National Climate Services

Chris Hewitt, Head of Climate Service, Met Office

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Overview

- Global context
- European context
- National Activities – country/NMS examples

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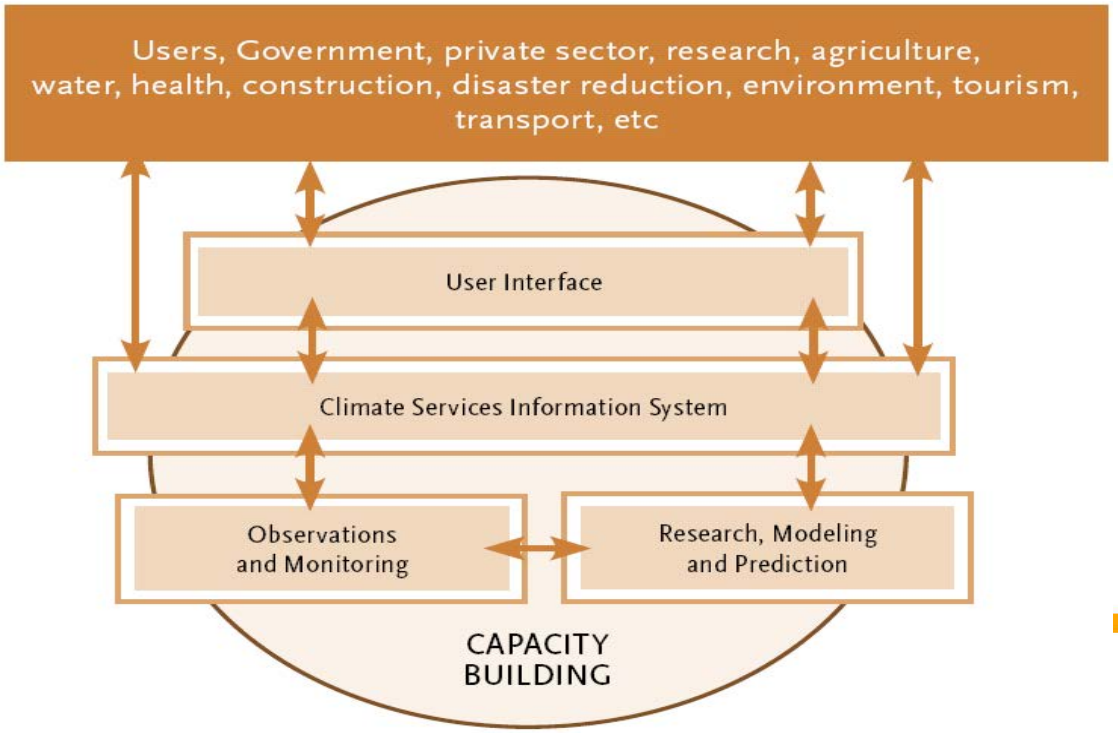
My 1-page summary

Vision: Enable society to manage better the risks and opportunities arising from climate variability and change. Using science-based climate information.

