Summer School 2019
"First Steps in Biosphere-Atmosphere Modelling"

Lund University and University of Helsinki, Institute for Atmospheric and Earth System Research (INAR) are pleased to announce the intensive course "First steps in Biosphere-Atmosphere Modelling" to be held at Lund University, June 10-20, 2019.

Time

10th (morning) to 20th (noon) of June 2019

Location

Lund University, Southern Sweden (www.lu.se)
Ingvar Kamprad Design Centre, Lecture room IKDC: 567 (5th floor)
Address: Sölvegatan 26, Lund. Sweden
For directions and travel instructions, see
http://www.design.lth.se/english/the_department/directions/

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, Lund University (no grades – only Pass or Fail)

Teachers

Dr Pontus Roldin is the corresponding teacher. The list of other teachers includes

- Dr Michael Boy (University of Helsinki, Finland)
- Dr Putian Zhou (University of Helsinki, Finland)
- Dr Moa Sporre (Lund University)

Social activities

- On the first day we will provide a guided tour of the town and cathedral in Lund
- For those interested in sightseeing, Copenhagen is only 40 minutes away. We will arrange a common tour to Copenhagen on Saturday.
- During certain evenings we will arrange different sport activities (e.g. volleyball, football with barbeque, etc.). So bring your sport equipment - it's healthy!
- Excursion to the ICOS and ACTRIS field station Hyltemossa.
- A dinner will be arranged for all course participants in the last evening.

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 Pontus Roldin.

Costs

The course fee is 16 000 SEK (~1600 EUR). This fee covers:

- All academic and social programmes during the course
- Access to the course material (printed book)
- Accommodation in two-person rooms
- Breakfast and dinner at the hotel
- A lot of work and fun

For students attending the **ClimBEco** graduate research school there will be no course fee.

The fee does not cover

Travel expenses to and from Lund, personal health and civil liability insurance, personal expenses such as drinks, telephone, photocopies, etc. during the course.

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 2019** by filling in the form, which is available at the following address:

https://elomake.helsinki.fi/lomakkeet/94031/lomake.html

If you have any question concerning the course or the financial support please don't hesitate to contact Pontus Roldin (pontus.roldin@nuclear.lu.se) or Michael Boy (michael.boy@helsinki.fi).