

## 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 ( $O_3$ , NO,  $CO_2$ ,  $H_2O$ ) + meteorology
- Across a 9-site European flux network (Aug 2012 - Oct 2013)
- **Most sites have now submitted data up to January 2014**
- **Final push please esp:**
  - **1 min met**
  - **Soil gas flux**

## **WP1.2 - Intensive measurement periods across the flux network**

Two contrasting measurement periods across the network. NO and NO<sub>2</sub> by gradient and/or eddy-covariance, NH<sub>3</sub> and VOCs

➤ **Auchencorth, UK April-May 2014. Data delivered.**

## **WP1.4 Intensive measurement campaign**

Bosco Fontana July 2012

➤ **Still waiting for a few more final datasets to arrive from some institutes.**



**Auchencorth, Scotland**



**Bugac, Hungary**

## WP2 – Controlled studies on exchange processes – Lab Studies

- 2.1 Response curves of soil and litter emissions to meteorological drivers (temperature, moisture) – BOKU Vienna
  - **Data delivered!**
- 2.2 Provide data on NO emissions after rewetting events on soil cores – KIT, Garmisch
  - **Delayed. Update?**
- 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 O<sub>3</sub> emission/deposition responses - Juelich Plant Atmosphere Chamber experiments
  - **Data delivered! Overlaps with WP2.3**

## WP9 – Data Mining Exercise

- In an Access Database format
- Query can be run for different processes (Leaf-scale, Dynamic and Ecosystem scale processes) and Vegetation Types - Crops, Grassland/Wetland/Heath & Trees
- **Download instructions from the ECLAIRE website (via email request):**  
<http://www.eclair-fp7.eu/WP9-data-mining-database>

## WP10 Manipulation Experiments

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

Ecosystem	Site 1	Site 2
<b>Forest</b>	Bangor (UK) 2012-2013	Curno (It) 2012-2014
<b>Grassland</b>	Santa Olalla (Es)	Alp Flix (Sui) 2004-2010
<b>Agriculture</b>	Santa Olalla (Es) 2011-2012	Riso Phytotron (Dk) 2009-2011
<b>Shrubland</b>	Brandburg (Dk) 2006-2012	Whim Bog (UK) 2012-2013

## WP11 – Special Topic Experiments

- 11.1 Peat bog experiment on N-climate-O<sub>3</sub> interactions at Whim Bog (UK)
  - **Core data delivered. O<sub>3</sub> release experiment setup for growing season 2015.**
- 11.2 BVOCs and plant O<sub>3</sub> protection at Castelporziano flux tower site (Italy)
  - **Met data delivered. Measurements of stomatal ozone flux and BVOC fluxes due.**
- 11.3 Effects of aerosol deposition on stomatal function at Bonn Chamber (Germany)
  - **Sunflower data delivered! Scots pine and beech data to come**

## Afolu Database – Regional Upscaling C4 & C5

- Spatial datasets to be submitted to the AFOLU database at JRC.
- Undergoing upgrade



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 titled "Data and Tools" and includes the "éclairaire" logo and project description: "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."

On the right side, there are logos for "GHG AFOLU" and "NitroEurope P", along with a search bar labeled "Google™ Custom Search" and a "Search" button. Below the search bar are input fields for "username:" and "password:", a "Forgot your password?" link, and a "login >>" button.

At the bottom, there are two buttons: "Site Data" and "Spatial Data".

