



**Project Number 282910**

**ÉCLAIRE**

**Effects of Climate Change on Air Pollution Impacts and Response Strategies for European Ecosystems**

**Seventh Framework Programme**

**Theme: Environment**

**D21.4**

**Agreement on common modelling and uncertainty protocols across components C1-5**

Due date of deliverable: **31/09/12**

Actual submission date:

Start Date of Project: **01/10/2011**

Duration: **48 months**

Organisation name of lead contractor for this deliverable :  
**UEDIN**

<b>Project co-funded by the European Commission within the Seventh Framework Programme</b>		
<b>Dissemination Level</b>		
<b>PU</b>	Public	<input type="checkbox"/>
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	<input checked="" type="checkbox"/>
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	<input type="checkbox"/>
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	<input type="checkbox"/>

## Executive Summary

A number of models are used within the ECLAIRE project, with a variety of interlinkages between them. Uncertainty is also recognized as inherent to any model system and if we are to compare and link model systems, we need to be aware of the potential differences caused by the setup within and inputs to these models. It was therefore decided that a task within work package 21 be devoted to ensuring that any harmonisation necessary be undertaken and that the uncertainty within the models used be reported in a later project phase. The first part of this would be achieved through the development of appropriate modelling and uncertainty protocols for the project.

To do this, the issue of harmonisation and uncertainty was addressed at the kick-off meeting, and it was decided that in the case of the ensemble CTM study (and linked models), a modelling/ensemble modelling protocol was required. This protocol was developed prior to a meeting in IIASA in March 2012, further developed at the meeting and then finalised in the months afterwards. To develop this protocol and the necessary information to harmonise the models involved, all modellers within the project were asked to supply input and output data, as well as information on more detailed uncertainty work they had undertaken on the models to be used and any planned during the project.

The information collected from the modellers allowed the following conclusions to be drawn:

- that it was important that the ensemble modelling study (which will address certain aspects of the variation and uncertainty in model systems within ECLAIRE) be conducted in a comparable way throughout the project;
- that whilst some modellers/model groups would be considering uncertainties within their models in detail, these studies were model and technique specific, therefore rendering an overall project-wide protocol for uncertainty modelling, unnecessary

In terms of general modelling practice, it is of course assumed that all modellers will validate their models and attempt to minimise the uncertainty in the system where possible, as a matter of scientific rigour, so more specific guidance on this is not necessary.

Therefore one document has been developed to cover this deliverable – an ensemble modelling protocol which spans components 2, 4 and 5 (see reference below).

**Objectives:**

- To develop and implement common modelling protocols to ensure reliable and transparent methods for assessing uncertainties in modelling.
- To establish, document and implement methods for assessing uncertainties in modelling.

**1. Activities:**

Engaged with all modellers within the project to determine the models which they would be using, for what purpose they would be using them and also to obtain more detailed information regarding inputs/outputs and past and future uncertainty and ensemble work. This provided information for the modellers to collaborate on their model runs and allowed them to develop a modelling and ensemble modelling protocol (see below) to harmonise their work in the project.

**2. Results:**

N/A

**3. Milestones achieved:**

M100 – Modelling and uncertainty assessment protocols written and distributed.

**4. Deviations and reasons:**

Due to the nature of the work being undertaken, only one protocol document was deemed necessary, which covers both the harmonization of models within C2, C4 and C5, in terms of both general modelling practice and the ensemble study (uncertainty work).

Individual models/modellers may carry out uncertainty studies on the models which they will be using within the project, however as this is on a model by model basis, and involves a range of techniques an overall protocol for this does not seem necessary and would entail many hours of work which are not currently included in the project.

**5. Publications:**

N/A

**6. Meetings:**

- ECLAIRE kick-off meeting (Brescia, Italy Oct 2011)
- Multi-component meeting (IIASA, Austria, March 2011)

**7. List of Documents/Annexes:**

Protocol ensemble model application in Eclair.doc