University of Helsinki, Institute for Atmospheric and Earth System Research (INAR) in cooperation with Lund University, Aarhus University and University of Oslo are pleased to announce the intensive course "First steps in Biosphere-Atmosphere Modelling" to be held at Station for Measuring Ecosystem-Atmosphere Relations - SMEAR II in Hyytiälä, June 4-15, 2018.

**Time**
4\textsuperscript{th} (noon) to 15\textsuperscript{th} (noon) of June 2018

**Location**
SMEAR II, Hyytiälä, Finland

**Programme**
During the course, everyone will program an atmospheric boundary layer model with chemistry and aerosol dynamics, including: equations of flow for the atmospheric boundary layer with the first order turbulence closure, 1-dimensional column model + numerical solution, emissions of biogenic volatile organic compounds (BVOCs) from vegetation, modelling of chemical kinetics by systems of differential equations, deposition of aerosols and numerical solutions for aerosol formation and growth. The model will be coded in Fortran 95.
Requirements
A basic knowledge of programming in some computer language (e.g. Fortran, C++, Python, Matlab) is required. In the course, we will only provide a small amount of Fortran-lectures to teach the basics of Fortran and programming. You will also need to bring your own laptop.

Pre-course activities
There will be a Fortran online-teaching material available and pre-exercises to be solved before the course. The lectures and tasks will be sent per email to the participants after the selection in the beginning of April. If adequate Fortran software is not available we will advise and help the selected participants in the installation before the course starts. One selected exercise has to be sent back to the lecturer before the start of the summer school as a requirement to ensure that a basic Fortran knowledge is assured and that the compiler and the used plotting programs are sufficient.

Credits
5 ECTS, University of Helsinki (no grades – only Pass or Fail)

Teachers
Dr Michael Boy is the corresponding teacher. The list of other teachers includes
- Assoc. Professor Marianne Glasius (Aarhus University, Denmark)
- Dr Kari Alterskjær (Center for International Climate Research, Oslo, Norway)
- Dr Pontus Roldin (Lund University, Sweden)
- Dr Antti Lauri (University of Helsinki, Finland)
- Mr Putian Zhou (University of Helsinki, Finland)
- Mr Carlton Xavier (University of Helsinki, Finland)
- Mr Dean Chen (University of Helsinki, Finland)

Exam and assessment
Students write a scientific report based on the results of their model simulations and send the report and their developed numerical code to Michael Boy.

Social activities
- Sports activities depending on weather, we will arrange beach volleyball, football and/or hikes – to get you away from coding
- Tour to the city of Tampere on Saturday afternoon
- Visit to Station of Measuring Ecosystem-Atmosphere Relations – SMEAR II
- Visit to the Siikaneva wetland station
- Summer school final dinner on Thursday the 14th of June
- Sauna and barbeque evenings at the lake
Costs
The course fee is 1600 EUR. This fee covers:
• Transport from Helsinki airport to Hyytiälä
• All academic and social programmes during the course
• Access to the course material (printed book)
• Accommodation in two-person rooms
• Breakfast, lunch and dinner at the SMEAR II station
• A lot of work and fun

The fee does not cover:
Travel expenses to and from Helsinki, personal health and civil liability insurance, personal expenses such as drinks, telephone, photocopies, etc. during the course.

Students from other Nordic countries
The NordForsk project “Nordic Graduate Education Courses – eScience Tools and Techniques”, the ABS network, the ATM-DP doctoral Programme at the University of Helsinki and the Nordic Centre of Excellence eSTICC will cover the fee and the travel costs for degree students from Nordic Universities.

Insurance
The organisers of the course cannot accept liability for personal accident or loss or damage to private property of attending students, which may occur either during or arise from the course. Participants are therefore advised to arrange their own appropriate insurance coverage.

Application
Applicants must register to the course before the 31st of March 2018 by filling in the form, which is available at the following address:

https://elomake.helsinki.fi/lomakkeet/84258/lomake.html

If you have any question concerning the course or the financial support please don’t hesitate to contact Michael Boy (michael.boy@helsinki.fi).