Training activities

TRAIN1: Summer schools

2nd Summer School: M. Aubinet

Workpackage objectives and starting point of work at beginning of reporting period

Objectives (5 years)

TRAIN1 Annual summer schools

Objectives (months 13-30)

- To train activities PhD students and young PostDocs in carbon science

Starting point of work at beginning of reporting period:

Nothing was done at beginning of reporting period.

Progress towards objectives

The summer school programme was defined (see below). It will be organised in collaboration with INRA Nancy. It will be centered on eddy covariance measurements and will include both theory and practical exercises. We plan to welcome 30 students. Presumed professors and societies were contacted. Replies are awaited for December 15th. Positive replies from D. Baldocchi, O. Kolle (1), INRA-Nancy team (7 - B. Longdoz, A. Granier), FUSAGx team (8 - B. Heinesch, C. Moureaux, C. Feigenwinter, M. Aubinet) were already received. We are now searching for accommodation. A call to registration will be sent in early January 2006. Registrations will be closed in March 2006. The school will be organised most probably between July 10th and 21st 2006, if accommodation is possible during this period.

Draft Programme of a summer school on: "Eddy Covariance Flux Measurements"

Theory

- Equation of Tracer conservation in the surface boundary layer.
- Spectral analysis
- Similarity relation in the neutral boundary layer
- Monin Obukhov similarity

Expected teachers: M. Aubinet

Material presentation

- IRGA (CO_2)

- Analysers for other gases (methane, nitrous oxide, VOC, …)
- Anemometers
- Air transport system
- Softwares (Elbers, Clement, Kolle)

Expected teachers: I. Elbers (Alterra), O. Kolle (MPI Jena), R. Clement (U. Edinburgh), A. Grelle (U. Uppsalla), R. Vogt (U. Basel), Representatives of LI-COR, Gill, Metek, …

Flux computation

- General organisation chart (Aubinet)
- Time lag optimisation
- Fluctuation computation
    - Running mean vs. linear detrend vs. block averaging
- Rotations
    - 2D vs. 3D vs. PF vs. NPF
- Schotanus corrections
- Webb corrections
- High frequency corrections
    - Co spectraes (theorical and experimental)
    - Moore approach – Leuning approach (closed chambers) – empirical approach
    -

Expected teachers: O. Kolle (MPI Iéna), M. Aubinet, A. Grelle (U. Uppsalla), R. Vogt (U. Basel), B. Heinesch

Data screening

- Instantaneous data quality control (Longdoz)
- Flux data quality tests (Foken)
- Stable condition problems (Aubinet, Heinesch, Feigenwinter)
    - Position of the problem
    - U* flagging procedure
    - Direct advection measurements
    - New advances in stable condition problem resolution
- Footprint analysis (Vesala)

Expected teachers: B. Longdoz (INRA Nancy), M. Aubinet, B. Heinesch, C. Feigenwinter, T. Vesala (U. Helsinki)

Data gap filling strategies

- Parameterisation
- Look up table
- Mean diurnal variation
- Neural networks

Expected teachers: E. Falge (U. Bayreuth),D. Papale (U. Viterbo)

Applications

- Process study
- Global balances
- Comparison with inventories
- Model validation
- Comparison with remote sensing data
- Spatial and temporal variability
- Regional scaling up

Expected teachers: D. Baldocchi (U. Berkeley),A. Granier (INRA Nancy), E. Dufrène (U. Orsay)

Laboratories

- Set up installation and starting up (from packing opening to slt data production)
- Software parameterisation (time lag determination, rotation computation, inductance estimation, …)
- Data analysis using one month raw data :
    - Establishment of u* correction
    - QC analysis
    - Data gap filling

Expected teachers: O.Kolle (MPI Jena), I. Elbers (Alterra), M. Yernaux, A. Debacq, P. Gross (INRA Nancy), C. Moureaux

Associated activities

- Short presentation by the students of their own research
- Presentation of the main measurement networks and research programs (R.Valentini, U. Viterbo)

Deviations from the project workprogramme, and corrective actions taken/suggested

Owing to lack of time and manpower at FUSAGx, it was not possible to organise the summer school in summer 2005 as previously planned. It was therefore postponed to 2006 and organised with INRA-Nancy. The organisation is now in progress.

