

ÉCLAIRE: Flux measurements & manipulation experiments in contrasting European climates

Core manipulation sites (O_3 , N_{dep} , climate, CO_2)

- ★ Grass
- ★ Arable land
- ★ Forest
- ★ Shrubland

Core Flux Measurement Sites

- Grass & shrubland
- Arable land
- Forest

Intensive Campaign Measurements

- ◇ Po Valley campaign (*forest in agricultural landscape*)
- ◇ Spanish campaign (*shrubland/matorral*)

Controlled manipulation studies

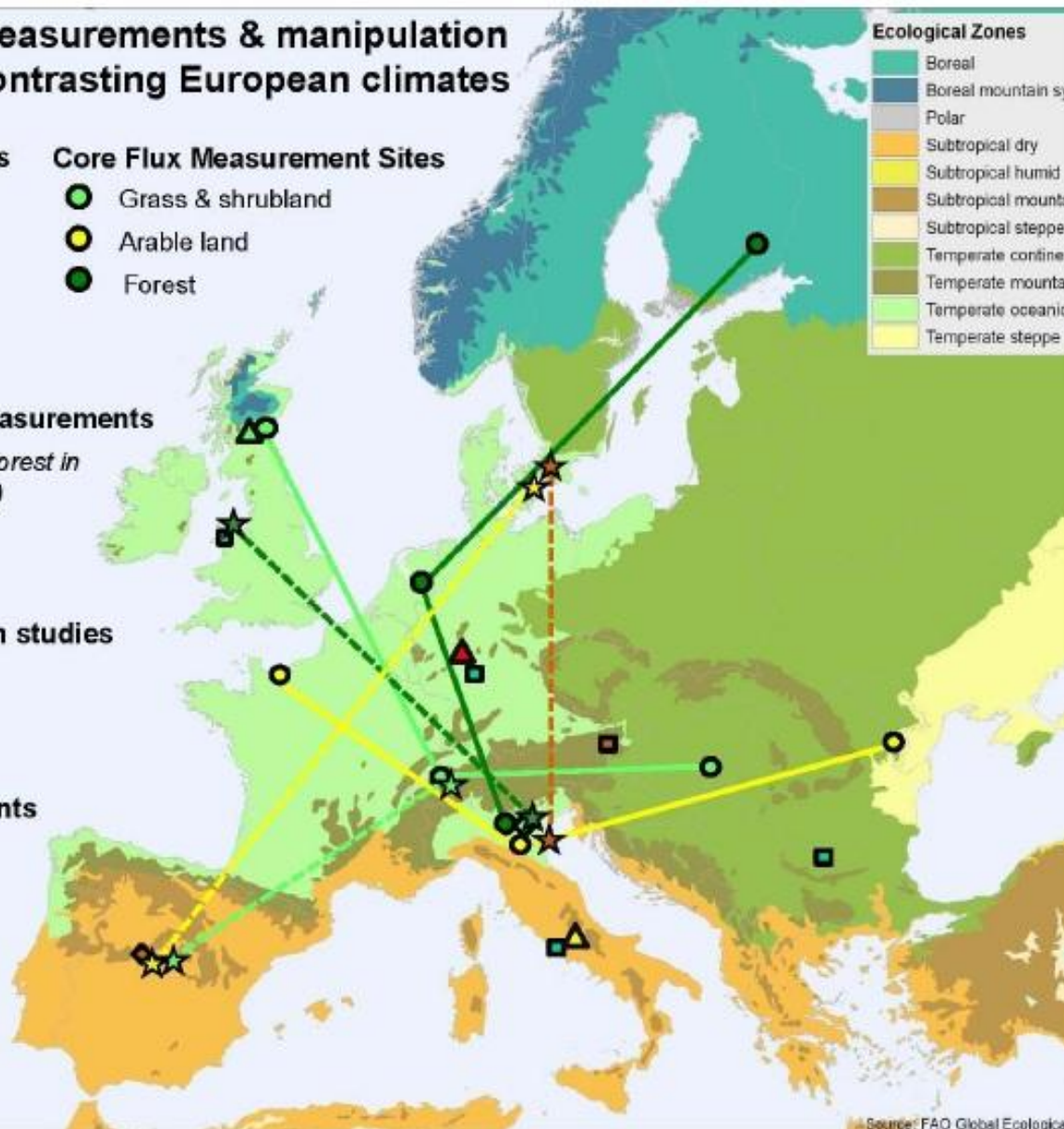
- Plant processes
- Soil processes

Special Topic Experiments

- △ Effect of N form (wet/dry; NO_x/NH_x)
- △ VOCs & plant O_3 protection
- △ Aerosol effect on plant drought stress