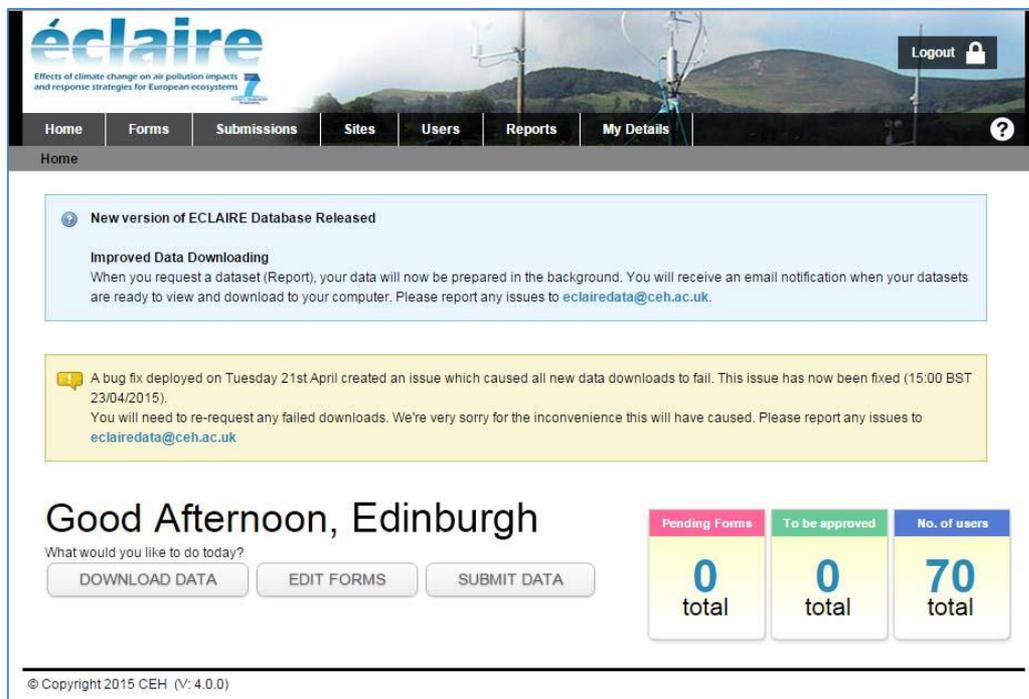
## Afolu Database – Regional Upscaling C4 & C5

### Metadata/Datasets we are expecting to be added:

- deposition /concentration files produced from 4 CTM models (EMEP, MATCH, DEHM, SILAM) with runs for 2000s and 2050s
- meteorology files produced by the Swedish Meteorological service (daily )
- deposition maps produced within WP 17 for (parts of ) NL and UK.
- WP14 dynamic vegetation models (Jules, OCN, LPJ, CLM) over Europe under present and future N and O<sub>3</sub> deposition.
- A summary of the runs (e.g. annual maps of main ecosystem variables like GPP, NEE, C stock etc.) may finally enter the dataset.

## ECLAIRE Database – C1 & C3

- WP1, WP2, WP10, WP11
- 70 Users
- Create a user at <http://eclairdata.ceh.ac.uk>
- [eclairdata@ceh.ac.uk](mailto:eclairdata@ceh.ac.uk)



The screenshot shows the ECLAIRE Database website interface. At the top, there is a navigation menu with links for Home, Forms, Submissions, Sites, Users, Reports, and My Details. A Logout button is visible in the top right corner. Below the navigation menu, there are two news items: a blue box announcing a new version of the database with improved data downloading, and a yellow box reporting a bug fix for data downloads. Below the news items, there is a greeting "Good Afternoon, Edinburgh" and a question "What would you like to do today?" with three buttons: DOWNLOAD DATA, EDIT FORMS, and SUBMIT DATA. To the right of these buttons, there are three summary cards: "Pending Forms" (0 total), "To be approved" (0 total), and "No. of users" (70 total). At the bottom left, there is a copyright notice: "© Copyright 2015 CEH (V: 4.0.0)".

Home Forms Submissions Sites Users Reports My Details ?

Home

**New version of ECLAIRE Database Released**

**Improved Data Downloading**  
When you request a dataset (Report), your data will now be prepared in the background. You will receive an email notification when your datasets are ready to view and download to your computer. Please report any issues to [eclairdata@ceh.ac.uk](mailto:eclairdata@ceh.ac.uk).

