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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Ground-based water vapour soundings by microwave radiometry and Raman lidar on Jungfraujoch (Swiss Alps)" *by* D. Gerber et al.

Anonymous Referee #1

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This paper is a quite interesting tentative to obtain a complete vertical profile of the atmospheric water vapour distribution by using measurements obtained by two ground-based instruments such as a Raman lidar and a microwave radiometer located at the same place, e.g. the ISS Jungfraujoch. Therefore, each instrumentation has its own limits, i.e. the Raman lidar profile stops at about 6 km while the microwave radiometer profile starts at 20 km and upReferee. In order to get some information about the water distribution between 6 and 20 km, the authors present a methodology by adapting an a priori profile to match the tropospheric water vapour content measured by lidar and then they use the a priori information to retrieve the microwave profile. This idea is quite interesting and could be developed in other cases.

Therefore the paper suffers in clarity due to a laborious writing. By improving the English writing, the paper should be more concise and clearer (essentially about the used methodology). Some remarks about figures: Figure 1: The caption to Figure 1 does not indicate the used symbols as given in caption to Figure 2. Figure 4: It is suggested to indicate on the plot itself the instrumentation used for the different profiles, as the caption to figure is not so clear. Thus the reader would have a clear and immediate idea of the various profiles. Figure 5: It is suggested to use different line symbols for the final combined profile: Raman lidar, adapted a priori profile and retrieved microwave profile.

Typographic errors. They are very numerous essentially in parts 2 and 3: Lack of coherence to writing: backscatter. Present should be used for the verbs in 2.2 and not past. Some indexes for chemical species are missing. Dependent or dependant? Astronomic? Plural is missing in several cases. Curious way of writing H2O in part 4? ŞaŤ instead of ŞanŤ in several cases ISSJ not defined in the introduction

In conclusion, this interesting work has to be published but the English writing and typing mistakes should be corrected in order to clarify the comprehension of the methodology and results for future readers.

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Interactive Comment