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The ÉCLAIRE project:

Effects of climate change on air pollution impacts and response strategies for European ecosystems

Presentation at the APPRAISAL - NIAM meeting, Brescia, June 29 2012

éclair

Effects of climate change on air pollution impacts
and response strategies for European ecosystems



- <http://www.eclair-fp7.eu/>

The **ÉCLAIRE** project [*Effects of Climate Change on Air Pollution and Response Strategies for European Ecosystems*] is a four year project funded by the EU's Seventh Framework Programme for Research and Technological Development (FP7). The project will be running for 4 years, from October 2011-2015 and involves 39 partner institutions across Europe.

Contents



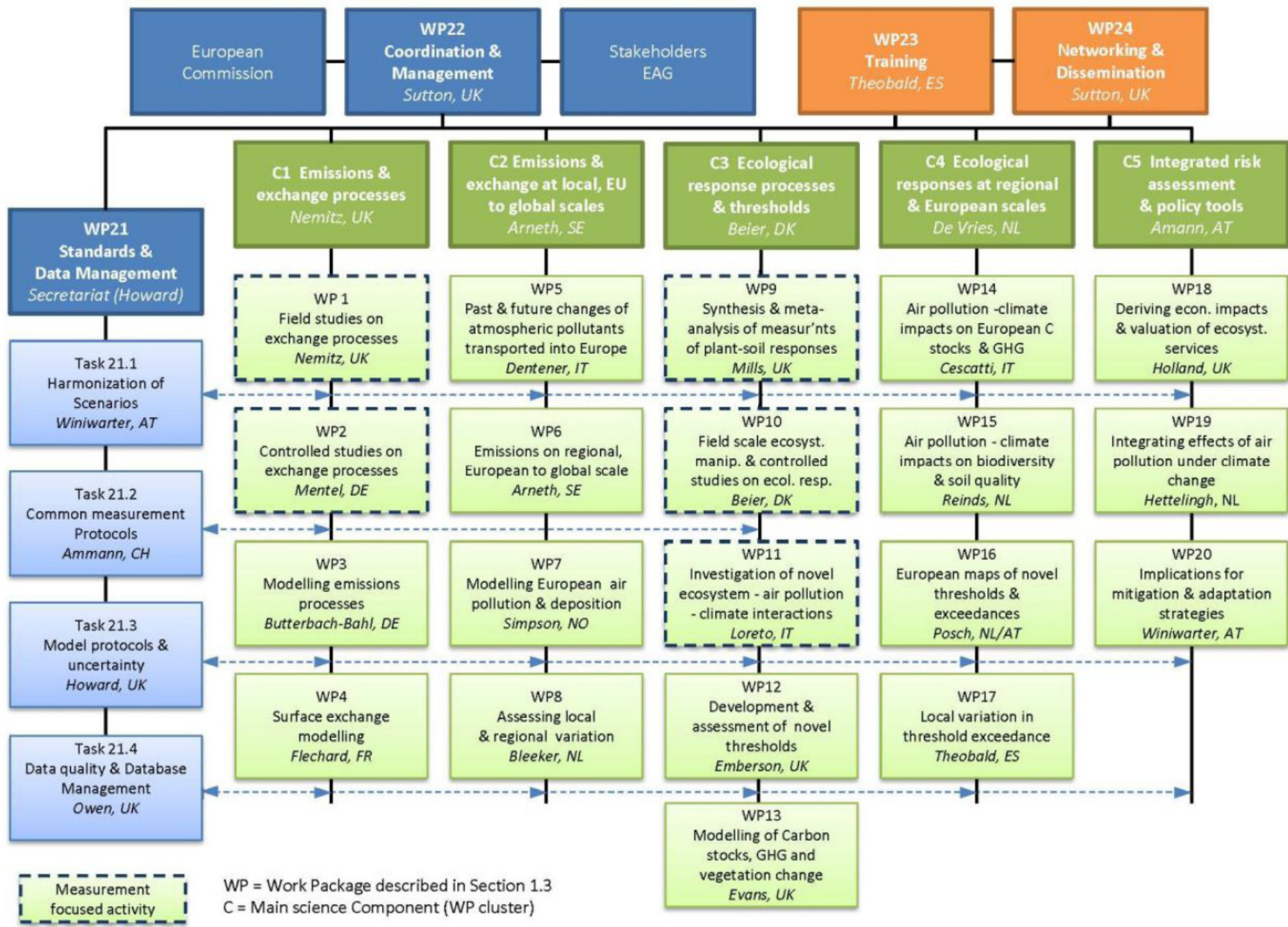
- What is ÉCLAIRE about?
- How can NIAM participants contribute?
- Possible project outcomes
- Discussion and further involvement