The components

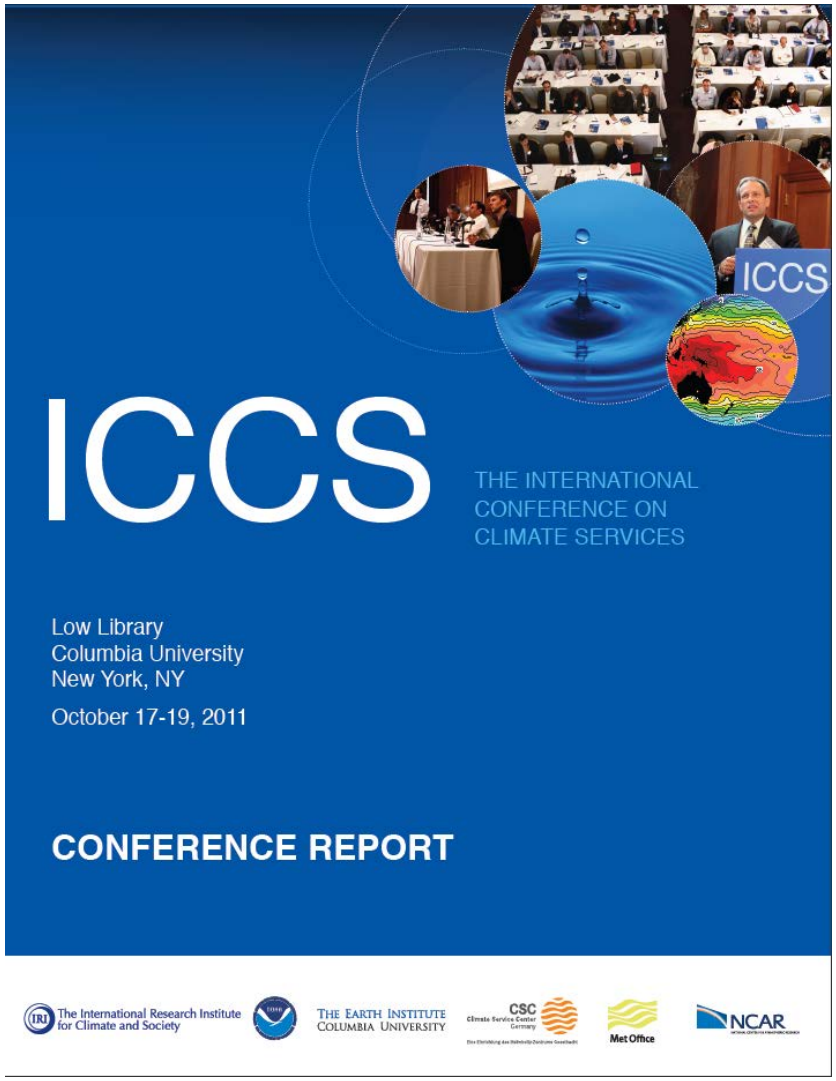


Priorities:

- Vulnerable developing countries
- Capacity building
- Strengthen not duplicate
- 4 initial areas:
  - Agriculture and food security
  - Water management
  - Health
  - Disaster risk reduction

http://www.wmo.int/gfcs

Hewitt *et al* (2012) Nature Climate Change



Climate Service Partnership
(Steve's presentation later)

- Arisen from the First International Conference on Climate Services
- Connecting climate service activities
- Forum for collaborating and sharing experiences
- Involves researchers, service providers, donors, decision makers,
- Activities include assessing socio-economic benefits, evaluating climate services, ethics
- Annual International Conference
- **European CSP taking shape**

Regional - Europe

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European Commission funded R&D activities related to climate services

SPACE research:

• ERA-CLIM2, UERRA, QA4ECV, EUCLEIA, CLIP-C, CHARMe, CORE-CLIMAX (Albert's presentation)

DG for Research and Innovation:

• **NACLIM** – improve our understanding of the predictability of the climate in the N. Atlantic/European sector.

• **SPECS** - climate prediction systems for seasonal-to-decadal time scales, to provide actionable climate information.

• **EUPORIAS** - maximise the usefulness of seasonal-to-decadal climate information through close collaboration with end users.

• **ECOMS** – coordinate across EC projects and a 'think tank' on future research priorities

EUPORIAS

- Aim: Make seasonal and interannual information more relevant to decision making.
- Approach: start from user needs, rather than capability, to identify science and services needed
- Objectives:
  - Assess user needs, knowledge gaps and vulnerabilities of key sectors
  - Develop a reliable and trusted impact prediction system
  - Develop a set of tools and techniques tailored to user needs for calibrating, downscaling and modelling impacts
  - Produce a set of co-designed prototypes addressing some specific user needs
  - Share knowledge to promote the use of the tools, techniques and prototypes
- 24 partners plus >70 user organisations

