

Project Number 282910

ÉCLAIRE

**Effects of Climate Change on Air Pollution Impacts and Response
 Strategies for European Ecosystems**

Seventh Framework Programme

Theme: Environment

**21.11 (First database report on intermediate and final database content,
 including QA/QC report)**

Due date of deliverable: **30/10/2012**

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Start Date of Project: **01/10/2011**

Duration: **48 months**

Organisation name of lead contractor for this deliverable :
NERC

Project co-funded by the European Commission within the Seventh Framework Programme		
Dissemination Level		
PU	Public	<input checked="" type="checkbox"/>
PP	Restricted to other programme participants (including the Commission Services)	<input type="checkbox"/>
RE	Restricted to a group specified by the consortium (including the Commission Services)	<input type="checkbox"/>
CO	Confidential, only for members of the consortium (including the Commission Services)	<input type="checkbox"/>

1. Objectives:

The objectives below represent the field-site experiments outlined in the description of work that produce data outputs for the ECLAIRE database:

- WP1:
 - To obtain 15 months of high temporal resolution flux data of key trace compounds (O₃, NO, CO₂, H₂O) across a 9-site European flux network for the study of fluxes in relation to climatic drivers, using changing meteorological conditions at the sites as a proxy for climate.
 - To study the exchange of additional compounds (NH₃, NO_x, VOCs) through synchronised intensive measurement periods across the 9-site flux network, in relation to meteorological drivers, and to provide a test database for the evaluation of European chemical transport models.
 - To quantify the effect of aerosols on gross primary productivity through modulating in-canopy light levels for three forest ecosystems.
 - To quantify the importance of in-canopy chemical transformations on the deposition mechanism and effective emission of biogenic compounds into the atmosphere, through an integrated intensive measurement campaign above/within a polluted forest.
 - To make targeted measurements of NH₃ exchange with Mediterranean semi-natural vegetation during distinct growth phases (active vs. dormant).
- WP10: To conduct relevant field-scale and controlled-exposure experiments on impacts of air pollution components on plant and ecosystem processes including interactions with climate change.
- WP11: As part of measurements made at sites under WP10 studies will be made on three novel concepts to establish new empirical relationships for vegetation-air pollution interactions
- WP21: To ensure data quality and implement procedures for quality control

2. Activities and Results:

Due to the unforeseen complexity of the data management associated with WP9 in particular, WP10, WP11 and some aspects of WP1, the construction of database forms and uploading of data was delayed for 6 months. The Data Management team acquired funding for a casual data assistant and we have made progress since January. We have been aware of the modellers' needs for data, and have encouraged communication so that we can respond to their needs as they arise.

The software developed for NitroEurope has been deployed and “branded” for the ECLAIRE project. The software has undergone some enhancements to improve performance and user-friendliness in particular with reporting data.

WP1

Bosco Fontana data(WP1.4)

WP1 Bosco Fontana data require a large number of different database forms to be constructed, which are unique for this task. The data management team are still developing EXCEL templates and database forms for this activity.

Field measurement data (WP1.1)

The template was distributed in July and 3 sites have submitted data. Of the remaining 6 sites they have committed to delivering data by the end of September 2013.

QA/QC for WP1

Quality assurance checks have been written into the database to validate for duplicate fields, formatting of dates, field types and value ranges for individual fields.

WP 9 - Literature data mining

The demands of the WP9 literature data mining activity eventually exceeded the capability of the database system in terms of the complexities of the links between data and the querying needs. This activity had to be re-planned and those data have been uploaded to a Microsoft Access database, which will be accessible from the main ECLAIRE database with a metadata form. The task proved exceptionally complex, and a large amount of time and effort has been invested in preparing the data, designing the Excel template, and uploading the MS Access database.

To date, there are 3032 records for “Leaf level processes”, 1794 records for “Dynamic processes” and 5162 records for “Ecosystems processes”. Pre-designed query forms are under construction and further files have been submitted for uploading.

QA/QC for WP9

The structure of the key fields for each table safeguards against duplicate key field entries. The definition of field data types constrains numeric and text fields. Queries will be run to check final content for valid values of different fields.

WP10/WP11

The database templates, the database forms, site and user definitions, and preparation of the database for submissions are complete. Data have been uploaded for site “Alp-Flix” and site “Curno”. A WP10/WP11 specific user guide has been posted on the ECLAIRE web portal, and the users informed of the task. We are communicating frequently with data providers, and offering as much support/help as they require.

A guide to data downloading specifically for WP10/WP11 has also been posted on the ECLAIRE web portal, and the C3 PI has been informed of this, and asked to distribute to the relevant modellers.

QA/QC for WP10 and WP11

Quality assurance checks have been written into the database to validate for duplicate fields, formatting of dates, field types and value ranges for individual fields.

3. Future Milestones:

Next Milestones coming up are:

Month 24 - MS107 Data uploaded and QC checked for months 1-18. This is in progress. Quality control checks will be implemented on the data submissions.

Month 24 - MS2 Final 9 months data from flux network in database. In progress (as above)

4. Meetings:

A Video/Teleconference meeting was held on August 22nd with the Data Management Committee where we discussed progress on field site data collection for WP1 and WP10/11. We also spoke about the need for modellers to get access to data and they are happy with what they have at the moment.