

## IMECC main objective

The IMECC project aims to build the infrastructure for a coordinated, calibrated, integrated and accessible dataset for characterizing the function of the European terrestrial biosphere.

### Details

- 29 partners in 15 countries
- 4 years duration, Apr 2007-Mar 2011
- Commission contribution 6.7 million €

[www.IMECC.org](http://www.IMECC.org)

## Networking Activities

- **Network Design Tool (NA2):** Provides a service in which an experimenter can determine the impact of a potential future measurement on knowledge of carbon fluxes and accounting
- **Network of Quality Control for Atmospheric Measurements (NA3):** Establishes the degree of interoperability of European atmospheric measurement laboratories.
- **Isotope Standard Preparation (NA4):** Establishes and circulates a new primary standard for the isotopic composition of CO<sub>2</sub> in air.
- **Network of Algorithms and Software for Flux Measurements (NA5):** Inter-comparison of flux calculation methodologies in use within Europe
- **Terrestrial Carbon Data Centre (TCDC) (NAG):** Establishes a data centre for all IMECC data and other data on the terrestrial carbon cycle in Europe.

## Access to GASLABS (TA1)

This service offers access to flask analysis in two major CarboEurope-IP high precision atmospheric laboratories (GASLABS). It offers very high precision greenhouse gas measurements on air samples at ambient concentrations. The GASLABS are MPI-BGC and LSCE.

Analysis for each sample will include:

- Very high precision analysis of CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, plus CO and CO<sub>2</sub> isotopic composition
- Possibility of borrowing well-conditioned flasks for field campaigns ensuring excellent conservation of atmospheric species over time.



Measurement equipment at LSCE and MPI-BGC (TA1)

## Access to Atmospheric Network (TA2)

This activity will give access to the stations of the atmospheric network to visiting scientists. Access possibilities include:

- Access to stations for intensive campaigns to study physical, chemical or radiative behaviour of the atmosphere
- Access to a well established network where CO<sub>2</sub> and other species are routinely measured
- Possibility for deploying new sensors for testing and validation under field conditions
- Basic logistic support for working at a station



Location of sites for TA2: Access to CarboEurope IP Atmospheric network



Location of sites for TA2: Access to CarboEurope IP Atmospheric network

## Strategies

- Improving the comparability of atmospheric measurements of greenhouse gases and isotopic composition
- Coordinating optimal development of infrastructure via comprehensive experimental design studies
- Improving access to existing and future atmospheric and ecosystem data
- Coordinated data delivery centre
- Improving access to data on ecosystem parameters
- Tying European terrestrial data into emerging remotely-sensed datasets on atmospheric composition.

## Types of activities

- Networking Activities
- Transnational Access Activities
- Joint Research Activities

## Transnational Access Activities:

Access is offered to:

- Measurement facilities (GASLABS) (TA1)
- CarboEurope-IP Atmospheric Network (TA2)
- CarboEurope-IP Terrestrial Network (TA3)
- European Ecosystem Measurement Laboratories (TA4)

## Applying for access

- Applications for access can be made via an application form available on the website: [www.IMECC.org](http://www.IMECC.org)
- Contact person: Eero Nikinmaa [eero.nikinmaa@helsinki.fi](mailto:eero.nikinmaa@helsinki.fi).



Photo of the Balastok tower and some measurement equipment. Balastok is an IMECC super site, with continuous measurements, profiles and FTIR data. It is involved in activities TA2, JRA1 and JRA2.

## Access to CarboEurope-IP Terrestrial network (BIOLABS) (TA3)

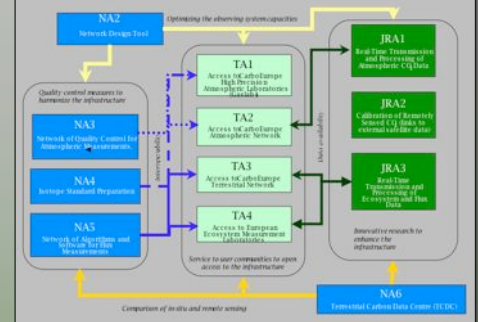
Access to four flux and ecosystem manipulations sites is offered to European scientists. Access offered includes:

- Addition of instrumentation to one of the sites
- Use of site facilities and measurement
- Access to flux towers and the plots of the manipulation experiment
- Access to basic data regularly measured at the sites (includes main weather parameters, measures of soil respiration, sap flow and through fall)
- Direct interaction with the infrastructure managers for planning and scheduling



Ecosystem Manipulation sites

## Links between IMECC activities



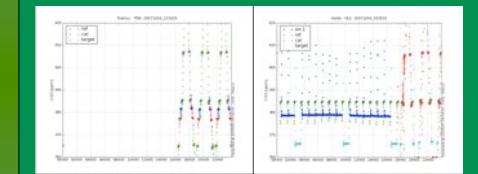
## Links to other projects

IMECC :