ECOMS – European Climate Observations, Modelling and Services

- Close coordination between European projects, primarily in the area of s2d predictions towards climate services
- Identify and exploit synergies
- Improve links between other activities, especially European and GFCS
- Recommend priorities for research needs in climate modelling and climate services

- Includes representatives from:
  - climate modelling, climate services and infrastructure projects,
  - as well as major European climate modelling and climate service centres

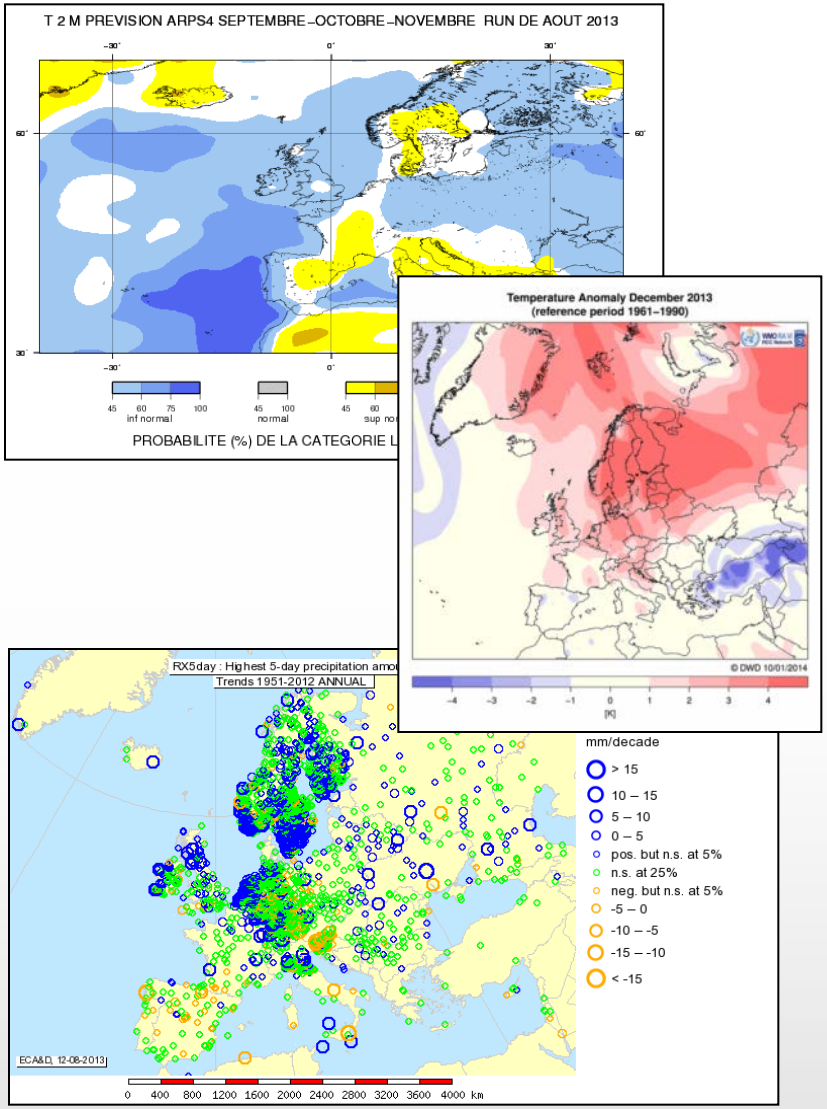
Regional Climate Centre

RCCs are **Centres of Excellence** that **assist WMO Members** in a given region to deliver **better climate services and products** including regional long-range forecasts, and to strengthen their capacity to meet **national climate information needs**.