Table 2-TRAIN1.1: Deliverables List

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor
TRAIN 5	Advanced Training Course in Theory and application of ground-based flux monitoring techniques	TRAIN	21	31	8

Table 2-TRAIN1.2: Milestones List

No milestones defined.

TRAIN 2: Educational training at the secondary school level

Activity Leader: Philippe Saugier, SAUG

Workpackage objectives and starting point of work at beginning of reporting period

Objectives (5 years)

TRAIN 2: Educational training at the secondary school level

Objectives (months 13-30)

- To produce a basic set of educational resources for secondary schools in the IP website
- To involve key multipliers to disseminate these resources to a large number of teachers and young people in Europe
- To stimulate direct contacts between CarboEurope researchers and secondary school students

Starting point of work at beginning of reporting period:

- identification of CE scientists interested in education
- outline of educational materials (booklet & website) ready
- broadening of educational activity as a joint activity with CarboOcean IP
- announcement of a workshop on educational projects in Die, France for March 2005

Progress towards objectives

The first semester of 2005 has been particularly intensive in order to finalise the preparation of the activity:

- presentations & discussions during both IP annual meetings (Dublin, January & Bergen, February)
- the “workshop on school projects” held in Die (France) on March 21-24, which gave the activity the collective involvement it needed & strengthened its identity with a logo & the name “carboschools”.
- a visit to LSCE in Paris in support to the preparation of a regional educational activity & a funding proposal to the regional council;
- a visit to the mesocosm experiment & CO office in Bergen in June to learn about marine carbone science and write the CO chapter of the carboschools booklet.
- throughout the whole semester, important work periods spent on contents development (educational booklet, website etc.) and networking (communication & regular contact with scientists & partners)

The second semester of 2005 has been used for:

- finalisation of website (database development with Hendrik Tilger)
- lay-out version of the cs booklet (coordination with JRC, collection of pictures, daily follow-up with ESN)
- promotion of cs at the two IPs annual meetings, including organisation of a "Carboschools communication training day" with 15 participants in Levi, Finland, 14th November.

As an overall result, with an interactive website offering good quality materials both on scientific contents & teacher-scientist partnership methodology, and an initial nucleous of motivated people & institutions, the conditions are now in place for starting to implement innovative school projects motivated around a common European framework of action. This has motivated the two coordinating offices (Jena & Bergen) to send around to all heads of institutes members of CE & CO in June 2005 a formal letter informing them about carboschools and inviting them to take step towards joining the initiative.

Deviations from the project workprogramme, and corrective actions taken/suggested

No major deviation / changes of plans have occurred during this period. The only minor change has been to drop the idea of making a centralised list of contact-persons for schools in all CE institutions, which prove to be less efficient than taking care of the requests for contacts from teachers one a one-to-one basis (second milestone in Table 2).

Table 2-TRAIN2.1: Deliverables List

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor
TRAIN 2	Educational package for adaptation and dissemination by involved multipliers	TRAIN	18	Delivered M18	SAUG
TRAIN 3	Educational section for secondary schools on CarboEurope website	TRAIN	18	Delivered M18	SAUG
TRAIN 4	Setting up of pilot regional programmes	TRAIN	18	Delivered M23	SAUG

Table 2-TRAIN2.2: Milestones List

Milestone no.	Milestone name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor
	Field missions completed, basic educational resources written	TRAIN	18	Delivered M18	SAUG
	operational list of contact-persons for schools in all CE institutions	TRAIN	30	Cancelled (decentralised approach finally preferred)	SAUG