

Interactive comment on “Channel selection method for hyperspectral atmospheric infrared sounder using AIRS data based on layering” by Shujie Chang et al.

Shujie Chang et al.

changshujiebeauty@163.com

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Interactive comment on “Channel selection method for hyperspectral atmospheric infrared sounder using AIRS data based on layering” by Shujie Chang et al. Dear Deming Kong, We thank you for your detailed remarks. We would like to improve the article here in an immediate reply. Please, find our answers/comments on your notes below:

If the section 2.3 is for methodology, then please add the name to the title of section 2; if not, then move it to the suitable position. Yes, you are right. This has been added. “2 Channel selection indicator, scheme and method” (L 173) 414-416: There are a few with extremely large measurement errors, which reduce the accuracy of prediction to

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some extent. -> Among them, some extremely large measurement errors reduce the accuracy of prediction to some extent. Yes, we agree with you. “There are a few with extremely large measurement errors, which reduce the accuracy of prediction to some extent.” has been modified to “Among them, some extremely large measurement errors reduce” (L 415-L 417) 509-513: Therefore, when we select channels, the results differ because of the different observation angles. But due to the selection principle and method are exactly the same and our key is the selection method; we do not discuss, therefore, the variation in observation angle when making a selection. -> The goal of this section is focusing on the selection methods of selecting channels; therefore the biases produced from different observation angles can be ignored. Yes, we agree with you. “Therefore, when we select channels, the results differ because of the different observation angles. But due to the selection principle and method are exactly the same and our key is the selection method; we do not discuss, therefore, the variation in observation angle when making a selection.” has been modified to “The goal of this section is focusing on the selection methods of selecting channels; therefore the biases produced from different observation angles can be ignored.” (L 502-L 504) 579: reaching -> and reach to Yes, you are right. “reaching” has been modified to “and reach to” (L 570). 689-692: “Second, by comparing the results of ICS and NCS we found that below 100 hPa, since the method used in this paper considers near ground to be less of an influencing factor, the channel combination of ICS is slightly inferior to that of NCS, but the difference is small.” This sentence is rather awkward, please rewrite. Sorry about this. We think this sentence can express what we want to show the readers, it is not be rewritten. 742-743: the atmospheric profile is from the IFS-137 database introduced in Sect. 4, and divides it into four regions -> this paper divided the atmospheric profile from the IFS-137 database introduced in Sect. 4 into four regions Yes, you are right. “the atmospheric profile is from the IFS-137 database introduced in Sect. 4, and divides it into four regions” has been modified to “this paper divided the atmospheric profile from the IFS-137 database introduced in Sect. 4 into four regions” (L 730-L 731). 744-745: These regions’ profiles -> The profiles of these regions Yes,

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you are right. "These regions' profiles" has been modified to "The profiles of these regions" (L 732-L 733). 798-799: As can be seen from Fig. 13, the temperature standard deviations of the ICS in the four typical regions are large. -> The temperature standard deviations of the ICS in the four typical regions are large (Fig. 13). Yes, you are right. "As can be seen from Fig. 13, the temperature standard deviations of the ICS in the four typical regions are large." has been added to "The temperature standard deviations of the ICS in the four typical regions are large (Fig. 13)." (L 789-L 790).

Thanks again for your careful remark. Many thanks for your work so far and best regards, Shujie Chang and Co-authors. Please also note the supplement to this comment.

Please also note the supplement to this comment:

<https://www.atmos-meas-tech-discuss.net/amt-2019-183/amt-2019-183-AC2-supplement.pdf>

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-183, 2019.