Background / FP7 call for proposals



- ENV.2011.1.1.2-1 The impact of atmospheric pollution on European land ecosystems and soil in a changing climate
- Trace gas exchange between biosphere and atmosphere (new impact indicators)
- Pollution impact: ozone, acidification, eutrophication

- Other relevant projects in this area:
 - ENV-2010.1.1.2-1 Atmospheric chemistry and climate change interactions (PEGASOS)
 - ENV.2011.1.1.2-2 Climate forcing of non UNFCCC gases, aerosols and black carbon (ECLIPSE)

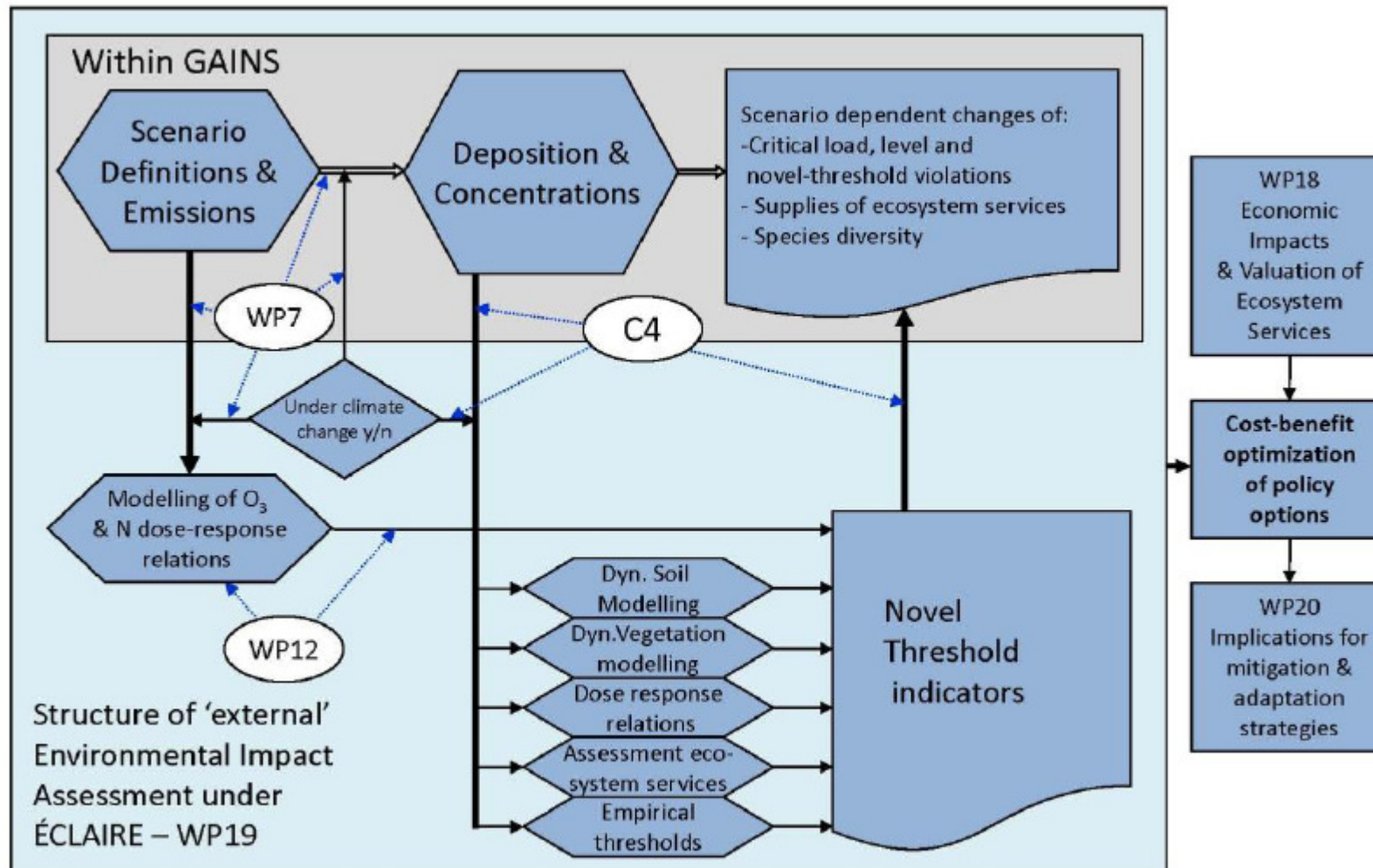


Key components



- *Emissions and Exchange Processes*
 - *Emissions & exchange at local, European to global scales*
 - *Ecological response processes and thresholds*
 - *Ecological responses at regional and European scales*
 - *Integrated risk assessment and policy tools*
- Key question: Will the recommended measures to reduce adverse impacts on ecosystems remain the same under conditions of climate change?

Impact assessment in ÉCLAIRE



General rules for indicators



- CBA works on costs and damages, is in principle able to also balance out tradeoffs (but note the considerable uncertainty involved in such “net functions” or differences)
- GAINS can operate on target functions (“endpoints”). It will optimize the path to achieve the target, or at least provide cost information for a given achieved distance to target
- Any benefits need to be integrated in the endpoints
- GAINS can operate on largely independent entities and perform optimization in either direction (e.g. air pollution and climate change):
 - Optimize in terms of air pollution and measure climate related benefit
 - Optimize in terms of greenhouse gas emissions and measure pollution-related benefit

Choice of indicators



- We need to be able to create source-receptor matrices by way of operating the EMEP model
