

**Strengthening resilience through improved treatment of uncertainty  
in weather, climate and impacts**

**Wednesday, 13<sup>th</sup>-Thursday, 14<sup>th</sup> March 2013  
Royal Society, London**

**Rationale** Delegates from academia, funding agencies, policy departments and development agencies meet to present the state of the art in quantifying uncertainty in weather, climate and impacts, and discuss application of these methods to UK risk assessment and global humanitarian and disaster risk reduction work.

**Wednesday, 13<sup>th</sup> March 2013 – Managing Uncertainty in Climate and its Impacts**

Climate models are useful but imperfect tools. Uncertainties in future emissions and model structure are known to exist, but their implications for error in the prediction of climate and its impacts are not known precisely. Day 1 reviews the state of the art in evaluating models and quantifying uncertainty, and takes a forward look to the methods needed for future prediction of climate, impacts and risks in the UK.

10.30 Arrival – Tea/Coffee

11.00 Introduction – Andy Challinor (University of Leeds)

**Methods for Quantifying Uncertainty (Chair: Chris Ferro, Exeter)**

11.15 Challenges in quantifying uncertainty using state of the art climate models - David Sexton (Met Office)

11.45 Can we really reduce uncertainty in climate forecasts? - Jens Christensen (DMI, Denmark)

12.15 Testing climate forecasts - Myles Allen (Oxford)

12.45 Lunch

**Evaluating skill and relevance (Chair: Helen Hanlon, Met Office)**

13.30 Judging the credibility of climate projections – Chris Ferro

14.00 Assessing skill from retrospective forecasts – Doug Smith (Met Office)

14.30 Near-term prediction of impact-relevant heatwave indices - Helen Hanlon (Met Office, formerly Edinburgh)

14.45 Equipping users while maintaining the credibility of science – Dave Stainforth (LSE)

15.15 Tea/Coffee

**Towards robust Climate Change Risk Assessment (Chair: Jim Hall, Oxford)**

15.45 Climate Change Risk Assessment: A retrospective (draft title) – Rob Wilby (Loughborough)

16:15 Climate Change Risk Assessment – Lessons from EQUIP – Andy Challinor

16:45 Discussion

17.30 Drinks Reception

## **Thursday, 14<sup>th</sup> March 2013 – Quantifying Uncertainty on Timescales of Days to Seasons**

Day 1 presented the methods developed by EQUIP for managing uncertainty at multi-decadal lead times. The morning of day 2 asks what methods exist to examine sub-seasonal variability and its impacts, and is there any synergy with methods developed in EQUIP? Topics include improved modelling of impacts through combined prediction of hydrology and agriculture, high resolution simulations, and improved representation of sub-seasonal variability.

09.00 Arrival – Tea/Coffee

09.15 Introduction - Steve Woolnough (University of Reading) and Andy Challinor

### **Quantifying sub-seasonal uncertainty (Chair: Steve Woolnough, Reading)**

09.30 On the reliability of seasonal forecasts - Antje Weisheimer (NCAS/Oxford)

10.00 Variability of West African weather systems - Chris Thorncroft (Albany, USA)

10.30 Tea/Coffee

### **Improved impacts modelling (Chair: Andy Challinor, Leeds)**

11.00 Hydrology, weather and groundwater - Richard Taylor (UCL)

11.30 The use of a high resolution weather ensemble for West Africa for assessing crop productivity – Luis Garcia Carreras (Leeds)

12.00 Discussion

12.45 Lunch

### **Communication of Uncertainty and Knowledge Exchange (Emma Visman, KCL, and Andy Morse Liverpool)**

Consideration of how work presented in the previous sessions may be made most relevant and useful for the humanitarian, disaster risk reduction and development sector. This will include the current state of literacy across members of this sector, the need to support channels for more systematic dialogue and approaches for translating science into action. The session will showcase work from climate science-humanitarian policy demonstration studies in Senegal and Kenya and a number of dialogue approaches seeking to build shared understanding of the uncertainties inherent within both climate science and efforts to support its appropriate application.

**1330-1430 Introduction session: Working with uncertainties to support those most at risk (Chair: Professor Andy Morse, University of Liverpool)**

**1330-1350 How well can climate information support efforts to strengthen community resilience?**

(Professor Andy Morse, University of Liverpool)

An overview and review of presentations from across earlier EQUIP sessions on issues of predictability and reliability across timescales and regions, and learning from experience on

engagement with humanitarian/development and community users as to their information requirements

- 1350-1410 **Supporting the engagement of climate science across a range of humanitarian, development and community users**  
(Emma Visman, Humanitarian Futures Programme, King's College London)  
Current state of the dialogue between the providers and users of climate information to support community resilience, levels of literacy and capacity to engage with uncertainty, the need to create frameworks and approaches for dialogue.
- 1410-1430 **Approaches for integrating climate science uncertainties within community resilience**  
(Professor Dominic Kniveton, University of Sussex)  
Complex systems approach for supporting the integration of climate science within efforts to support community resilience. Recognising the need to combine scientific and community knowledge sources and outlining approaches to support this process (Knowledge Timelines and Participatory Downscaling)
- 1430-1515 **Exchange between climate scientists and humanitarian and development policymakers and community users: Demonstration studies in Kenya and Senegal (Chair: Emma Visman, Humanitarian Futures Programme)**
- 1430-1500 **Climate information to support agricultural livelihoods: Blending indigenous and scientific sources of climate information**  
(Richard Ewbank, Christian Aid)  
Bringing together sources of weather and climate information. The types and timeframes of climate information required to support specific agricultural decision making, integrated with expertise from across a range of relevant sectors (livestock, agriculture, marketing) and contextualised within the range of hazards facing communities at risk. The impacts of this kind of work – on decision making and agricultural yields. Potential for upscaling.
- 1500-1520 **Potential for using weather and climate information to support community resilience across timescales**  
(Mary Kilavi, Kenya Meteorological Department)  
Opportunities and new more relevant channels for enabling climate information across timescales to support humanitarian, disaster risk reduction.
- 1520-1540 Tea break
- 1540-1630 **What could we do (better), with what we have (already) got? Panel discussion chaired by Professor Tim Palmer, ECMWF**  
Five minutes from each of four panel members, followed by Q&A session  
  
(Three panellists from humanitarian, disaster risk reduction and development organisations, amongst: Kate Crowley, CAFOD and InterAgency Resilience Group, Natasha Grist, CDKN and Benedict Dempsey, Save the Children UK  
  
(Two climate scientists: Myles Allen, University of Oxford and Richard Jones, UK Met Office Hadley Centre)
- 16.30 Discussion and concluding remarks
- 17.00 Meeting ends