Post-doc Position

Modeling Particulate Matter in Industrial Plumes

CEREA
Atmospheric Environment Center
Joint Laboratory École des Ponts ParisTech / EDF R&D
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Background: The formation of atmospheric particulate matter (PM) results from complex interactions among different pollution sources. In order to properly quantify the contribution of industrial sources, models of PM formation must be improved.

Topic: The first part of the post-doctoral work will consist in developing a model for the multi-scale modeling of atmospheric PM, which can simulate PM concentrations near a source as well as the potential contribution of the emissions from that source to the regional PM concentrations. This "plume-in-grid" model will be based on the Cerea air quality model, which can simulate the plumes of point sources at the subgrid scale within a three-dimentional (3D) chemical transport model (CTM). This CTM is operational for gaseous pollutants in the Cerea air quality modelling system Polyphemus (http://cerea.enpc.fr/polyphemus; see also Korsakissok, I. and Mallet, V., *Atmos. Chem. Phys.*, **10**, 8917-8931, 2010). The formulation of the model will be extended to PM and aqueous-phase chemistry. The model will be evaluated with a test case over the greater Paris region, in order to ensure that it functions properly and that it produces result, which are consistent with our understanding of the sub-grid scale treatment of point source plumes.

The second part of the post-doctoral work will consist in using the model to study PM concentrations due to industrial emissions. Emissions will include primary PM as well as gaseous pollutants that may lead to the formation of secondary PM. This part of the work will be conducted in close collaboration with an industrial partner.

Temrs and conditions: This post-doctoral work will be conducted at the Atmospheric Environment Center (Cerea) of École des Ponts ParisTech in Champs sur Marne (http://cerea.enpc.fr). It will be supervised by the director of Cerea and by a research scientist. This position is for a 12 month period. The monthly salary is about 2.000 € after standard state taxes (but before income tax).

Qualifications: The candidate should have a Ph.D. degree in air quality modeling or mesoscale meteorology. Knowledge of computer programming (Fortran and C++ under Linux) and English are desirable.

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