

VN 24/31 Research Fellowship at DWD

The research fellow will join the satellite team in the Observation Modelling and Verification Section in the Numerical Weather Prediction (NWP) department at the German Weather Service (DWD). She or he will work alongside DWD scientists responsible for the use of satellite data within the operational NWP systems, taking active part in the research and development aspects for both the global and high-resolution variational and ensemble-based data assimilation systems. Additionally, the fellow will interact with relevant experts from the data assimilation and model physics sections and be in contact to EUMETSAT within the context of the EUMETSAT fellowship programme.

The work will focus on a systematic investigation of the influence of inhomogeneities of model fields within a satellite footprint which are currently mostly neglected in the forward calculation setups of operational data assimilation systems. The analysis aims at the development of a method to account for this situation dependent part of the representativeness error using machine learning approaches.

The analysis will be based on radiative transfer simulations for a selection of typical satellite frequencies and footprint geometries of current and future satellite instruments in the visible, infrared and microwave ranges.

Duties

- Setup and extension of a radiative transfer computations framework using existing radiative transfer software (RTTOV, Radsim) and NWP model fields from DWD operational and experimental setups in order to allow the evaluation of the influence of inhomogeneities within the satellite footprints;
- Generation of data sets
- Statistical evaluation of the effects of scene inhomogeneity, as characterized by model parameters, on the radiances;
- Identification of the most relevant parameters for the development of an AI-based parameterization aimed at the use within a data assimilation system;
- Presentation and publication of results (meetings, conferences,



LOCATION

Offenbach am Main,
Germany



QUALIFICATIONS

University degree in
Meteorology,
Physics, Remote
Sensing or
Mathematics, and
relevant research
experience
preferably at PhD
level.



LANGUAGES

Candidates must be
able to work
effectively in
English, both
verbally and written.
A good working
knowledge of the
German language
(spoken and
written) is an
advantage.



DEADLINE

22 September 2024

of simulated radiances (journals).
and related model
parameters for a variety
of situations, typical
frequencies (visible,
infrared and microwave),
satellite footprints sizes,
and model resolutions;

Skills and Experience

- Applicants should have a University degree in Meteorology, Physics, Remote Sensing or Mathematics, and relevant research experience preferably at PhD level;
- Knowledge in one or more of the following areas would be a clear advantage: radiative transfer modelling, numerics and statistics, data assimilation, numerical weather forecasting;
- Experience in working with large amounts of data, the quantitative processing and analysis of observations from meteorological satellites and in applying AI methods is desirable;
- Good knowledge of scientific programming (Fortran, C/C++, Python) on Unix/Linux based systems are mandatory;
- Strong interpersonal and team working skills are required, along with strengths in analysis, synthesis and presentation, as well as a high level of commitment and interest in continuing education/training;
- Candidates must be able to work effectively in English, both verbally and written. A good working knowledge of the German language (spoken and written) is an advantage;
- An objective of the EUMETSAT research Fellowship Scheme is to contribute to the education of graduates and thereby to the development of further competence within its Member and Co-operating states.

Employment Conditions

The fellowship is offered for a fixed period of 26 months.

The amount of remuneration will be in accordance with DWD's scale, corresponding to the TVöD Bund, level E14. As of 2024, the minimum salary in this scheme is € 5003,84 per month (gross), the actual amount depending on background and qualifications of the candidate.

EUMETSAT is committed to providing an equal opportunities work environment for men and women.

Please note that only nationals of EUMETSAT Member States may apply. The EUMETSAT Convention requires that Staff shall be recruited on the basis of their qualifications, account being taken of the international character of EUMETSAT.

About EUMETSAT

EUMETSAT is Europe's meteorological satellite agency. Its role is to establish and operate

meteorological satellites to monitor the weather and climate from space - 24 hours a day, 365 days a year. This information is supplied to the National Meteorological Services of the organisation's Member States in Europe, as well as other users worldwide.

EUMETSAT also operates several Copernicus missions on behalf of the European Union and provide data services to the Copernicus marine and atmospheric services and their users.

As an intergovernmental European Organisation, EUMETSAT has 30 Member States (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, The Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.)

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