**A bug fix deployed on Tuesday 21st April created an issue which caused all new data downloads to fail. This issue has now been fixed (15:00 BST 23/04/2015).**  
You will need to re-request any failed downloads. We're very sorry for the inconvenience this will have caused. Please report any issues to [eclairdata@ceh.ac.uk](mailto:eclairdata@ceh.ac.uk)

Good Afternoon, Edinburgh

What would you like to do today?

DOWNLOAD DATA EDIT FORMS SUBMIT DATA

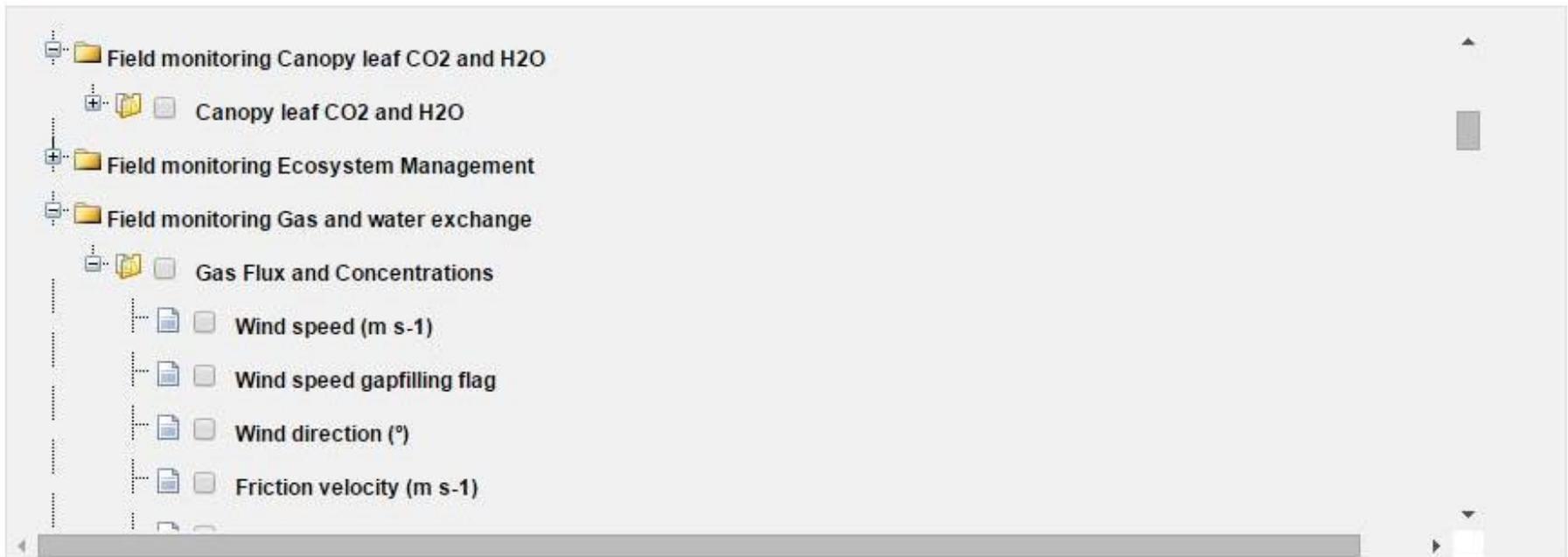
Pending Forms	To be approved	No. of users
0 total	0 total	70 total

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## ECLAIRE report picker

### Report fields

Choose forms, form fields and attributes to include in the report. Click the plus next to each form to show worksheets, then fields, and any attributes.



