

VACANCY NOTICE

Research Fellowship

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. EUMETSAT is the prime source of satellite observations, data, products and services to the National Meteorological Services of the organisation's Member and Cooperating states, and for the European meteorological and climate community at large. EUMETSAT delivers to users worldwide and is a major contributor to the World Meteorological Organisation (WMO) programmes.

As an intergovernmental European Organisation, EUMETSAT has 29 Member States (Austria, Belgium, 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, United Kingdom) and 2 Cooperating States (Bulgaria, Serbia).

EUMETSAT is now inviting applications from suitably qualified scientists from its Member States and Cooperating States for a Research Fellowship.

POST: Research Fellowship (Investigating the Assimilation of Geostationary Water Vapour Radiance Data to extract Wind Information with an Ensemble Kalman Filter)

LOCATION: Deutscher Wetterdienst (DWD),
Frankfurter Str. 135
63067 Offenbach
Germany

DURATION: The fellowship is offered for one year, with the possibility of extension for up to two additional years.

AREA OF

RESEARCH: The Research Fellow will join the Data Assimilation Group in the Numerical Weather Prediction (NWP) Department at the German Weather Service (DWD). He/she will work alongside DWD scientists, taking an active part in the research and development of the new ensemble-based data assimilation system to be employed for the global and regional high resolution forecasts.

The work will focus on the assimilation of water vapour radiance information from geostationary satellites. The main aim is to evaluate the ability of the ensemble data assimilation to extract wind information from the movement of water vapour structures observed in time sequences of geostationary satellite observations. Whilst the main work will be done in the context of the global data assimilation system, using a combined variational and ensemble-based approach (VarEnKF), results and experiments may be extended to the high-resolution ensemble-based assimilation system (LETKF in KENDA) towards the end of the position period.

The work will involve the following topics:

- Technical adaptations in the EnKF system for processing the METEOSAT/SEVIRI water vapour clear-sky radiances provided by EUMETSAT followed by data monitoring and consistency check of results with corresponding data from HIRS and IASI;
- Setup of an idealised experiment: Use of synthetic humidity ‘data’ and water vapour radiances computed from a ‘nature’ model run for assimilation into the EnKF. Evaluation of the filter’s ability to extract wind information from the displacement of humidity structures and tuning of relevant parameters;
- Assimilation experiments with real data, including the use of only clear-sky water vapour radiances (CSR) and, for comparison, of available atmospheric motion vectors (AMVs), as well as the use of both data types together with conventional and other satellite radiances;
- At all assimilation stages, evaluation of humidity and wind increments, cross-correlations, ensemble spread and tuning of relevant EnKF parameters such as localization length scale, variance inflation and model error representation, assimilation time window (e.g. 3 versus 6 hours) as well as bias corrections.

QUALIFICATIONS: Applicants should have a University degree in Meteorology, Physics or Mathematics, relevant research experience equivalent to PhD level, and a good general knowledge of numerical methods and quantitative data processing. Sound programming skills in Fortran and/or C on Unix/Linux systems are mandatory.

Experience in one or more of the following areas would be a clear advantage: data assimilation, quantitative processing and analysis of observations from meteorological satellites, operational numerical weather forecasting, applied mathematics, working with large amounts of data, radiative transfer modelling.

Strong interpersonal and team working skills are required, along with strengths in analysis, synthesis and presentation.

A good working knowledge of the English language is required and command of the German language is an advantage.

REMUNERATION: The remuneration will depend on qualifications and experience according to DWD's salary scale. In addition, approved travel costs are reimbursed.

CLOSING DATE: **13 April 2014**
Interviews are tentatively scheduled for week 20/2014.

Applications in English should be sent via our online form (attaching curriculum vitae and covering letter quoting Reference VN(14)07 at

www.eumetsat.int

Please note that only nationals of EUMETSAT Member States and Cooperating States may apply and that applications will not be returned.