Title :	Closing Plenary Session
Date/Time :	24th October pm
Chair :	Mark Sutton
Minutes by :	Clare Howard

During this session, each of the component leaders and then the chair of the Data Management Committee, made a brief presentation to the participants, on the messages, issues and actions arising from the parallel sessions. These presentations (apart from that for C5, as slides were not used), can be downloaded from the ECLAIRE website (members only). The notes below are matters and questions arising from the presentations.

C1

- Po Valley Bosco Fontana site will continue to be monitored, by Sonja and Vesna
- VOC measurements which would be of use to models seem not to have materialised, therefore we need to review this and find out who and where this will be done
- Local scale atmospheric transport modelling, i.e. Po Valley is being considered. There are ground based weekly measurements from satellites, but we will need more info on the columns. However there is a mass spectrometer network, plus Pegasos has yielded an interesting dataset. However, questions still remain on the available emissions data for the Po Valley – as this will affect the possible resolution of the modelling.
- ESX delivery will be as fast as possible.

C2

- A request was made to disseminate the project reports to the scientists – this has now been done.
- There is a need to define the priority experiments at this time, when they will be delivered and who is delivering them. Biogenic VOC emissions and leaf area changes and relationships are considered options which are easy to implement.
- Some deliverables are delayed – it was noted that a timeplan for late deliverables would be useful. In response:
  - A contingency plan for the modelling, will be mentioned in C4
  - Sub-grid information, needs to be worked on asap, we have high resolution data from EMEP4UK to look at those relationships
- The source receptor matrix has to be rescheduled – therefore lets provide information soon, to the commission as soon as possible on this.
- Regarding Orchidee, the work was to find out which type of fertilisers to use for the future runs. We need more updated fertiliser maps.

C3

- They have made a matrix of the linking of the models, data etc, to see what is needed from now on.
- They have also looked in detail on data supply for modelling.
- Other components need to check in with C3 as there will be new information on response functions coming through. An extra meeting added to the ICP task force will be included to take this forward.
- Data to be extracted for modellers by Jan onwards.
- There may not be tipping points in some processes, but this is for further debate.
- Planning to develop policy statements to link up with Component 5.
- The key thing is how to address the emerging messages to go forward....
    - From the N form experiment at whim, it is clear that N form is an important factor for some effects and not so much for others. To address this we need to take cores, to overwinter into domes in spring to expose to ozone.
    - Regarding BVOCs – the results are interesting but the results seem to suggest a sensitive component regarding plant metabolism, including drought which makes generalisation quite difficult.
    - The aerosol work is very interesting, e.g. the effects on the wicking action, which brings water out, making the plants more sensitive to drought. However, this may come out as a statement rather than being incorporated into models.
- The N form work can then feed through to novel thresholds. However it may be difficult to put in GAINS – but we can make clear statements - i.e. related to form, or for drought, what levels of ambient aerosol are needed for a certain effect.
- Results do of course vary by experiment and perhaps species, so we need to be careful about interpretation. In terms of N benefits, there are some, but some knock-on effects too, as they can be adverse, C3 urge C5 not to take these statements too soon, a few months more is needed to complete analyses etc.
- At this time we can then outline some of the emerging messages, but must explain that we are working further.
- Dave Simpson wanted some clarification on scatter plots – as it is going into global models. The response was not to take any results in isolation, C3 is doing a thorough approach, and the results from the C3 work overall, should be considered.

C4

- Modellers will use nitroscape when it comes, however due to time pressures, they will use the best high resolution methods which are country specific in the meanwhile. The upscaling process is common to all.
- We should check the description of work, to assure that the model runs provided are consistent with that promised.
- Only one DGVM can be used to predict N_2O balance (OC-N).
- Novel critical loads have been focussed on, rather than thresholds.

- We need to examine whether we can add the other novel critical thresholds, as we have promised this.
- We have provided mapping for the ozone exceedances based on model results. However you cannot model if you have no updated information.
- Ammonia concentrations should come out in the source receptor matrices. So, it could be linked to this.
- There was a concern as to the meaning of concentration etc, in terms of resolution.
- We need to consider the feedback to local items, in WP8.
- There are issues regarding addressing uncertainty and local variability as they would lead you to focus on different model solutions – we need to think about the implications of this, to decide on which things need to do be achieved.

C5

- The benefits which can be quantified, (includes provisioning services, impacts of climate and pollution on population and timber) were discussed at the meeting.
- Using one of the current pathways, (which is productivity), leads to more nitrogen (i.e. more deposition), being beneficial. This is then in contrast to the main messages about too much nitrogen.
- Quantifications are available for only the productivity.
- The chain of what we have is not complete.
- There is also a timescale issue – many ECLAIRE models are looking at the short term, but some responses may work (or behave differently) in the longer term. We need more tools to address this issue.
- Biodiversity is the other dimension to the work, there has been progress in quantifying different indicators. For ozone, it is not quite clear whether it is a positive or negative impact. So most information used will be on N and biodiversity. The challenge is to link the valuation studies, to those of biodiversity, on which there is little data, and take this to indicators which we can use in modelling. Net loss in productivity for example. We also have to think about typical species and whether they are important to maintain, or other approaches.
- Also thinking about a separate approach for Natura 2000 sites, application of restoration costs is worth it, so we can work on the estimates here.
- There are also some non quantifiable elements, but I do not think that they are going to be a large impact on the system proposed.
- We must think about thresholds, the debate is not finished. But we should talk about them in relation to long term impacts or targets. More needs to be discussed on this.
- Urgent need to refocus on long term perspective.
- We need to put in items into a context of sustainability rather than just ecosystem services, this might mean some adjustments of the workplan, but this may be essential.
- A discussion followed on climate regulation and nitrogen, as this is very important, as well as provisioning services. However, this system is very complex, with both

positive and negative impacts due to nitrogen. Again the issue of timescale is very important here – e.g. increases in forest growth may be seen to be positive in the short-term, however may be negative in the longer term.

- One of the stakeholders strongly supported the concerns that Markus Amann voiced during the meeting. There is the danger that with this difficult to understand system, the messages could be misunderstood, due to ignorance or lack of interest. It is important then to underline for the policy audience the points relating to climate change, and frankly state for which timeline you make your conclusions.

Database

- It was noted that if you have any queries regarding the AFOLU database, the best option is to create a user account and use their help system. It is not necessary to contact Adrian Leip.

Feedback from the Stakeholder Advisory Board

- The ecosystem services concept was in part designed due to a lack of understanding of critical loads by policymakers. Therefore it is difficult to know what to do for the future. However it was noted that they have a very different philosophical approach, therefore we should not forget critical loads.
- The issue of long vs short timescales is a tricky one, but one which we cannot avoid. Only modelling approaches can provide the longer term aspect to the work.