Ecological Zones

- Boreal
- Boreal mountain sy
- Polar
- Subtropical dry
- Subtropical humid
- Subtropical mountai
- Subtropical steppe
- Temperate continen
- Temperate mountai
- Temperate oceanic
- Temperate steppe



WP1.1 - Field studies on exchange processes

- 15 months of high temporal resolution flux data (O₃, NO, CO₂, H₂O)
- Across a 9-site European flux network (Aug 2012 - Oct 2013)
- 9 months data are submitted for 8/9 sites
- Final Submission (6 months) due March 2014

WP1.2 - Intensive measurement periods across the flux network

Two contrasting measurement periods across the network. NO and NO₂ by gradient and/or eddy-covariance, NH₃ and VOCs

➤ **Captured in flux template**

WP1.4 Intensive measurement campaign

Bosco Fontana July 2012

➤ **Huge amounting of collating datasets still required into a sensible template structure. Work ongoing and aim to be ready end of November to capture for the database**

WP1.5 - NH₃ fluxes over Mediterranean semi-natural surfaces

NH₃ exchange experiments above semi-natural vegetation in Spain, during one 12 week campaign.

➤ **To discuss at Zagreb**

WP2 – Controlled studies on exchange processes – Lab Studies

- 2.1 Response curves of soil and litter emissions to meteorological drivers (temperature, moisture) – BOKU Vienna
 - 2.2 Provide data on NO emissions after rewetting events on soil cores – KIT, Garmisch
 - 2.3 Leaf gas exchange, fluxes of BVOC, NO emission – BAS-IFRG Bulgaria, CNR Italy
 - 2.4 Plant and Soil processes and stresses of BVOC and O₃ emission/deposition responses - Juelich Plant Atmosphere Chamber experiments
- **Use this meeting as finding a pathway for delivering data**

WP9 – Data Mining Exercise

- Now in an Access Database
- Query can be run for different processes (Leaf-scale, Dynamic and Ecosystem scale processes) and Vegetation Types - Crops, Grassland/Wetland/Heath & Trees
- **Download the latest version from the ECLAIRE website today!**

Ecosystem Processes and Treatment Details

OR

Process Type 1

Process Type 2

OR

Vegetation Type 1

OR

Vegetation Type 2

OR

Vegetation Type 3

Gina Mills will demo in Session 5 on Wednesday

PAPER_ID_CODE	SITE	SPECIES_ASSEMBLAGES	PROCESS_TYPE	VEGETATION_TYPE	VEG_TYPE_DESCRIPTION	NUMBER_OF_SPECIES
ALLISO20081156	Central Alaska	Picea mariana	Soil and root processes	Coniferous tree		
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ALLISO20081156	Central Alaska	Picea mariana	Soil and root processes	Coniferous tree		
ALLISO20081156	Central Alaska	Picea mariana	Soil and root processes	Coniferous tree		
ALLISO20082898	Central Alaska	Picea mariana	Soil and root processes	Coniferous tree		
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ANDERS20000007	Corvallis	Pinus ponderosa	Soil and root processes	Coniferous tree	Ponderosa Pine	
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WP10 Manipulation Experiments

- Ecosystem effects across 4 ecosystem types - Forest (2), Grassland (2), Agriculture (2) and Shrubland (2)

Ecosystem	Site 1	Site 2
Forest	Bangor (UK)	Curno (It)
Grassland	Santa Olalla (Es)	Alp Flix (Sui)
Agriculture	Santa Olalla (Es)	Roskilde (Dk)
Shrubland	Brandburg (Dk)	

➤ **Data from 5 sites out of 7 including data from 2012 growing season + archived years**

WP11 – Special Topic Experiments

- Effect of N form at Whim Bog (UK)
- BVOCs and plant O₃ protection at Castelporziano flux tower site (Italy)
- Aerosol effect on plant drought stress at Bonn Chamber (Germany)
- **Most data submitted to the database**
- **Use Zagreb meeting to solve any problems**

Afolu Database – Regional Upscaling C4 & C5

- Spatial datasets to be submitted to the AFOLU database at JRC.
- Built and ready to accept data



The screenshot shows the AFOLU database website interface. At the top, it features the European Commission logo and the text "JOINT RESEARCH CENTRE" and "AFOLU - Greenhouse Gases in Agriculture, Forestry and Other Land Uses in Europe". Below this is a navigation bar with "EUROPA > European Commission > JRC > IES > ACU > AFOLUDATA" and links for "disclaimer | privacy | contact".

