

Project Number 282910

ÉCLAIRE

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

Seventh Framework Programme

Theme: Environment

**D21.5: First report on uncertainty in model
 output due to structural elements**

Due date of deliverable: **30/09/2014**

Actual submission date: **20/11/2014**

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

Duration: **48 months**

Organisation name of lead contractor for this deliverable :
UEDIN

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

1. Executive Summary

There are various activities being undertaken within the project, involving uncertainty in model systems. Due to the wide range of models being employed in this project it is also possible to focus in and look specifically at the issue of the uncertainty in model output due to structural elements. The overall objective of this and the linked deliverable D21.6 is to provide a report on such activities, bringing together information across the project, where such studies exist. This deliverable represents an interim task in this objective - i.e. the first report on such work. In developing the material for the report it was realised that much of the work which focuses on ensemble/intercomparison studies and analysis of the results (which would fall under the remit of this report), is still yet to occur. Therefore at this time, the first report contains the scope for the final report and a statement of the potentially relevant work packages which will be reported on later on, rather than information on the studies themselves, as this is better done when all the relevant information is available (i.e. much later in the project). This first report then lays the groundwork for the final report.

2. Objectives:

To provide a first report regarding uncertainty in model output due to structural elements across the project.

3. Activities:

- Defined the scope of the report (see attached annex).
- Reviewed the project for studies which would be relevant to this report, starting with the ‘Description of Work’, communicating with relevant component/work package leaders (through the general activities of WP21) and consulting the ‘Protocol for an ensemble model assessment of CTMs, DGVMs and DSVMs in scenario analysis in Eclairé’ (document associated with D21.4). Further information was gathered at the fourth General Assembly in Budapest and also during the reporting period through relevant work package reports and direct communication with work package and component leaders.
- Assessed which work packages may (eventually) contain relevant material, requesting materials available so far and also checking the timescale for potential delivery of pertinent items.

4. Results:

The scope of the final report has been defined (see annex) and as explained below, this provides the basis of the first report.

During the review phase it was realised that at this planned time in the project, much of the work in this area is yet to be completed or fully analysed. Therefore a report containing the substantive information on studies across the project would be best written at the end of the project, when all the relevant studies will have been completed. This would then allow the listing of all relevant activities across the project, with the possibility to make comparisons and draw conclusions where appropriate.

5. Milestones achieved:

MS102

6. Deviations and reasons:

As noted above, this current report contains the scope of the final report, as at this planned time in the project the relevant activities to be reported have not yet been fully achieved. However, as this is primarily a comparative reporting task, there are no dependencies on other parts of the project, so it will cause no delays to other parts of the work.

7. Publications:

N/A

8. Meetings:

The fourth GA in Budapest was attended, during which, information was gathered in support of this task.

9. List of Documents/Annexes:

Annex: Scope of the report on uncertainty in model output due to structural elements (attached).

Annex: Scope of the report on uncertainty in model output due to structural elements

Rationale

The ‘Report on uncertainty in model output due to structural elements’ aims to provide comparative summary information on uncertainty work undertaken in the ECLAIRE project which focussed on uncertainty in model output, in relation to structural elements (i.e. differences in model design and organisation, handling of input data and parameters etc). Whilst it is expected that all models in the project will need to deal with uncertainty in both their output and input data, as noted in the Modelling Protocol (D21.4) and associated document ‘Protocol for an ensemble model assessment of CTMs, DGVMs and DSVMs in scenario analysis in Eclairé’, these models address many different aspects and questions and for these reasons the uncertainty will need to be addressed on a model by model basis. Therefore an overall protocol does not seem necessary for that work and the protocol instead focussed on the ensemble and certain intercomparison work which was undertaken in the project. The scope of the uncertainty report then includes the model experiments which were highlighted as being planned, in the above mentioned protocol.

Activities and Models Involved

In the modelling protocol document (associated with D21.4), the following two activities fall under the relevant category for this report:

Chemical Transport Models (CTMs) Involved in ensemble application, model intercomparison and validation

- EMEP
- TM5
- LMD-INCA- Orchidee

The DGVMs and DSVMs involved in the intercomparison are:

- CLM
- Jules
- LPJ Guess
- O-CN
- ORCHIDEE
- VSD+-FORSPACE

Focus and Timescale

The activities listed in the previous section take place in work packages 7 and 14 respectively therefore the final report will address the relevant studies in these work packages.

Whilst the activities in work package 7 are well underway, those in work package 14 are yet to be delivered (this was in fact the planned delivery schedule for this work package). Thus it has been decided at this stage to develop the report fully when all the available studies have been concluded (i.e. at the end of the project).

During the final year of the project if it becomes apparent that other studies are relevant for this report, they will be included.