**Atmospheric Science Modelling Systems**

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**Outline**

This seminar is focused on describing and presenting actual atmospheric modelling systems. This covers areas from air pollution, meteorology and finally climate change issue. The seminar is organized in a way that the student receives in two session a wide and complete overview of the different open source atmospheric models which are used today to analyze historical weather patterns and predict or forecast at different scales climate change (different IPCC scenarios), air pollution and even health impacts in humans. The complexity of these models and the use of supercomputer platforms will be underlined and the different data formats and visualization tools will be explained. The seminar will include practical examples of several EU funded and private projects on the area of Environment and ICT during the last 25 years.

**Syllabus**

1. Mathematical basis for Atmospheric Dynamical Models: Navier-Stokes equations.  
2. Meteorological Models: Continental scale, Mesoscale and Microscale models.  
3. Air Pollution Models: Emission, Transport, Chemistry and Deposition.  
4. Numerical limitations and computer capabilities: spatial resolution and temporal time steps.  
5. Climate models: specific characteristics.  
7. EU and private projects on the area: Applications and market potential.

**Assessment Method**

Write a report on relation to the two sessions as a summary.

**Credits**

1 ECTS

**Remarks**

For last minute information, consult the document.

**Timetable**

- 08 March, 15.00 - 18.00  
- 15 March, 15.00 - 18.00

**Lecture Theatre**

A-6201

**Tuition Language**
English.

**Capacity:**

50

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