The screenshot displays a hierarchical tree view of report fields. The root level includes three main categories, each with a folder icon and a plus sign:

- Field monitoring Canopy leaf CO<sub>2</sub> and H<sub>2</sub>O
  - Canopy leaf CO<sub>2</sub> and H<sub>2</sub>O
- Field monitoring Ecosystem Management
- Field monitoring Gas and water exchange
  - Gas Flux and Concentrations
    - Wind speed (m s<sup>-1</sup>)
    - Wind speed gapfilling flag
    - Wind direction (°)
    - Friction velocity (m s<sup>-1</sup>)

Each item in the tree is accompanied by a small document icon. The interface includes a vertical scrollbar on the right and a horizontal scrollbar at the bottom.

## ECLAIRE IPR!

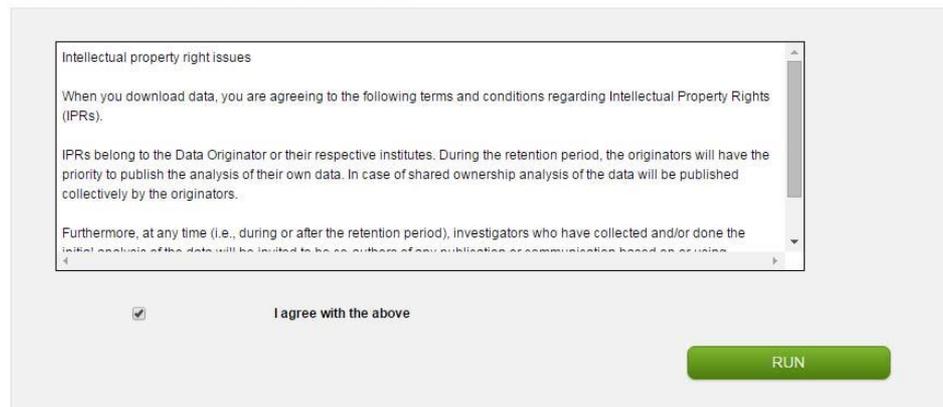
### Intellectual property right issues

When you download data, you are agreeing to the following terms and conditions regarding Intellectual Property Rights (IPRs).

IPRs belong to the Data Originator or their respective institutes. During the retention period, the originators will have the priority to publish the analysis of their own data. In case of shared ownership analysis of the data will be published collectively by the originators.

Furthermore, at any time (i.e., during or after the retention period), investigators who have collected and/or done the initial analysis of the data will be invited to be co-authors of any publication or communication based on or using ECLAIRE data, whether undertaken by scientists within the project or outside of it. In the event that the offer is declined, investigators who have collected and analysed the data must be duly acknowledged.