- Indicators need to be derived from a CTM output
- E.g. species' concentrations, "over threshold" (if collected during model output), fluxes (if collected during model output)
- Also combined N / O₃ (& CO₂) indicators to reflect interactions are conceivable (if collected during model output)
- CBA is somewhat more flexible but only if damage costs can be established for specific situations

Potential national aspects / request for contributions



- Specific ecosystems/ land uses?
- Specific response to climate change?
- Specific considerations regarding air pollution abatement?
- Which sensitivities / special aspects would you like ÉCLAIRE (first of all: Integrated risk assessment) focus on?

Policy considerations covered



- Define workplan so that it can deliver policy results
- Feed into NEC / TSAP policy (2030-50 scenarios)
- Limited policy success with valuation on monetary terms – hard-link to other conventions (biodiversity) or other EU policies (Natura 2000) as constraints
- Robustness of conclusions (“uncertainty”) – justified across the range of results, achieved in different scenarios?
- Focus on an interesting rather than on a “business as usual” case

Expected ÉCLAIRE results



- New thresholds (flux-based) expected – possibly interacting N and O₃ thresholds
- Ecosystem response and impacts under different meteorology (climate change) assessed
- Guidance on conceivable changes in strategies due to climate change delivered
- Ecosystem information exchanged with other relevant projects

Next steps



- Common scenarios (global) towards 2050 – in accordance with TF HTAP
- ÉCLAIRE annual meeting (October)
- Take up inputs from measurements & modelling groups as well as from stakeholders
- Open Science Meeting expected for fall 2013
- Further integration of NIAM to support ÉCLAIRE