

## VIII – Climate modelling, observations and scenarios: user needs for adaptation

### Parallel session D – Tuesday 11<sup>th</sup> March 14:00-15:30

**ID N°:** [114]

**Title:** **CLIMATE4IMPACT: DEVELOPING STANDARDS, TOOLS AND DATA ACCESS TAILORED FOR IMPACTS AND ADAPTATION USERS IN EUROPE**

**Authors:** [Christian Pagé](#)<sup>1</sup>; Maarten Plieger<sup>2</sup>; Wim Som de Cerff<sup>2</sup>; Lars Barring<sup>3</sup>; Ronald Hutjes<sup>4</sup>; Fokke de Jong<sup>4</sup>; Edoardo Bucchignani<sup>5</sup>

**Institutions:** <sup>1</sup>CERFACS, France; <sup>2</sup>KNMI, Netherlands; <sup>3</sup>SMHI, Sweden; <sup>4</sup>WUR, Netherlands; <sup>5</sup>CMCC-CIRA, Italy

There are strong needs within the climate change impacts and adaptation communities to have easier access to tailored climate data and products. The diversity of users is still a challenge, but several common needs can be identified. In the framework of the European FP7 IS-ENES project, a prototype web portal for climate impacts researchers <http://climate4impact.eu/> has been developed for providing to the most up-to-date (CMIP5) climate data. It aims at providing impact modellers, researchers, expert study offices in impacts and adaptation with a set of tools for climate scenario data. The portal can be used for impact analysis with access to processed indices (e.g. extremes), downscaled/bias corrected data, and a (limited) number of post-processing tools, along with appropriate documentation. The follow-up project IS-ENES2 that has already started is currently developing the prototype portal into a fully operational platform.

To serve the impacts community best, IS-ENES intends to set-up a periodic user consultation process, with users being primarily impacts researchers. This will be crucial to further develop the portal according to users' needs, notably enhancing the proper representation of uncertainties.

However, the portal does not intend to be the sole portal for impact researchers within Europe, the goal being rather to develop tailored tools and standards which can then be reused and shared by the community and into community-developed specific tailored portals, all driven by users' needs. An array of standardized services will also be developed to provide virtual access to datasets scattered around the globe.

**Presenter**

**Name:** Christian Pagé

**Email:** christian.page@cerfacs.fr

**ID N°:** [239]

**Title:** THE 'USABILITY GAP': THE UK CLIMATE PROJECTIONS 2009 AND ADAPTATION DECISION MAKING AMONGST ORGANISATIONS

**Authors:** [Geoff Whitman](#)<sup>1</sup>; Suraje Dessai<sup>1</sup>

**Institutions:** <sup>1</sup>University of Leeds

Scientific knowledge, particularly the production of increasingly sophisticated climate models, has been shown to be powerful determinants of policy action. However, there remains a widespread under-utilisation of climate projections by decision makers leading some authors to characterise this as a 'usability gap'. This tension between the production and use of climate information has been characterised as "cognitive dissonance" - that is a mistaken belief that the complexity of the climate problem can only be overcome by the use of ever more complex climate models. Furthermore, it is argued that central to the widespread under-utilisation of climate projections by decision makers is the 'uncertainty fallacy', which argues that the use of climate projections would increase through the systematic reduction of uncertainty in climate predictions. However, an increasing body of research now shows that the usability of knowledge is considered to require three essential components: salience (the perceived relevance of the information), credibility (the perceived technical quality of the information) and legitimacy (the perceived objectivity of the process by which the information is shared). The UK has a long history of producing climate change scenarios and projections. Furthermore, the UK also has a well-defined policy framework that began with the Climate Change Act 2008 that centrally positions organisations as important actors within climate change adaptation. In this paper, we explore whether there is a 'usability gap' amongst UK organisations in the context of the UK Climate Projections 2009 (UKCP09). We do so through empirical work that utilised both semi-structured interviews with organisations (85 in total) across a range of sectors within the UK as well as a quantitative survey (111 responses). We explore what sorts of information are being used to inform climate change adaptation decisions and what problems organisations face in the effective utilization of this information for decision-making. We show that while UKCP09 is the main source of information used to inform adaptation plans in UK organisations this use is complex and often problematic for a number of reasons. Firstly, the Climate Change Act 2008 created a demand for climate information that was not led by organisations themselves but by government. Secondly, although the production of UKCP09 was accompanied by user consultations, these engaged a narrow range of users. Consequently, despite a range of organisations having been 'directed' to use UKCP09 by government to produce their adaptation plans this 'use' varies significantly in both its comprehensiveness and its effectiveness. These findings suggest that addressing the 'usability gap' requires understanding the different organisational capacities and pressures – human, financial, technical, institutional, regulatory or political– to use climate information to inform adaptation decision-making.