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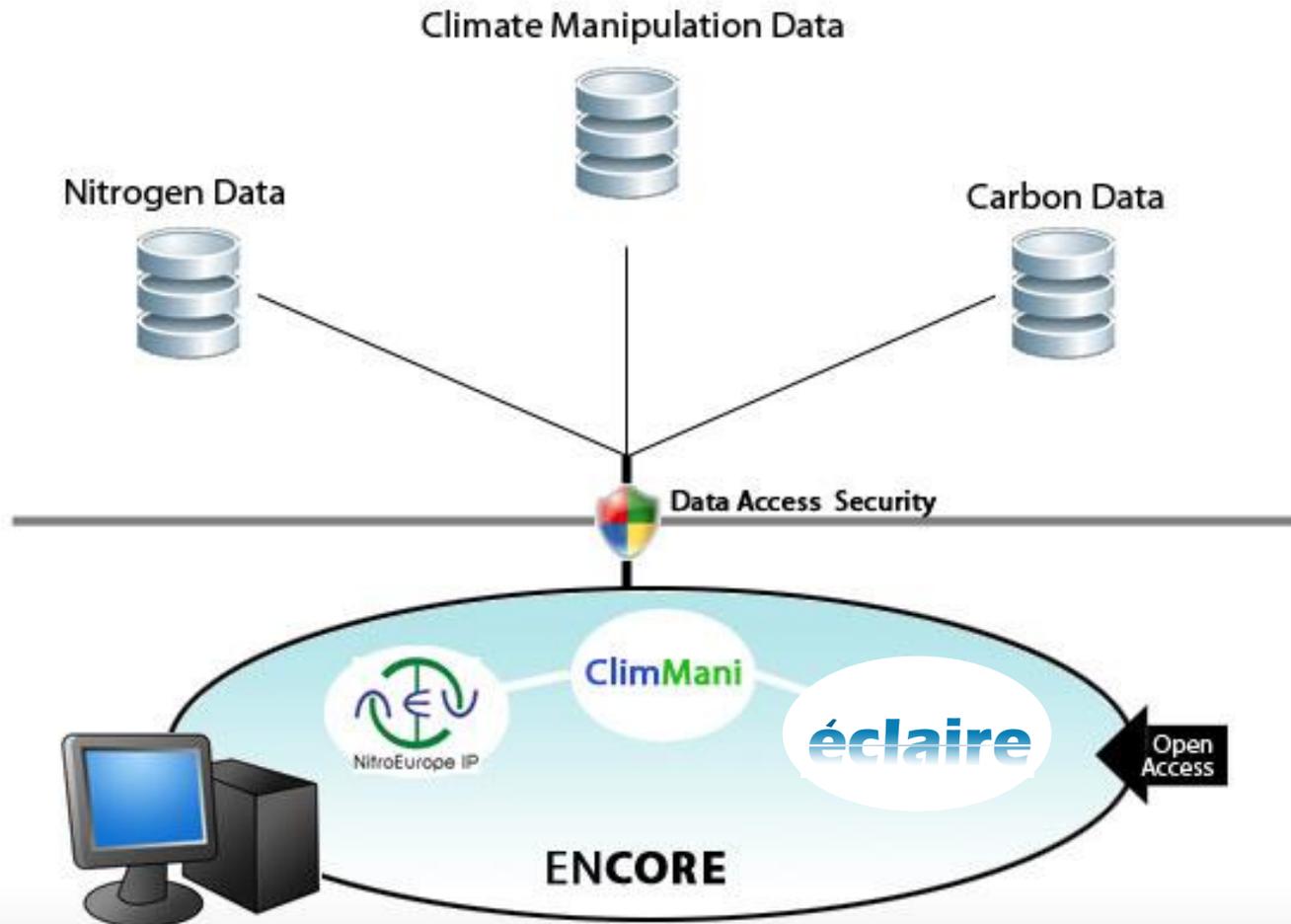
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I agree with the above

