March 29, 2006

Position available for doctoral student in “Stochastic methods for improved nowcasting and short range forecasting of extreme weather”, at Mathematical statistics, Lund university, ref no 364

Tasks

The University of Lund, Department of Mathematical Statistics and Swedish Meteorological and Hydrological Institute intend to employ a joint PhD student in the area of stochastic methods for data assimilation and probabilistic short range forecasting for extreme weather events, with special emphasis for such events that affect the marine environment. The employment is part of the EU Marie Curie Research Training network SEAMOCS.

It is considered that a combination of physical-dynamical modelling, as applied in traditional Numerical Weather Prediction (NWP) and probabilistic techniques are most appropriate for this purpose. Ensemble Prediction Systems (EPS) are increasingly applied for the forecasting of extreme weather events, but the generation of initial perturbations for short range (6-48 hours) EPS is still a hot issue and subject for current debate. So far there has only been some limited initial research and different research directions are being discussed. Within the process of establishing initial conditions for NWP by variational as well as probabilistic techniques, some quantitative information about the probability distributions of initial data errors is available. It is foreseen that this statistical (a posteriori) information can be used for generation of initial perturbations by randomization techniques and that re-sampling techniques (e.g. importance sampling) based on observed information not directly used by the data assimilation also can be applied. The research on the short range EPS systems should particularly address the problem of estimating the risk of extreme events under uncertain and varying conditions.

The study program, which is intended to lead to a PhD exam in Mathematical statistics, will include research training in the described area and a course program in mathematical statistics together with basic training in meteorology and numerical weather prediction. The chosen candidate will have the opportunity to follow courses and training programs offered by the SEAMOCS partners. Resources available within the MARIE-CURIE RTN project SEAMOCS will be optimally allocated for the benefit of the candidate.

Additional information

- For more information, please contact: Georg Lindgren, tel: +46-46-2228547, georg@maths.lth.se or Karin Borenäs, tel: +46-31-7518967, karin.borenas@smhi.se
- If you are interested, please send your application letter, CV and 2 reference letters to Registry Office, Lund University, Box 117, SE-221 00 Lund, Sweden. Last day of application May 6, 2006. State ref no 364.
- For citizens of non-E.U. or non-associated states, some restrictions apply
- For general information about PhD studies in Lund and about the position, see http://www.lth.se/english/about/vacant_positions/?aid=223
- For information about Mathematical statistics in Lund, see http://www.maths.lth.se/matstat
- For information about SMHI, see http://www.smhi.se/
- SEAMOCS website: http://www.maths.lth.se/seamocs/
- Marie Curie opportunities website: http://cordis.europa.eu.int/mc-opportunities/