

Europe, climate change and ENSEMBLES

Briefing note No. 2

The Met Office has led a five-year EC-funded research project into the likely effects of climate change on Europe. This study, involving 66 partners across Europe and beyond, is the biggest ever integrated climate change research project. The study will report its key findings in November 2009 at a final symposium at the Met Office.

Key impacts researched by ENSEMBLES

The table overleaf summarises the work done in the project. A varied approach has been adopted, with some impacts being assessed using a probabilistic method. This method uses projections from the Met Office Hadley Centre 'perturbed physics ensemble', which provides a probability to the projection. This allows a more detailed analysis of timing and intensity of the impact which is of greater use for adaptation measures and risk management in planning. All of these impacts can be compared with a future climate under the E1 mitigation scenario developed for this project to calculate the damages avoided.

The results have relevance to decisions that need to be taken by policymakers now. The proposals in the white paper titled *Summary of the EU commission adapting to climate change* will be able to draw upon the comprehensive research conducted for this strand of the ENSEMBLES project, particularly with regard to building a robust knowledge base and improving the scientific analyses, which will inform developing adaptation strategies.

Sector	Impact area	Timescale	Region	Probabilistic?	Main impact
Insurance	Property damage by windstorms	2071-2100	UK Ireland France Germany Benelux Spain	N	15% increase in storm loss potential
Insurance	Winter wind storms	Seasonal	Europe	N	Increase in extremes over NW Europe
Energy	Electricity demand	Seasonal	France	N	—
Health	Heat stress	21st C	Greece	N	Increase in heat stress and mortality from heat waves
Forestry	Forest fires	2025-2100	Fenno-scandia	N	Increase from 20 to 35 days per year of fire risk
Forestry	Bark beetles	21st C	Scandinavia	N	Increase in damage. Loss of forests
Water	Water resources for agriculture	2061-90	Poland	N	Decrease yield of wheat and potato
Water	Lake levels	21st C	Fenno-scandia	Y	Increase in winter, decrease in summer
Water	European rivers	2071-2100	Europe	Y	Tiber and Vistula vulnerable – increase in water stress
Agriculture	Wheat yields	21st C	Mediterranean basin	Y	increasing risk of yield shortfall from present day to 2100
Agriculture	Nitrogen leaching	2010-2090	Portugal & Denmark	Y	20-40% probability of N leaching increase 20-40% yield decline in crops arising from this
Agriculture	Kiwi fruit	Seasonal	Italy	N	—
Agriculture	Blue tongue	Seasonal	Northern Europe	N	Increase in N. Europe with increasing temp
Natural environment	Palsa mires	21st C	Scandinavia	Y	3 °C increase in temp and 10 % increase in ppn lead to 80% loss by 2080