

# Recent developments in model-data fusion for carbon and GHG science

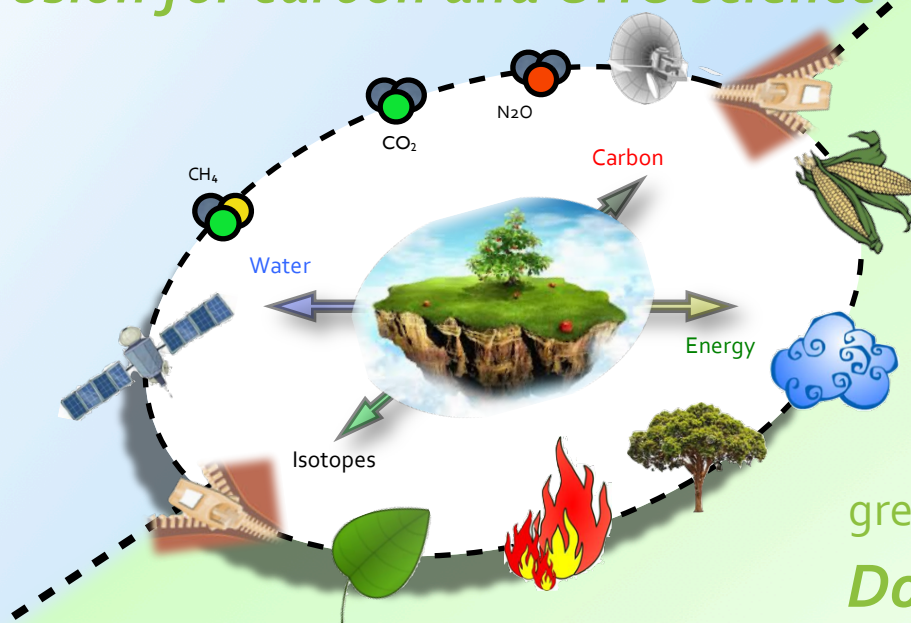
WORKSHOP

2015

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Maison Internationale  
Cité Universitaire  
14<sup>e</sup> Arrondissement, Paris

Reducing  
greenhouse gas emissions:  
*Do trust, but verify!*



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Climate change is a major challenge for earth and society and urgent action is needed to limit it (to less than 2 °C average worldwide) by solid reductions on greenhouse gas emissions.

The coming Conference of the Parties 21 (COP21) offers an opportunity for humanity to reach agreement on this.

However, this agreement will require verification. The international networks that perform greenhouse gas observations in atmosphere, ocean and land ecosystems are currently evolving. The fusion of data streams from observational infrastructures with advanced earth system models is the next step in developing integrated knowledge on global carbon and greenhouse gas budgets. With the help of complex model-data fusion systems these observations will be able to verify the greenhouse gas emission fluxes on regional and national levels.

These systems will also provide information on how the Earth system is responding to climate change with positive or negative feedbacks, information that is extremely relevant for our emission reduction targets.

The idea of this workshop is to evaluate the combined value of observations from large networks and emerging approaches in earth system modelling.

The workshop will consist in three sessions:

### 1. Data from observation networks and infrastructures (in-situ & satellite):

This session shall discuss variables and datasets from observation-based research networks and infrastructures, show availability, and define requirements.

### 2. Model-data fusion approaches:

Newest systems that use or have the potential to use in-situ observations from several networks or from a combination of in-situ and space observations will be presented.

### 3. Outreach of carbon and GHG research:

Aiming at better communicating carbon research to the general public in the context of climate mitigation efforts. This session shall also provide a perspective to better link long-term observations to inventories.

The workshop will be held in Paris during the year where the COP21 will take place, and therefore should evolve in this context.