

CARBONES

30-year re-analysis of CARBON fluxes and pools over Europe and the Globe

CREATING A CARBON BASELINE

Whilst carbon dioxide (CO₂) is seen as the main gas responsible for climate change, no comprehensive integrated 30-year-reanalysis of the global carbon cycle has yet been undertaken. The project CARBONES takes on this challenge at the service of climate modellers and citizens worldwide.

Climate change is happening, temperatures are rising, but our ability to have climate models predict different scenarios for just how this process is likely to unfold over the course of the 21st century, depending on which actions we take to deal with this challenge, still needs further refinement.

CARBONES provides a carbon environmental service establishing a first reanalysis of the carbon cycle in a long term (20-30 years) perspective. In doing so, the project seeks to establish a well founded baseline that is designed to be continuously updated. Integrating essential climate variables (ECVs) defined by the Global Cli-

mate Observation System, such as atmospheric carbon dioxide, leaf area and biomass data (e.g., above ground woody biomass stocks, soil carbon content), CARBONES is set to enhance our ability to predict how the carbon cycle of ecosystems respond to greenhouse gas emissions and climate change.

Thereby, policy makers and the public will be able to make more informed decisions in order to best deal with the climate challenge. Hence, whilst the primary users of CARBONES' reanalysis are climate modellers reporting on climate inventories for the United Nations Framework Convention on Climate Change (UNFCCC), the beneficiaries of this service, which might evolve towards an operational integrated carbon monitoring capacity, are indeed citizens throughout the world and the environment writ large.



PASCAL PRUNET
IS PROJECT COORDINATOR

QUESTIONS & ANSWERS

What do you want to achieve with this project?

CARBONES will deliver the first ever consistent, high space and time resolution information system of the history of the carbon cycle, with associated uncertainties and attribution to controlling processes, for long-term reanalysis of carbon fluxes and pools over Europe and the Globe.

Why is this project important for Europe?

The project forms a natural counterpart to activities in the carbon cycle already undertaken at European level, e.g. MACC and geoland2. It will provide a clear and necessary added value to GMES Services with respect to Climate Users needs, by providing an integrated view of the Carbon cycle.

How does your work benefit European citizens?

The CO₂ cycle parameterisation is the largest source of uncertainties for modelling future climate. The CARBONES products, publically available to European citizens, will be used by the IPCC climate modellers for improving their simulations of the future coupled climate-carbon cycle system.



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CARBONES provides for enhanced reanalysis of Essential Climate Variables (ECV) from terrestrial and oceanic carbon cycles. The retrospective time scale of data analysed is between 20-30 years in this project.

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LIST OF PARTNERS

- NOVELTIS, France
- Commissariat à l'Energie Atomique, CEA-LSCE, France
- Cambridge Environmental Research Consultants Ltd., United Kingdom
- Max Planck Institute for Biogeochemistry, Germany
- Atomic Energy Authority Technology, United Kingdom
- Thales Alenia Space, France
- Federal Institute of Technology, Switzerland
- Alterra, Netherland
- Universitaet Stuttgart, Germany
- Peking University, China
- Aberdeen University, United Kingdom
- UK Met Office Hadley Centre, United Kingdom
- European Forest Institute, Finland
- CLIMMOD Engineering, France

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PROJECT INFORMATION

30-year re-analysis of CARBON fluxes and pools over Europe and the Globe (CARBONES)

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