



## Course announcement

# Formation and growth of atmospheric aerosols

**Hyytiälä, Finland, August 13-24, 2018**

The Doctoral Programme in Atmospheric Sciences at University of Helsinki, the Nordic Graduate School 'Biosphere-Carbon-Aerosol-Cloud-Climate Interactions' (CBACCI), Nordic Master's Degree Programme 'Atmosphere-Biosphere-Studies' (ABS), The Centre of Excellence in Atmospheric Science - From Molecular and Biological processes to The Global Climate, iLEAPS, PEEX, and EU projects ACTRIS and CLOUD-MOTION are pleased to invite students to the 2018 Summer School "Formation and growth of atmospheric aerosols".

The course is worth 5 credits of ECTS (European Credit Transfer System)

The course is aimed to PhD students and advanced MSc students in atmospheric sciences. Topics that will be covered are (tentative list):

1. Atmospheric aerosols
2. Atmospheric observations of aerosol formation and growth
3. Nucleation theory and computational methods
4. Aerosol dynamics: condensation, coagulation, deposition, general dynamic equation
5. Aerosols, clouds and climate
6. Large-scale modeling of atmospheric aerosol
7. Organic aerosols
8. Gaseous precursors of atmospheric aerosols and their chemistry
9. Laboratory investigations of nucleation and nanoparticle growth
10. Thermodynamics of aerosol formation
11. Observations and measurement of sub-3 nm atmospheric clusters
12. Chemical composition of atmospheric nanoparticles and clusters
13. Air quality and climate interactions

The course consists of lectures and exercises (group work). There will be an exam at the end of the course, on August 23rd. The course includes a visit to the [SMEAR II station](#) and training on transferable skills. There will also be recreational events such as sauna and swimming, as well as excursions.

### Location

[Hyytiälä Forestry Field station](#) in Southern Finland

### Time

Monday, August 13th - Friday, August 24th, 2018

### Transportation schedule:

Monday, August 13th

16:00 Helsinki Railway Station

16:20 Kumpula campus

16:45 Helsinki-Vantaa airport

20:30 arrival in Hyytiälä

Friday, August 24th

08:30 departure from Hyytiälä

12:00 Helsinki-Vantaa airport

12:30 Kumpula campus

13:00 Helsinki Railway Station

Please organize yourself the travels from your point of departure to Helsinki and back. Also note that people arriving/departing outside these times will need to arrange their own transportation to/from Hyytiälä.

### **Teachers**

Prof. Markku Kulmala, Prof. Veli-Matti Kerminen and Dr. Katrianne Lehtipalo from INAR (University of Helsinki) will lead the course. There will be also several guest lecturers, including Prof. Kari Lehtinen (Univ. of Eastern Finland), Prof. Hanna Vehkamäki (University of Helsinki), Prof. Neil Donahue (Carnegie Mellon University), Prof. Risto Makkonen (Finnish Meteorological Institute), Prof. Armin Hansel (Univ. Innsbruck), Prof. Douglas Worsnop (Aerodyne) and Prof. Joachim Curtius (Goethe Univ. Frankfurt).

### **Participation costs**

The course fee is 1600 EUR, including transfers between Helsinki and Hyytiälä, accommodation in two-person rooms, full board (breakfast, lunch, afternoon coffee, dinner, and evening meal) during the course, all academic program, excursions and social program during the course.

For doctoral students of Finnish universities, the fee is covered by the ATM-DP Doctoral Programme. For master students of ABS network universities, the fee is covered by the ABS programme.

### **Application**

The application period ends 15<sup>th</sup> of May.

Apply here: <https://elomake.helsinki.fi/lomakkeet/88516/lomake.html>

### **Further information:**

For further information, please contact: [katrianne.lehtipalo@helsinki.fi](mailto:katrianne.lehtipalo@helsinki.fi)