

Finnish Meteorological Institute announces

A PhD student position in Earth System modelling

open for applications on the topic

“Advanced Earth system modelling: improved mass balance of ice sheet models“

Objective: To refine the ice sheet surface mass balance of the COSMOS Earth system model (cosmos.enes.org), and to validate it against observations and re-analysis data. The focus is on the Greenland ice sheet, but as the COSMOS model is global, the implementation should be applicable to other ice sheets, too.

Tasks: Earlier versions of the COSMOS model have computed the ice sheet surface mass balance with an energy balance scheme, based on snow accumulation and surface melting. The refinements to be implemented by the PhD student can include issues, such as,

(i) albedo effects of snow ageing and melt/freezing cycle,

(ii) albedo effects of deposition and accumulation of black carbon on the ice sheet, and/or

(iii) improved horizontal and vertical interpolation of the coarse resolution atmospheric quantities to the fine resolution ice sheet model grid.

The new implementations will be tested (i) off-line against Greenland Ice sheet data using re-analysis data as a forcing, and (ii) in multi-century/millennia climate simulations of the Earth system evolution using the current formulation of the mass balance as a baseline.

Context: The position is part of the Nordic Centre of Excellence “Stability and Variations of Arctic Land Ice” (SVALI; <http://ncoe-svali.org>). The planned collaboration within SVALI will cover the following aspects: mass balance modelling at DMI using EC-Earth ESM; application of extensive data bases and expertise on mass balance observations at GEUS; utilization of the research of glacier and ice sheet surface processes at UiO.

Position: The position is for three years, with a possibility of an extension by one year, at the Finnish Meteorological Institute (www.fmi.fi) in the Kumpula campus in Helsinki, Finland. Starting annual salary for a recent MSc is about 28,000 eur and includes health care.

Requirements: University degree (Master of Science or equivalent) in a relevant subject; also those about to earn the degree by mid-2011 are encouraged to apply. Scientific attitude and drive. Ability to work independently, and also as a team member. Good computing skills, including programming. Good written and spoken English.

Application: You are welcome to submit your application no later than 25 March 2011. The applications should contain a short cover letter describing your interest in the position, a CV, and contact details of your supervisors. Review of applications will begin 28 March 2011 and continue until the position is filled. Please send your application to kirjaamo@fmi.fi (cc: heikki.jarvinen@fmi.fi). For more information, please feel free to contact Research professor Heikki Järvinen, heikki.jarvinen@fmi.fi.