



Network 1DVAR temperature and humidity profile retrievals from ground-based microwave radiometers in Europe

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Nowadays, ground-based microwave radiometers (MWR) are robust instruments providing continuous unattended operations and real time atmospheric observations under nearly all-weather conditions.

However, the use of MWR data for assimilation into Numerical Weather Prediction (NWP) models is still hampered by the lack of appropriate tools.

In the framework of the COST action TOPROF, such tools are being developed.

This contribution will present:

- 1) the ground-based version of the fast radiative transfer RTTOV, called RTTOV-gb, developed to assimilate ground-based MWR observations into NWP models;
- 2) the one-dimensional variational (1DVAR) software, adapted from the one developed by the NWP Satellite Application Facility (SAF) to retrieve temperature and humidity profiles from ground-based MWR observations;
- 3) the Network 1DVAR (Net1D) software developed to perform 1DVAR retrievals over a prototype network of ground-based MWR.

The above tools are used to perform an Observations minus Background (O-B) analysis and to test the retrieval performances on a dataset including six sites in Europe and spanning over 1 year.