

Interactive comment on “A microwave satellite water vapour column retrieval for polar winter conditions” by C. Perro et al.

Anonymous Referee #1

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This article describes an updated retrieval method to obtain water vapour columns in polar regions from the MHS and AMSU-B instruments. The improvements to current methods are described and the new method tested against synthetic and real data. The new method involves using a-priori information and iterating a radiative transfer model to optimise the optical depth profile by scaling the water vapour profile. The results are interesting and probably should be published I do however have some concerns.

My major question is why they do not just do a formal retrieval using an optimal estimation or other method. Secondly, no indication of the relative computational burdens for the methods compared was given. I assume that this is important when processing images and presumably the reason that such parameterise methods have been developed. A third concern is that really only the case3 results and the comparisons to real

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data are a good test of the method. Since the same RT code is used to make the data as is then used in the analysis in case 1 no real conclusion can be drawn. In case 2 only random noise but no systematic effects have been applied so again the cards are weighted.

Otherwise the paper is well written the figures are clear and instructive.

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 9959, 2015.

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