Mandatory functions

- ➔ Operational activities for long-range forecasting (Lead: Russia and France)
- ➔ Operational activities for climate monitoring including climate watch (Lead: Germany)
- ➔ Operational data services, to support LRF and climate monitoring (Lead: Netherlands)
- ➔ Training in the use of operational RCC products and services

www.rccra6.org



Slide courtesy of Tobias Fuchs

Some European coordination activities

- ECOMS
- JPI-Climate
- Coordination of Copernicus climate change pre-cursor projects
- European Climate Services Partnership

- EGU side meetings and session on "Climate Services, underpinning science". Conveners: Dell'Aquila, Ruti , van Oss , Buontempo
- EMS side meetings and session on "European collaborative projects towards climate services". Conveners: Buontempo, Hewitt, Doblas-Reyes

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National – country/NMS examples

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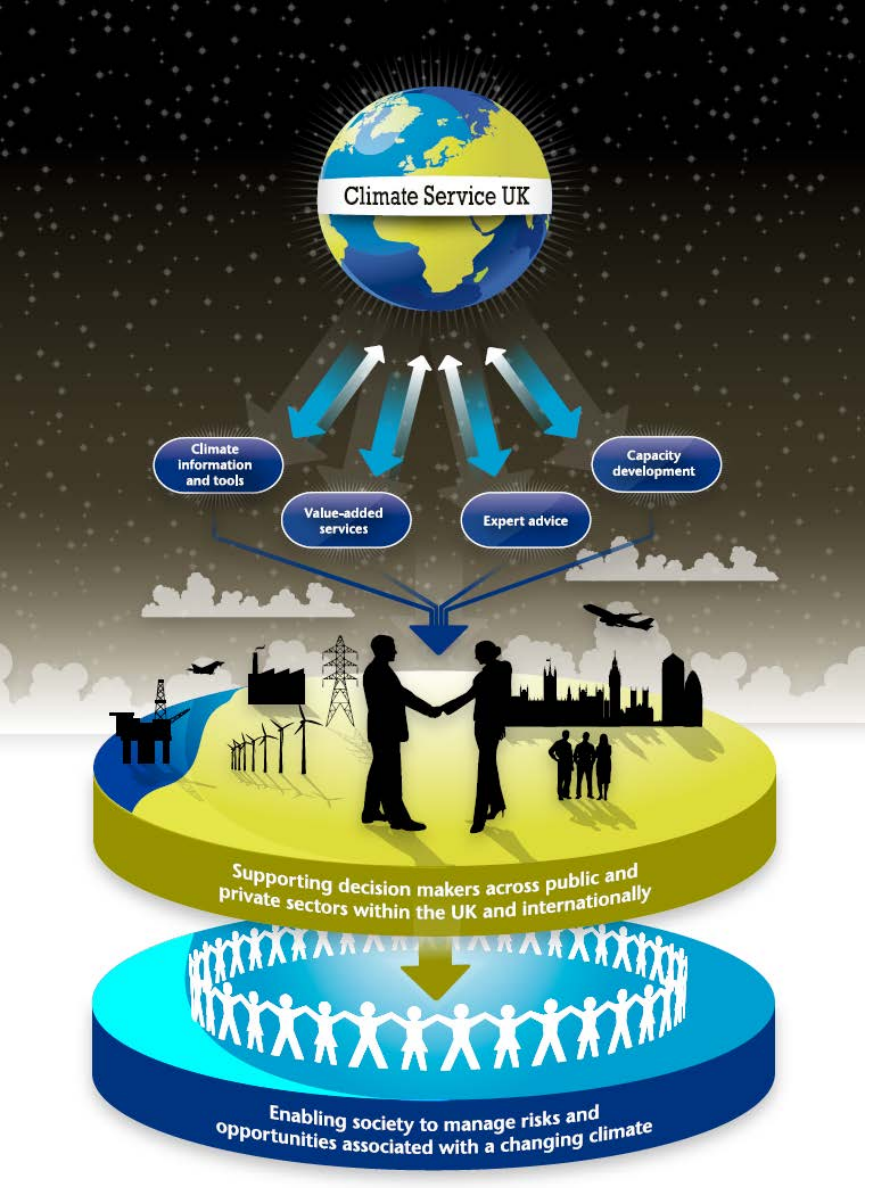
Climate Services: the Application of Climate Science

