

Interactive comment on “Combining ground-based microwave radiometer and the AROME convective scale model through 1DVAR retrievals in complex terrain: an Alpine Valley case study” by Pauline Martinet et al.

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As I am still interested in ground-based MWR (also in complex terrain) I followed the discussion and just wanted to add a few comments:

During the COPS campaign we deployed a scanning HATPRO in the Murg valley (Black Forrest, Germany). This valley is of course not as deep as the Alpine valley in this study but still shows quite complex terrain and is quite narrow and we had to carefully deal with effects of the mountain slopes. We used these observations

C1

to derive the variability of water vapor in the valley. The results of this work can be found in Kneifel et al., IEEE Geosci. Remote Sens. Lett., 6(1), 157-161, 2009 (<http://ieeexplore.ieee.org/document/4717300/?reload=true>) which might be worth to be added to the discussion.

The authors also mention for the work in Kneifel et al., 2010 that "the radiometer is deployed at the mountain top above the crest". This is not completely correct since the measurements were taken at the Environmental Research station Schneefernerhaus which is 300m below the mountain top. As one can see at the images on www.schneefernerhaus.de the mountain slopes are on one side very close to the instruments (less than appr. 30m away!). The authors are right that we didn't investigate the temperature profiles but both, the HATPRO and the dual polarization radiometer (DPR, 90+150 GHz) do regular elevation scans to one side down to low elevation angles where they could potentially hit the mountain crests at the other side. These elevation scans were explicitly used in several studies (e.g. Xie et al., JGR, 2012 to infer the orientation behaviour of snowflakes (<http://onlinelibrary.wiley.com/doi/10.1029/2011JD016369/abstract;jsessionid=E5B64C021E1>)). Considering the discussion of performing elevation scans in complex terrain (either for T-profile or scattering signatures of snowfall) the authors may consider also to include these references in their discussion.

Kind regards, Stefan Kneifel, University of Cologne

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C2