**Presenter**

**Name:** Geoff Whitman

**Email:** [g.p.whitman@leeds.ac.uk](mailto:g.p.whitman@leeds.ac.uk)

**ID N°:** [272]

**Title: PRODUCING AND TRANSFERRING KNOWLEDGE ON REGIONAL CLIMATE CHANGE: EXPERIENCES FROM THE WORK WITH CORDEX AT THE SWEDISH METEOROLOGICAL AND HYDROLOGICAL INSTITUTE**

**Authors:** Erik Kjellström<sup>1</sup>; Grigory Nikulin<sup>1</sup>; Eleanor O'Rourke<sup>1</sup>; Colin Jones<sup>1</sup>

**Institutions:** <sup>1</sup>Swedish Meteorological and Hydrological Institute

Extensive work within the framework of the international coordinated regional downscaling experiment (CORDEX) has been undertaken at a large number of research institutes over recent years. CORDEX was initiated as detailed regional climate change information was lacking for a number of world regions at the time of the fourth assessment report from the IPCC. The Swedish Meteorological and Hydrological Institute (SMHI) has been a key driver of CORDEX contributing to its initiation and design and performing regional climate model simulations. An important part of the work relates to data handling such as post processing, production of standardized output files and quality control, all in order to facilitate further use and dissemination of results. Presently, results from the large ensembles of regional climate change scenarios are analyzed. The ensemble approach of CORDEX allows for better identification of robust climate change signals and uncertainty analysis compared to what was previously possible. In parallel to the production-oriented scenario work an important effort has been oriented towards knowledge transfer and capacity building. One idea put forward in CORDEX has been to involve scientists from different regions of the world including those where the scientific knowledge on regional climate was previously less extensive or even non-existent. A benefit of this capacity building is that scientists working across the globe could interpret and disseminate information about climate change on the local and regional scale in more direct contact with stakeholders who must consider local impacts in their adaptation planning. Here, we present results and experiences from the CORDEX activities at SMHI. The presentation will provide a snapshot of our results from regional climate model ensembles. How these have been used in a range of different EU projects involving not only European partners, but also partners from other continents will provide an illustration of the transferability of results across borders.

**Presenter**

**Name:** Erik Kjellström

**Email:** erik.kjellstrom@smhi.se

**ID N°:** [171]

**Title:** ON THE USE OF SEASONAL TO DECADAL CLIMATE PREDICTIONS IN EUROPE

**Authors:** [Marta Bruno Soares](#)<sup>1</sup>; Suraje Dessai<sup>1</sup>

**Institutions:** <sup>1</sup>University of Leeds

The importance of climate information to help inform decision-making for adaptation to climate variability and change in sectors susceptible to climate events and impacts is widely recognised. In Europe, recent developments in the science and models underpinning the study of climate variability and change has led to an increased interest in seasonal to decadal climate predictions (S2DCP). While seasonal climate forecasts are now routinely produced by a number of centres around the world, decadal climate predictions are a new area of climate science.

Contrary to other parts of the world where the use of these types of forecasts, particularly at seasonal timescales, has been increasing in recent years due to higher levels of predictability little is known about the uptake of S2DCP in Europe. To fill this gap we conducted a systematic literature review on the use of S2DCP in Europe, organised a workshop with European climate services providers, and performed in-depth interviews with experts and decision-makers across a range of European sectors.

We found that although the use of S2DCP across Europe is still fairly limited, particular sectors such as the energy, water, insurance, and transport sectors are taking the lead on the uptake of seasonal forecasts. Decadal predictions are currently not used in Europe due to the limitations of the science and the experimental nature of existing predictions.

Despite the limited use of these forecasts there is a general understanding that uncertainty is a fundamental component of S2DCP although the use and management of such uncertainty tend to differ across sectors/organisations.

Perceived barriers to the uptake of these types of climate predictions are mainly associated with low skill, predictability, and reliability but also with other factors such as relevance, usability, and accessibility S2DCP by the end-users. Potential solutions to overcome such barriers include the potential to explore existing 'windows of opportunity' in Europe, improve current understanding of users' needs, and improve accessibility and awareness of users to available climate information, including S2DCP, in Europe.

Our analysis also highlighted the central role of the National Meteorological and Hydrological Services and the European Centre for Medium-Range Weather Forecasts as the main producers and providers of these types of forecasts in Europe.

The analysis performed to date is a first step to improve current understanding of the use of S2DCP across Europe. However, further research is needed to help us better understand emerging issues including the complexity of existing chains of provision for S2DCP in Europe, the roles and interactions between actors involved, and the use and added value of these types of predictions in decision-making for climate change adaptation.

This paper will present findings from our analysis and consider some of the broader issues raised by the emergence of S2DCP for climate services in Europe.X

#### Presenter

**Name:** Marta Bruno Soares

**Email:** [m.soares@leeds.ac.uk](mailto:m.soares@leeds.ac.uk)