Met Office Hadley Centre

Over the past 20 years we have seen a shift:

- From **mitigation** to **mitigation** and **adaptation**
- From **few** to **many** customers/users/stakeholders
- **Global century scenarios** to **regional predictions, days to decades ahead**
- **Climate change** to **climate change** and **climate variability**
- **Broad climate** to **characteristics of weather** including **extremes** and **impacts**
- From **research** to **Operational delivery** – regularly updated monitoring, forecasts, products & services



Climate Service UK

Working in **partnership** between Met Office, Natural Environment Research Council, Environment Agency, and others

User driven: working together to build knowledge, develop user-relevant tools, and ensure climate information is used effectively in decision-making

Built on a solid base of world-class **underpinning science**

Developed alongside our weather service and building on existing service delivery capability: **seamless weather and climate service**

International: increasing engagement to work with and support others (including National Met Services) with their national climate services

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JWCRP

Joint Weather & Climate Research Partnership

Met Office

NATURAL ENVIRONMENT RESEARCH COUNCIL

Living With Environmental Change

- Aligning **NERC** and **Met Office** research activities
- To ensure that the UK maintains and strengthens its strong international position in weather and climate science
- Sustain and grow UK's national **capability and research in observing, understanding, modelling and predicting weather and climate**, and their **impacts**, along with the **infrastructure** required
- Align major research initiatives and programmes to ensure the most effective impact of the research and pull-through into the delivery of services to government and business

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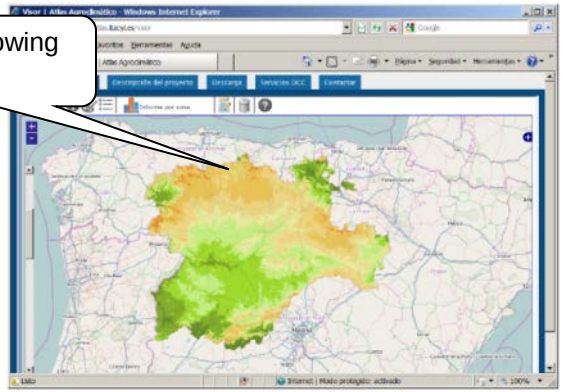
Climate Services from AEMET perspective

From CS for general public

http://www.aemet.es

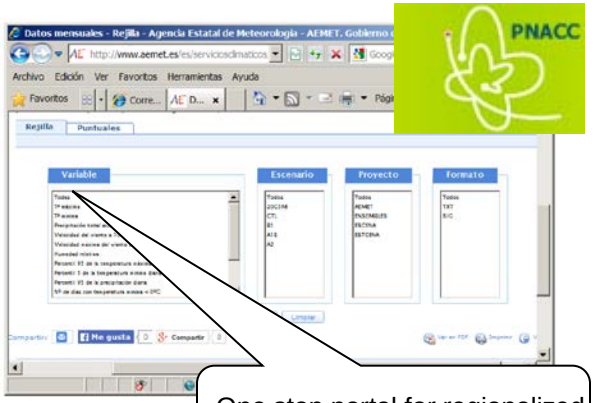
to especialized CS for targeted users:

E.g., for Agriculture



http://atlas.itacyl.es/

E.g., climate change escenario info for National Adaptation Plan to Climate Change (PNACC)

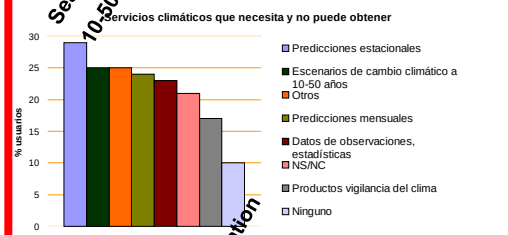


- The National Conference on CS with stakeholders to be held in 2014 will start the national implementation of GFCS
- Main priorities for 2014:
  - Implementation of national User Interface Platform
  - National register of climate data
  - Deployment of the first pilot projects