The main content area is divided into two columns. The left column, titled "Data and Tools", contains the "éclairaire" logo and a brief description of the project: "The ÉCLAIRE project [Effects of Climate Change on Air Pollution and Response Strategies for European Ecosystems] is a four year project funded by the EU's Seventh Framework Programme for Research and Technological Development (FP7). The project will be running for 4 years, from October 2011-2015 and involves 39 partner institutions across Europe." Below this are two buttons: "Site Data" and "Spatial Data".

The right column contains logos for "GHG AFOLU" and "NitroEurope P", a search bar with "Google™ Custom Search" and a "Search" button, and a login section with fields for "username:" and "password:", a "Forgot your password?" link, and a "login >>" button.

ECLAIRE Database – C1 & C3

- WP1, WP2, WP10, WP11 and modelled data
- Development on new reporting system for launching on production site next month
- Create a user at <http://eclairedata.ceh.ac.uk>

Reports & Graphs

[NEW REPORT](#) [DATA USAGE REPORT](#)

[Click here](#) to view data fields available for each form
[Click here](#) to edit report groups
[Click here](#) to view any outstanding data requests for your site
[Click here](#) to check your data requests

[Your Reports](#) [Your Graphs](#) [Template Reports](#)


Report Name	Action
Soil Gas Flux	Edit Run Report Run History Delete

Use this form to find out how much data of each type are available at each site

Select Dataset (form):

Select Site:

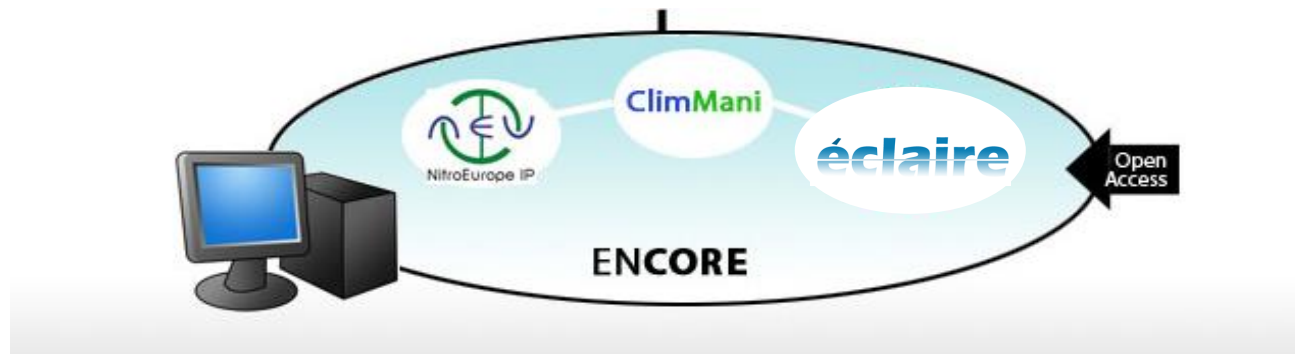
Select field group according to data type (worksheet):

 01 Aug 2012 00:00 - 01 Jul 2013 00:00

100% complete

32068 rows entered

ENCORE- Environment and Climate interactions - Observations and Responses in Ecosystems



- Interface built
 - Build the vocabulary structure
 - Expect functioning version connected to NEU and ECLAIRE for user testing in Spring 2014

OPPORTUNITIES FOR YOU!

- 1. Sign Up** for Demos and help on the ECLAIRE database. Uploading/Downloading data
 - Site managers, data uploaders, modellers, everyone
- 2. Data Forum** – 17:00 to 18:00 Today
Demonstration of new ECLAIRE downloading data tool
All Welcome (First 20 mins – then you can leave)
Also DMC to meet afterwards, All welcome to stay.