

## **Hyytiälä Winter School 2020 - Advanced Analysis of Atmosphere-Surface Interactions and Feedbacks (ATMDP-003)**

University of Helsinki, [INAR](#) (Institute for Atmospheric and Earth System Research) is pleased to announce the intensive course "Advanced analysis of atmosphere-surface interactions and feedbacks" to be held at the Hyytiälä Forestry Field Station in Southern Finland on March 2-13, 2020.

The course is based on intensive work in small groups, utilizing advanced programming tools for statistical analysis (e.g. MATLAB, Python, R). This course in particular has the following main topic:

### **Trends of atmospheric and ecosystem parameters in the boreal forest over the past 25 years**

Some of the transferable skills the course strives to improve:

- statistical analysis of complex large data sets
- multidisciplinary approach
- working in a group & collaborative learning
- broadening of the personal comfort zone

The course involves a few short relevant lectures, with the main emphasis placed on intensive group work and final report written after the course. The course is aimed at PhD students in atmospheric, biospheric and earth system sciences (also advanced MSc students are welcome to apply) who have previous experience in data analyses and basic programming. Note that this course is currently mandatory for University of Helsinki ATM-DP students. During the course the students will utilize long-term data on concentrations, composition and fluxes of aerosols, air ions, trace gases and greenhouse gases as well as meteorological and ecophysiological variables measured at field station in order to learn advanced data treatment and data analysis methods.

To apply to the course, please fill in the [online application](#). **The decision on acceptance will be done as soon as possible after potential student has submitted the application form. The final deadline for applying for the course is January 15<sup>th</sup>, 2020.**

Location: [Hyytiälä Forestry Field Station, Southern Finland](#)

Time: March 2-13, 2020

Teachers: Prof. Markku Kulmala is the leading teacher. The other lecturers include Assis. Prof. Tuomo Nieminen, Assoc. Prof. Federico Bianchi, Assoc. Prof. Dmitri Moisseev, Assoc. Prof. Annalea Lohila, Dr. Ekaterina Ezhova, Dr. Victoria Sinclair, Dr. Lubna Dada, Assoc. Prof. Katrianne Lehtipalo, Dr. Maarit Raivonen

Credits and accrediting body: 5 ECTS, University of Helsinki

Exam: Students write a scientific report based on the results from analyses done during the course

The course fee is 1600 EUR. This fee covers:

- all academic and social programmes during the course
- access to the electronically provided course material
- accommodation in two-person rooms at the Hyytiälä Forestry Field Station during the course

- evening snacks on March 2, five daily servings between March 3-12 (breakfast, lunch, afternoon coffee, dinner, evening snacks) and breakfast on March 13
- transportation from Helsinki to Hyytiälä on March 2, and from Hyytiälä to Helsinki on March 13 (service to/from Helsinki-Vantaa airport is available)

The fee does not cover:

- travel expenses to and from Helsinki
- personal health and civil liability insurance
- personal expenses such as drinks, telephone, fax, photocopies, etc. during the course

For doctoral students of the University of Helsinki, the fee is covered by the [ATM-DP](#) Doctoral Programme. For master students of [ABS network](#) universities, part of the fee is covered by the ABS network.

### **Bus transportation between Helsinki and Hyytiälä**

On Monday March 2<sup>nd</sup> the bus to Hyytiälä will proceed according to the following schedule:

- 16:00 - departure from the Helsinki city center ([Mikonkatu charter bus stop](#))
- 16:20 - a brief stop in Kumpula campus (between Physicum and Chemicum buildings)
- 16:45 - a brief stop at Helsinki-Vantaa airport ([bus stop to the right of terminal 2 exit](#))
- 20:00 - arrival at the Hyytiälä Forestry Field Station

On Friday March 13<sup>th</sup> the bus from Hyytiälä will proceed according to the following schedule:

- 08:45 - departure from the Hyytiälä Forestry Field Station
- 12:00 - a brief stop at Helsinki-Vantaa Airport
- 12:25 - a brief stop in Kumpula campus
- 12:45 - arrival at the Helsinki city center

### **Activities during free time**

Depending on the weather, there may be a possibility for winter sports like skiing. Before your departure, check the latest weather forecasts and bring your sports gear with you, if you wish. There will also be time for sauna during some of the evenings.

### **Facilities in Hyytiälä**

Accommodation for the students is in two person rooms. Each room is equipped with beds, bed linens, towels, a small desk and a wardrobe. Two rooms share a bathroom and six rooms share a shower. It is also possible to store food in a refrigerator. There is also a washing machine for common use. For more detailed information please visit the [information page](#) of the station. In addition to normal clothes and perhaps some money (in Euros, to pay soft drinks and beer) you should bring

shoes and clothes to be prepared for the weather; the temperature in Hyytiälä in March is usually somewhere between -20 and +5 Celsius, it can be sunny, windy, rainy or snowing;

light indoor shoes since we stay inside most of the time;

bathing suit/shorts for ice-swimming (for the brave ones).

Furthermore, it is a good idea to bring a laptop computer with you if you have one. There will be desktop computers in common use, but not enough for everyone to have a personal computer all the time. There is a wireless internet connection at the station.

For any questions or clarifications regarding the course, please contact Lubna Dada (lubna.dada@helsinki.fi).

The course will be held in cooperation with Doctoral Programme in Atmospheric Sciences (ATM-DP), ABS network, ACTRIS, Pan-Eurasian Experiment (PEEX). More information about the contributing and related projects, networks and research infrastructures:

- [ATM-DP](#) (Doctoral Programme in Atmospheric Sciences)
- [ABS network](#) (Atmosphere-Biosphere Studies)
- [ACTRIS](#) (Aerosols, Clouds, and Trace Gases Research Infrastructure)
- [PEEX](#) (Pan-Eurasian Experiment)
- [eLTER](#) (Europe - Long-Term Ecosystem Research)
- [ICOS-Finland](#) (Integrated Carbon Observation System)
- [CLOUD](#) (Cosmic Leaving OUtdoor Droplets)