Job title	Research Engineer
Date posted	02/11/2011
Duration	Available from January 2012 for 12 months, extensible for 12 more months.
Institution	Institut Pierre Simon Laplace (IPSL)
Location	LMD-Ecole Polytechnique / LSCE-CEA Saclay, France
Net Salary	approx. 24 000 euros per annum depending on diploma and experience inc. holiday allowances, comprehensive health coverage, pension scheme

Context

The IPSL wishes to recruit a full-time Research Engineer to work on developing numerical models of the atmosphere as part of the international ICOMEX consortium. The consortium comprises groups from Germany (ICON project), France (DYNAMICO) , Japan (NICAM) and USA (MPAS) developing models based on icosahedral grids. A key aim is to improve the ability of the models to exploit massively parallel computing architectures with hundreds of thousands of processors. The work at IPSL, led by Dr. Thomas Dubos, will focus on the feasibility of GPU computing for such applications and on the development of an efficient internal post-processing package, extending a recently developed parallel I/O server, XIOS.

Tasks

This post, located at Ecole Polytechnique/CEA, will focus initially on the development of the post processing package. This package will generalize to unstructured grids the operations provided by XIOS on latitude-longitude grids. It will also provide additional operations like regridding and upscaling. The development of good interpolation/reconstruction operators between different grids will be needed. The work will involve contributing to the mathematical formulation of these operators, implementation on parallel computers, testing and analysis of parallel efficiency and scaling. Depending on progress on this core task, contribution to other aspects of the project will be welcome.

Qualifications

The successful applicant will possess a relevant Master's degree or Engineering degree and be able to demonstrate knowledge of the discipline, and techniques required by the project. The ideal applicant will be knowledgeable in: applied mathematics and numerical methods ; scalable algorithms and parallel computing; application to problems in fluid dynamics or geophysics. Development will be done mostly in C/C++ with parts in Fortran 90.

The successful applicant will have excellent communication skills, both orally and in writing, especially as part of a research team and in order to report on his/her work. He/she will be well-organized and keen to deliver useful tools meeting demanding quality criteria. He/she will participate to regular meetings of the DYNAMICO working group in nearby Paris. He/she will spend time visiting the international collaborators.

Application

Before submitting an application you may wish to discuss the post further by contacting Dr. Thomas Dubos, e-mail dubos(at)lmd.polytechnique.fr or telephone (+33)169335143. Applications will be reviewed in January 2012 and until the position is filled.