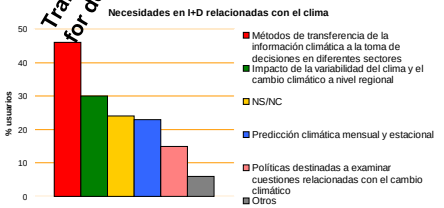
Users' voice

Poll (90 main users)

Most required CS



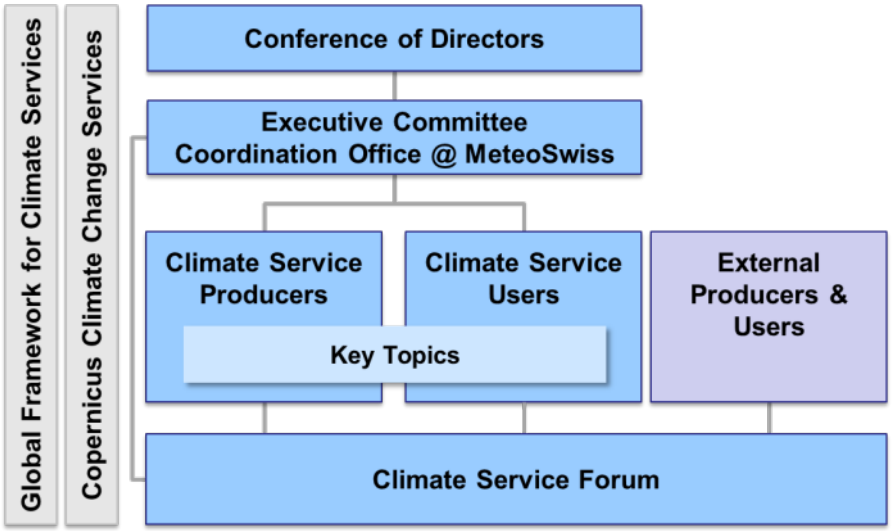
R&D needs



Slide courtesy of Ernesto Rodriguez Camino

Switzerland: Planning Phase of National Centre for Climate Services

Planned Organisation



- **Coordination:** MeteoSwiss
- **Members:** Key Federal Offices (producers and users) and National Research Labs
- **User interface:** Climate Service Forum
- Links to international initiatives

