

## Postdoctoral position offered for the « Design of an operational Ensemble Data Assimilation system to assess regional climate reanalyses uncertainties»

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### Context

This postdoctoral position is offered in the framework of the European program Copernicus Climate Change Service (C3S). The current project is dedicated to the preparation of a regional high-resolution climate reanalysis over Europe. CNRM is involved in the design of the operational system, has the responsibility of the preparation of input data for the system and is mandated to develop an Ensemble Data Assimilation (EDA) to assess the reanalysis uncertainty.

### Work description

Ensemble techniques have become fully established for NWP, where spread between forecast members, resulting from perturbing the initial state and model parameters, is used to estimate forecast uncertainty. Perturbations are introduced in the assimilation system commensurate with the uncertainties of data or model processes. Ensemble Data Assimilation (EDA) systems are growing in popularity and ECMWF or Météo-France use such a system for providing parts of the background errors covariances of the deterministic system and part of the initial conditions for the Ensemble Prediction System (EPS).

It is proposed to design an EDA system based on the ALADIN/HARMONIE 3D-VAR system with 5-10 members at lower resolution than the deterministic reanalysis. This ensemble will be used to introduce some “flow dependency” in the background error covariances of the reanalysis. The standard deviation of the ensemble spread will also give a horizontally and vertically consistent estimate of the uncertainties in the reanalyses due to model spread and observation errors. The candidate will be in charge to develop an EDA system based on the operational Météo-France EDA system for an operational usage. He/she will contribute to analyse the results and will participate to the regular delivery of technical reports.

### Qualifications

The candidate must hold a PhD in atmospheric sciences, preferably in data assimilation. All the tasks require good skills in FORTRAN and Unix, as well as in scientific writing. A previous experience in numerical modelling in data assimilation and in the use of complex codes on HPC-computers is preferred.

### Practical information

The position starts on **March 1st 2018** or the sooner after. The contract will be for **1 year renewable**. The net salary proposed is in the range 2600€ to 3100€ per month, depending on the candidate's experience. The work will be carried out in Météo-France in Toulouse (France), at the Centre National de Recherches Météorologiques ([www.umr-cnrm.fr](http://www.umr-cnrm.fr)), mainly under the supervision of Pierre Brousseau. Applications will be received by e-mail only **before November 13** to [pierre.brousseau@meteo.fr](mailto:pierre.brousseau@meteo.fr) and [patrick.lemoine@meteo.fr](mailto:patrick.lemoine@meteo.fr), and must contain a scientific CV, a letter of motivations, and at least two persons that may be contacted for recommendation. Any questions and requests should be sent to the same e-mail addresses.