- Feeds data to GEOMON
- Supports CarboEurope measurements
- Provides validation data for GEMS
- Forms the technical foundation for parts of ICOS

## Research activities

- **Real-Time in situ Atmospheric CO<sub>2</sub> Data (JRA1):** Provides real-time data on atmospheric CO<sub>2</sub> composition for use in operational data assimilation systems
- **Ground-based remote sensing of GHG (JRA2):** Develops and deploys a ground-based Fourier transform interferometer (FTIR) for validation of satellite CO<sub>2</sub> measurements
- **Real-Time Ecosystem and Flux Data (JRA3):** Produces real-time ecosystem fluxes and function for use in operational data assimilation and carbon accounting

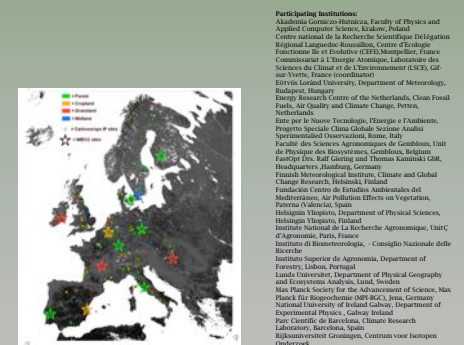


An example of NRT CO<sub>2</sub> data. 24 hours of data from Trainou, France and Hanle, India. Measurements taken on October 4, 2007. Graphs available thanks to Jerome Tarniewicz, LSCE

## Access to European Ecosystem Measurement Facilities (TA4)

The 12 selected sites span latitudes from Finland to Portugal, and a wide range of environments. Access includes:

- Administrative support
- Use of the general infrastructure of each of the flux tower sites. This includes:
  - Use of utilities and provision for overnight stay
  - Use of specific research equipment (negotiated in advance)
  - On-site logistic support
  - Deploying new sensors
  - Collecting field samples



Location of sites for access to European Ecosystem Measurement Facilities (TA4)

**Participating Institutions:**  
 Akademia Górnictwa i Hutnictwa, Faculty of Physics and Applied Computer Science, Kraków, Poland  
 Centre national de la Recherche Scientifique (CNRS) / Institut National de l'Environnement Industrielle et de la Santé Publique, Centre de Recherche Atmosphérique, Fontainebleau, France  
 Centre National de la Recherche Scientifique, Laboratoire des Sciences du Climat et de l'Environnement (LSC), Gif-sur-Yvette, France (Instituts)  
 Eötvös Loránd University, Department of Meteorology, Budapest, Hungary  
 Energy Research Centre of the Netherlands, Clean Food Park, Air Quality and Climate Change, Arnhem, Netherlands  
 Euro-Par Observatoire, Energie et Climat, Centre National de la Recherche Scientifique, Fontainebleau, France  
 Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Mar del Plata, Mar del Plata, Argentina  
 Faculty of Sciences, Department of Physical Sciences, University of Helsinki, Helsinki, Finland  
 Institut National de la Recherche Agronomique, Unité de Recherche en Phytochimie, Gembloux, Belgium  
 Institut für Fernstudien, Universität Duisburg-Essen, Essen, Germany  
 Finnish Meteorological Institute, Climate and Global Change Research, Helsinki, Finland  
 Fundación Centro de Estudios Ambientales del Mediterráneo, Air Pollution Effects on Vegetation, Paterna (Valencia), Spain  
 Helmholtz-Verein, Department of Physical Sciences, Helmholtz-Verein, Garching, Germany  
 Institut National de la Recherche Agronomique, Unité de Recherche en Phytochimie, Gembloux, Belgium  
 Instituto di Biometeorologia - Consiglio Nazionale delle Ricerche, Bologna, Italy  
 Instituto Superior de Agronomía, Department of Forests, Lisbon, Portugal  
 Linnéus University, Department of Physical Geography and Environmental Studies, Umeå, Sweden  
 Max Planck Society for the Advancement of Science, Max Planck Institute for Biogeochemistry (MPI-BGC), Jena, Germany  
 National University of Ireland Galway, Department of Environmental Physics, Galway, Ireland  
 Parc Científic de Barcelona, Climate Research Laboratory, Barcelona, Spain  
 Rijksuniversiteit Groningen, Centrum voor Isotopen Onderzoek, Groningen, The Netherlands  
 Royal Holloway and Bedford New College, Department of Geology, Egham, United Kingdom  
 The Province, Fellows and Scholars of the College of the Holy and Undivided Trinity of Queen's University, Belfast, Northern Ireland  
 University of Bayreuth, Department of Earth and Environmental Sciences, Bayreuth, Germany  
 University of Birmingham, Institute of Atmospheric and Environmental Science, Edgbaston, United Kingdom  
 Vrije Universiteit, Department of Hydrology and Geomorphological Science, Amsterdam, Netherlands