Elective 5:
Forest and Resource Inventory
Forest-Atmosphere Interactions

Module No.	Module name
	Forest Inventory

Module co ordinator

Prof. Dr. Dieter R. Pelz   Email: pelz@biom.uni-freiburg.de

Additional teaching staff

 Prof. Dr. B. Koch Dr. Gerald Kändler (FVA)

Syllabus

Statistical methods, sampling designs

National forest inventory systems

Management inventory systems

Global Forest resources assessment of FAO

NTFP in inventories

Tropical inventories

Remote sensing in forest inventories

Learning goals and qualifications

Students will gain the:

- Ability to assess inventory designs and procedures
- Ability to design and implement forest inventories

Teaching and learning methods

Lecture (30%), Exercises (30%), field work (20%), literature study 20%

Prerequisites

Forest mensuration, statistics

Requirements for registration

Distribution of work load

Contact hours   80 h (Lectures, pracs, excursion, exam)

Independent learning   45 h (Preparation, reading etc.)

Proposed assessment

Home work

Link to learning resources

Preliminary Reading

Comments

Module No.	Module name
WP 3	Forest-Atmosphere Interactions

Module coordinator

Prof. Dr. Heinz Rennenberg   Email: heinz.rennenberg@ctp.uni-freiburg.de

Additional teaching staff

Prof. Helmut Mayer, Dr. Jürgen Kreuzwieser, PD Dr. Hans Papen, PD Dr. Klaus Butterbach-Bahl

Syllabus

The unit "Meteorology of trace gas exchange" (3 days) deals with the characteristics of atmospheric processes and phenomena significant for the trace gas exchange between forests and the atmosphere at different spacio-temporal scales.

The unit "Forest vegetation and trace gas exchange" (6 days) will introduce the role of plants as sources and sinks of atmospheric trace constituents and the plant processes involved in this exchange of C, N, and S.

The unit "Forest soils and trace gas exchange" (4 days) will provide information on the exchange of N and S trace gases between forest soils and the atmosphere and the processes involved in the production and consumption of these compounds by microbial processes.

The unit "Modelling forest – atmosphere interactions" (2 days) will communicate knowledge how to use mechanistic models to simulate carbon and nitrogen turnover processes in forest ecosystems and associated C and N gas exchange between forest ecosystems and the atmosphere.

Learning goals and qualifications

The student will

- obtain physical knowledge on features of the atmosphere and its influence on trace gas exchange

- obtain a quantitative view about the exchange of C, N, and S trace gases between forest vegetation and the atmosphere

- obtain a quantitative view about the exchange of C, N, and S trace gases between forest soils and the atmosphere

- understand plant and microbial proccesses involved in the production and consumption of atmospheric trace constitutents

- understand how biological and physico-chemical processes can be implemented in numerical models and how these models can be used to understand, proof and simulate ecosystem processes

Teaching and learning methods

Lectures, tutorials, pracs

Prerequisites

Requirements for registration

Distribution of work load

Contact hours   80 h (Lectures, pracs, excursion, exam)

Student learning   45 h (Preparation, reading etc.)

Proposed assessment

Link to learning resources

Preliminary Reading

- Stull RB (1991) An introduction to boundary layer meteorology. Kluwer Acad Publ., Dordrecht

- Gasche R et al. (2002) Trace gas exchange in forest ecosystems. Kluwer Acad. Publ., Dordrecht

Comments