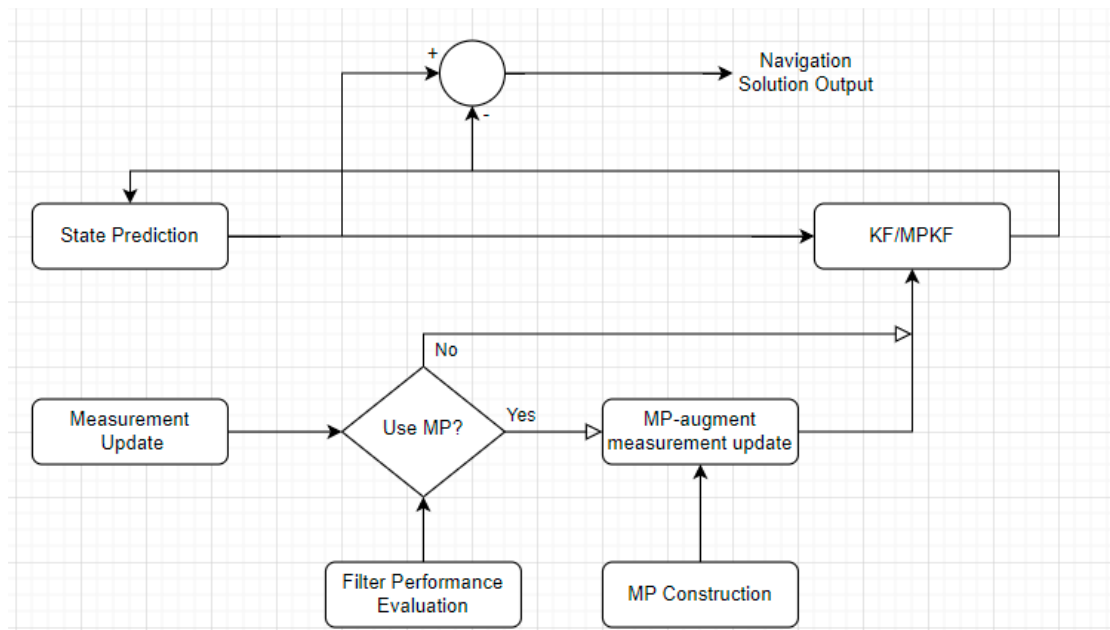


Response to Reviewer 2 (round 2)

Dear reviewer:

Thank you **again** for the second letter and the comments concerning our manuscript entitled “A Multi-step Pseudo-measurement Adaptive Kalman Filter based on Filtering Performance Evaluation and Its Application in INS/GNSS Navigation System”. Those comments are valuable and very helpful for revising and improving our paper. We have studied the comments carefully and have made corrections which we hope meet with approval. The main corrections in the paper and the responses to the comments are as follows:

1. Thanks to the authors for trying to modify Figure 1 as requested. However, the flow is still not clear. Please consider adopting the suggested blocks below, noting the following:
 - a) I didn't plot all the blocks but only those needing revision.
 - b) Please continue to adopt your coloring convention.
 - c) Based on the implemented algorithm, the input signs on the summation block can be changed to both positive signs.



Respond to 1: Thank you sincerely for taking the time to draw the diagram. The new version of Figure 1 is as follows.

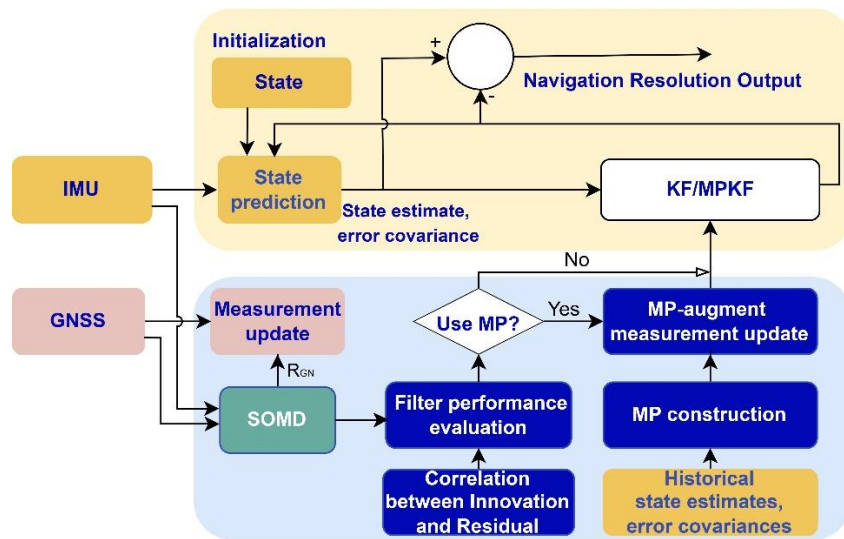


Figure 1. Diagram of the proposed MPKF.