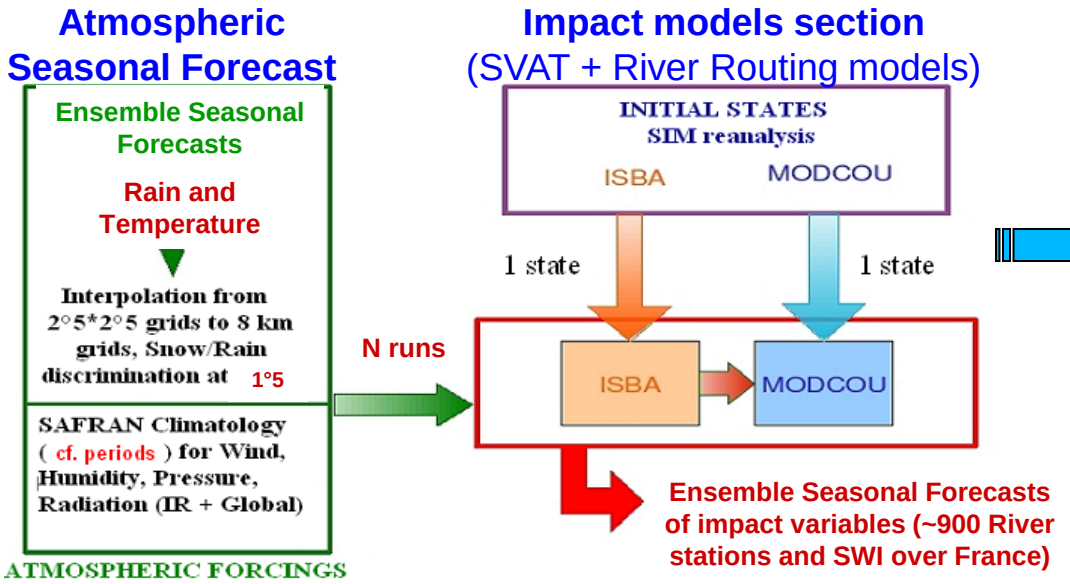
Key Topics

- Climate scenarios
- Sector specific information
- Web platform
- Capacity Building

Slide courtesy of Heike Kunz

Climate Service Prototype : Water Resources managemement in France

Schematic representation of the Water resource prototype



- Climate information related to river flow forecasts
- Decisions related to the reservoir refilling and low flow periods
- Stakeholders : Seine and Adour-Garonne river Catchements water managers
- In summer : major stakes related to fresh water supply and power station cooling (Paris & Seine river) and irrigation (Adour-Garonne)
- At Spring, major stakes related to the reservoir refilling (all) and flood control (Paris urban area)

- Tailoring the climate information to the needs of stakeholders - critical thresholds and related risk assessment for decisions
- Conveying the probabilistic information up to the Decision Making Processes

- Running the DMPs in a retrospective mode (over the hindcast period) with 2 set of forecasts as proposed in the Placebo protocol
- Assessing the added value of the seasonal forecast, the impact of the use of the information onto the DMPs and the relative weight of the Climate Information within the DMPs (thanks to the Placebo protocol)

The whole chaine from Seasonal Forecast up to the Decision Making Processes

Ref : (Tanguy, 2009 ; Céron et al., 2010 ; Singla et al., 2012)

Slide courtesy of Jean-Pierre Ceron

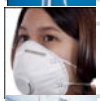
METEO FRANCE
Toujours un temps d'avance

National implementation of GFCS – The German Climate Change Adaptation Strategy

Deutscher Wetterdienst
Wetter und Klima aus einer Hand

Sectors

Energy industry


Human health

Civil protection

Trade and industry

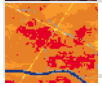
Financial services

Biological diversity

Cross sectoral

Water regime management

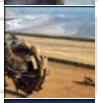
Coastal and marine protection

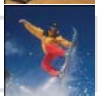

Urban (spatial) development

Transport, Infrastructure

Building

Fishery

Soil 

Tourism 

Agriculture

Forestry

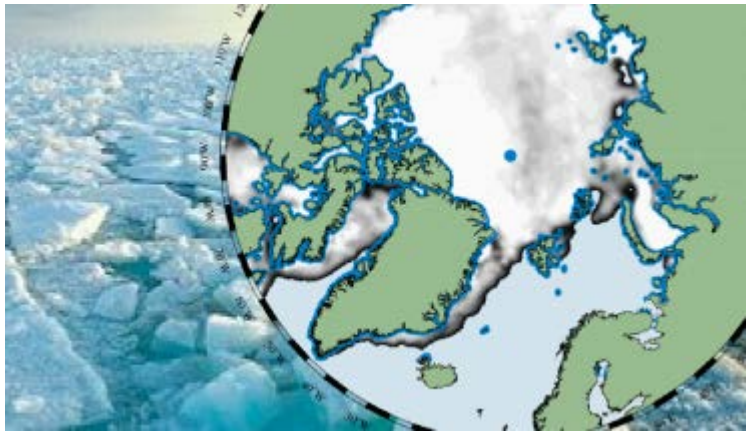
▼ Challenges:

