

Hadley Centre

European Climate Observations, Modelling and Services Phase 2: ECOMS2

Coordination and support of European climate-related activities

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Julia Slingo and Chris Hewitt

Evolution of the Climate Research landscape





• FAR (1990): understand the system

• SAR (1995): reason to be concerned

CLIMATE CHANGE 1995 The Second of Climate Climate Control of Climate Climate Control of Climate Climate Control of Climate Climate Control of Climate Climate





• TAR (2001): human attribution

• FAR (2007): complex feedbacks

• AR5 (2013): actionable science



Slide courtesy of Bart van den Hurk



Evolution of climate models over time: Complexity







Evolution in observational evidence of change





European Heatwave 2003

The first formal detection and attribution study of the changing frequency of a specific extreme event



"Human influence has very likely at least doubled the risk of European summer temperatures as hot as 2003" *Stott et al, Nature, 2004*

10 years on and 0.8°C warming of mean summer temperatures...

"For the more extreme threshold observed in 2003, the return time reduces from thousands of years in the late twentieth century to about a hundred years in little over a decade." *Christidis et al, Nature 2014*



The Future for Climate Science

- Can we provide society with a 'road map' indicating what climate variations and changes may be expected to occur, where, and with what implications?
- How can we make society more resilient and better prepared for hazardous weather and climate extremes arising from climate variability and change?
- Do we know what levels of climate change could be dangerous, where and for whom?
- What should society do to mitigate and adapt to climate change to avoid its worst impacts?



Climate Science: Informing Climate Choices

Migration

- More vulnerable
 because of how we live
- More exposed because of where we live
- More dependent on global systems

Health

Economic and social benefits of access to best climate science and services are profound. Water

Weather Hazards, Climate Variability and Change

Urbanisation

Population growth Limited Natural Resources

Political

Energy

Economic

Food



European landscape of climate activities



From: Andrea Tilche, European Commission



European Roadmap for Climate Services

- Launched in Brussels in March 2015
- Working group on implementation recently established
- ECOMS2 central to several aspects of its implementation

Challenge 1: Enabling market growth

- 1.1: Assessing the nature of climate services market
- 1.2: Growing the climate services market
- 1.3: Demonstrating added value

Challenge 2: Building the market framework

- 2.1: Communities and infrastructures to support and grow the climate services market
- 2.2: Standards, quality assurance and control, access and legal aspects
- 2.3: International cooperation

Challenge 3: Enhancing the quality and relevance of climate services

- 3.1: Information frameworks in support of climate services
- 3.2: Strengthening the scientific basis and relevance of climate services
- 3.3: Climate information and end-users' needs: innovations and products



Coordination and support - ECOMS2

(European Climate Observations, Modelling and Services, Phase 2)

Develop a Europe-wide managed network for Earth-system modelling (ESM) and climate service (CS) activities

Use this network to:

- 1. Coordinate and integrate ongoing and future European climate modelling, observations and infrastructure initiatives
- 2. Establish expert groups to assess ESM and CS in Europe. Identify gaps, new challenges and emerging needs
- Enhance communication and dissemination activities with stakeholders:
 3 Festivals, and 3 reports on the state of European ESM and CS





ECOMS2

Starts 1st December 2015 for 5 years Will contribute to implementation of the Roadmap for climate services

Build upon the activities that already exist, to create a **coordination framework** including:

- Climate-KIC
- JPI-Climate
- Copernicus Climate Change Service (C3S)
- European Network on Earth System Modelling (ENES)
- Link to IPCC Modelling activities (CMIP)
- European Climate Services Partnership (ECSP)
- Link to (GFCS)
- European Climate Research Alliance (ECRA)
- FP7 and H2020 research projects



From: Andrea Tilche, European Commission



ECOMS2 activities/deliverables

Create, manage and develop the network

Map and analyse ESM and CS activities (3 reports):

- State-of-the-art of European ESM (due Feb.2017)
- Update, and progress integrating climate services and ESM (2018)
- Update, and matching new demands of climate services with ESM, including useage of CMIP6 and CORDEX for climate services (2020)

Forward-looking recommendations from expert groups:

- Assess new challenges and emerging needs for ESM and climate services
- Recommendations on future research needs

3 Festivals (end of years 1, 3, 5) to:

- Showcase climate services and ESM in European Climate Services
- Reflect on gaps (from activities listed above)
- Improve uptake of science-based services
- Networking



Questions



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