UNIVERSITY OF HOHENHEIM
INSTITUTE OF PHYSICS AND METEOROLOGY
The Chair of Physics and Meteorology

PhD Position (f/m/d, 50% TV L E13)

for three years

available at the Institute of Physics and Meteorology (IPM)
University of Hohenheim, Stuttgart, Germany

We seek for a PhD student to develop an advanced CO_2 remote sensing system based on the Raman lidar technique. Furthermore, your task will be to assimilate CO_2 and thermodynamic profiles in earth system models.

The instrument to be developed is based on the unique Atmospheric Raman Temperature and Humidity Sounder (ARTHUS, Lange et al. 2019). Your work will include the incorporation of the CO_2 receiver channel, the optimization of its efficiency, and the performance of measurements with the characterization of their accuracy.

Data collected during various field campaigns will be assimilated in our new hybrid ETKF-3DVAR data assimilation system (Thundathil et al. 2021) in order to specify the impact of ARTHUS data on the skill of short-range weather forecasts.

We look forward to candidates with an M.Sc. degree in mathematics, physics, or geosciences. Good written and oral English language skills are expected while knowledge of German language would be an advantage. Demonstrated knowledge in lidar systems as well as fundamental understanding of the principles of data assimilation are very beneficial.

We are offering a PhD position in an international research environment on a topic of cutting edge research in earth system sciences both with regards to observations and models. If this is attractive for you, we are looking forward to your application.

The University of Hohenheim seeks to increase the proportion of women in research and teaching and strongly encourages qualified female scientists to apply. With equal qualifications, preference will be given to candidates with disabilities. Full-time positions can be split if there are no urgent business reasons that speak against it. Please send your application until October 15, 2022 to:

Prof. Dr. Volker Wulfmeyer
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Selected references:

Lange, D., A. Behrendt, and V. Wulfmeyer, 2019: Compact Operational Tropospheric Water Vapor and Temperature Raman Lidar with Turbulence Resolution. Geophys. Res. Lett. 46, 14,844-14,853, DOI:10.1029/2019GL085774.

Thundathil, R., T. Schwitalla, A. Behrendt, and V. Wulfmeyer, 2021: Impact of assimilating lidar water vapour and temperature profiles with a hybrid ensemble transform Kalman filter: Three-dimensional variational analysis on the convection-permitting scale. Q. J. Roy. Mete-or. Soc. 147, 4163–4185, DOI:10.1002/qj.4173.