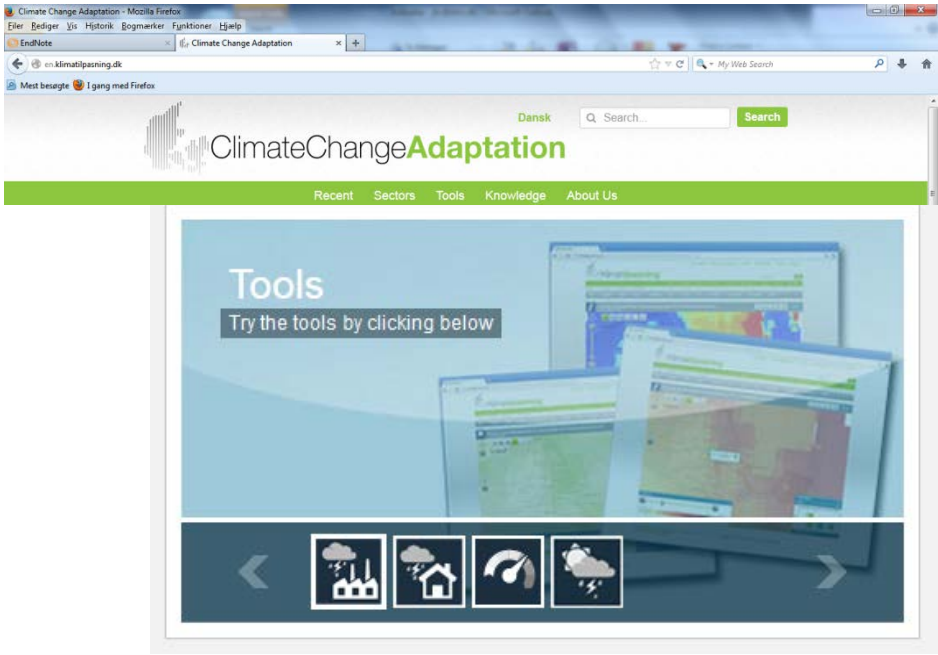
➡Combining climate/weather specific knowledge with sector specific knowledge for the whole seamless prediction chain (climate monitoring based on observation data and modell-based re-analyses; short term climate predictions; long term climate projections) on different user levels (Federal, State, City);

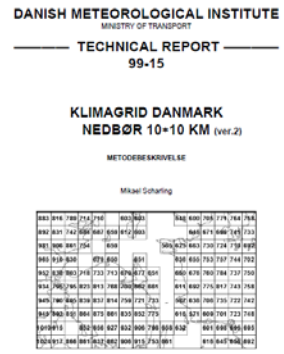
➡National Governance;

➡User interface via the German Climate Portal and Climate Data Center
http://www.deutschesklimaportal.de/EN http://www.dwd.de/cdc

DMI climate services



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TECHNICAL REPORT
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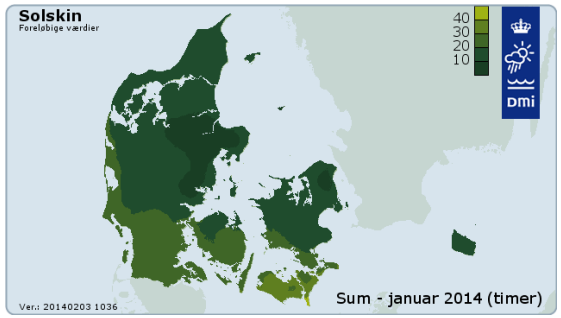
METODEBESKRIVELSE

Mikael Scharling



- Hosts Danish meteorological data archives
- Provide processed data catalogues
- Supports external users with CC scenarios
- Forecasts likelihoods for heavy rain events
- Provides assessments of unusual weather events including extremes
- Arctic data and data knowledge provider
  - Historical, recent, future

Summary

- Major international activities underway (GFCS and CSP)
- European landscape is busy, well advanced and has significant investment from the European Commission and governments to develop underpinning capability and services
- Climate Service UK will help decision-makers manage risks and opportunities in the UK and abroad
- Other nations have their own approaches

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Questions

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