2. Please add the equation for H_k^p in the paper.

Respond to 2: H_k^p is added to the revised version. Details are the same as response 7 in the first round. Thanks!

3. For the part added by the authors to address my comment on the R_0 value, please update this part to read, “Meanwhile, for TC integration applications, sufficient attention should be given when using the standard deviation values from the GNSS receiver for R_0 because they are provided in the position domain, not the measurement domain.”

Respond to 3: Updated, Thanks!

4. For the experimental part:

a) I asked for GNSS-alone errors, which are now shown in Figures 4 and 5. Adding the GNSS trajectory as well is a good idea. However, there is no need for Figure 3. Please add the GNSS trajectory to the trajectory plot of Figure 2, and you can zoom into the two blocks to show the difference between the three solutions.

Respond to 4a: Figure 3 is deleted as suggested. Thanks!

b) Please update the captions of Figures 4 and 5. For example, in Figure 4, “The positioning errors of the GNSS-alone (GNSS receiver) solution between 80s-120s (foliage area)”.

Respond to 4b: The captions of the two figures are updated. Thanks.

c) Figure 6 is a good indication of how MP is triggered. Please plot the colored background first so that the line curves are in the foreground and their colors are not affected.

Respond to 4c: . Figure 6 is plotted again. Thanks.

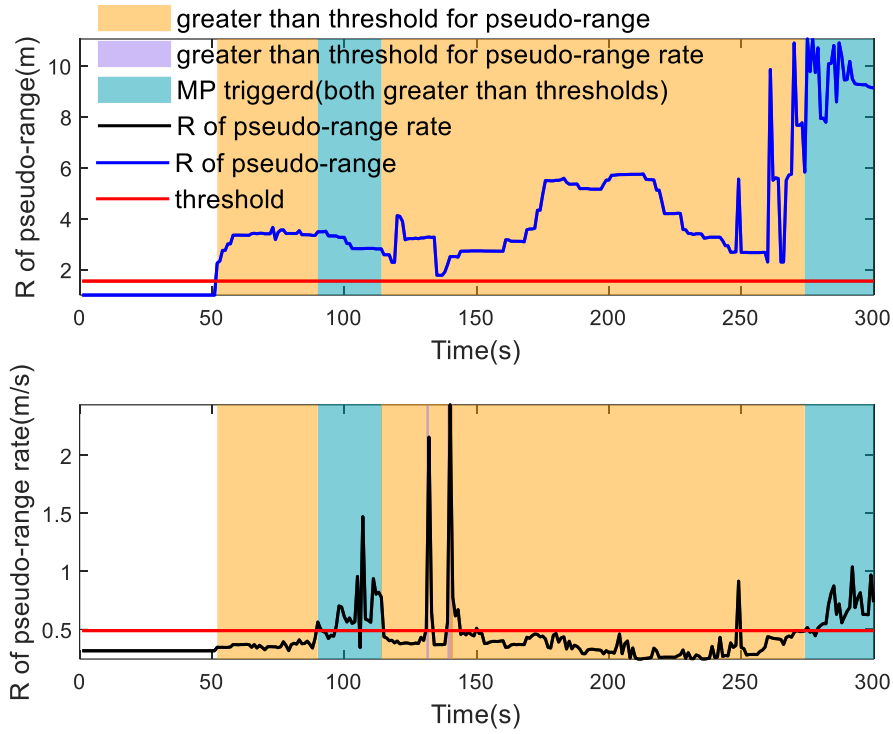


Figure 2. The flags triggered by the $\mathbf{R}_{GN}$ for launching the multi-step pseudo-measurement procedure.

5. For the table captions, please add the IMU model for gyros and the receiver model for GNSS, e.g., for Table 1, “Performance parameters of IMU-ISA-100c gyroscopes”.

Respond to 5: Revised, Thanks!

6. The quality of the figures from 7 to 14 is still not good. I don’t mean technical quality, but the image and resolution quality.

Respond to 6: Figures from 7 to 14 are plotted again. “dpi” is changed from 300 to 1000. The size of the image has also been adjusted to present a better resolution. Thanks!