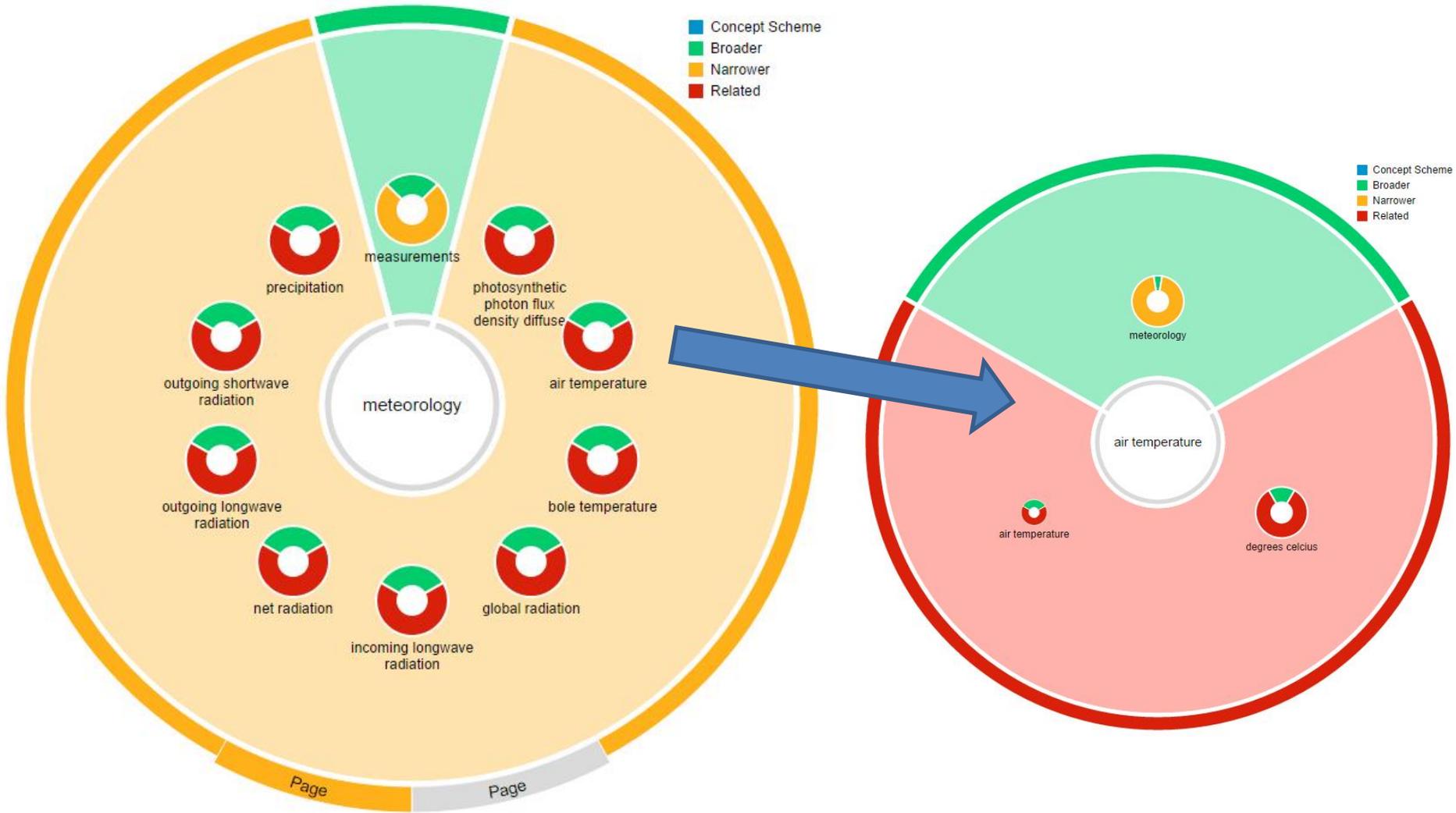
RUN

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



## ENCORE Benefits

- Use of common vocabulary enabling better integration of data
- Ability to add on databases (web services)
- Harmonised approach to units
- Data remain with the project
- ENCORE respects permissions of data author



# ENCORE Reporting

## Report

Select at least 1 field and 1 site

### Fields

All Project Type Search Sites

- All Fields
  - air temperature ⓘ
  - bole temperature ⓘ
  - gapfilled storage-corrected carbon dioxide flux ⓘ
  - global radiation ⓘ
  - incoming longwave radiation ⓘ
  - latent heat flux ⓘ
  - net radiation ⓘ
  - outgoing longwave radiation ⓘ

### Sites

All Project Type Search Fields

- All Sites
  - Auchencorth ⓘ
  - Bugac ⓘ
  - Castellaro ⓘ
  - Easter Bush NE ⓘ
  - Easter Bush SW ⓘ
  - Gebesee ⓘ
  - Grignon ⓘ
  - Hoglewald ⓘ
  - Hyytiala ⓘ

### Date Ranges

2006/01/01 - 2015/09/01

### Summary

Report Name

Request Report

Reset

## OPPORTUNITIES FOR YOU!

**Sign Up** for Demos with David and Bill and help on the:

- a) **ECLAIRE** database especially **Downloading data**
  - Pls, modellers, data collectors, paper writers *et al.*
- b) **ENCORE**

30 minute slots Wednesday (Holyrood 2) and Thursday (Salisbury)