



## **Cross-validation of two liquid water path retrieval algorithms applied to ground-based microwave radiation measurements by RPG-HATPRO instrument**

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A built-in operational regression algorithm (REA) of liquid water path (LWP) retrieval supplied by the manufacturer of the RPG-HATPRO microwave radiometer has been compared to a so-called physical algorithm (PHA) based on the inversion of the radiative transfer equation. The comparison has been performed for different scenarios of microwave observations by the RPG-HATPRO instrument that has been operating at St.Petersburg University since June 2012. The data for the scenarios have been collected within the time period December 2012 – December 2014. The estimations of bias and random error for both REA and PHA have been obtained. Special attention has been paid to the analysis of the quality of the LWP retrievals during and after rain events that have been detected by the built-in rain sensor. The estimation has been done of the time period after a rain event when the retrieval quality has to be considered as insufficient.