The uncomfortable interface

The role of the users in climate service design: what are we learning from EUPORIAS

Carlo Buontempo, PRESSANORD-9 26/Nov/2015

Caveats, biases, limitations..

EUPORIAS: **EU**ropean **P**rovision **O**f **R**egional **I**mpact **A**ssessment on a **S**easonal-to-decadal timescales;

EUPORIAS is financed by the European Commission through the Seventh Framework Programme for Research (Theme Six, Environment) – running from November 2012 to January 2017.

Despite my best effort I am afraid there is still an European-bias throughout my talk

Acknowledgments and credits

More info here: www.euporias.eu

Uncomfortable interface

Climate knowledge per-se is, in most cases, not sufficient to inform decision and develop policies.

Convening*

Great effort has been put in developing stakeholder groups (e.g. C3S, H2020, FP7), national dialogues (e.g. JPI-Climate), and innovation actions (e.g. Climate KIC).

The entry point has often been based on existing relationships and verifiable scale (e.g. Energy and weather at Met Office).

* Cash et al. 2003:”it connotes the process of bringing parties together for face-to-face contact. This is hypothesized to be an important function, as it forms the background for relationships of trust and mutual respect"

El Salvador

Sector specific workshops to scope out and prioritise key interventions. The question is not “what do you need” but rather “what do you do”?

Assessing users' needs with regard to S2DCP

- Range of activities to assess needs across European sectors;
- 80 interviews and 450+ survey responses: mainly private companies & government organisations; larger companies working at the national and international level;
- Complex landscape of users: different decision-making processes within and across organisations/sectors and hence, different needs;
- Key findings:
  - Few users of seasonal forecasts in the energy, water, transport, health, agriculture, and insurance sectors; no use of decadal climate predictions;
  - Perceived barriers linked to lack of reliability but also tradition of performing historical analysis and difficulty in integrating into existing operational models; lack of awareness and accessibility by some end-users.

Final report available at: www.euporias.eu/deliverable/d12.3

Bruno Soares, M. & Dessai, S. *Exploring the use of seasonal climate forecasts in Europe through expert elicitation*' Climate Risk Management.

Translation*

A great effort has been put in translating our climate knowledge into something more directly relevant and understandable by the users. This includes

- Going beyond specialist jargon
- Look at relevant variables and spatial scales (indices, downscaling e.g. COREDX, etc.).

In spite of an often extraordinary effort the general approach was still based, in most cases, on a liner model which implicitly assume all the knowledge in on one side of the climate-service interface.

What about the translation back?

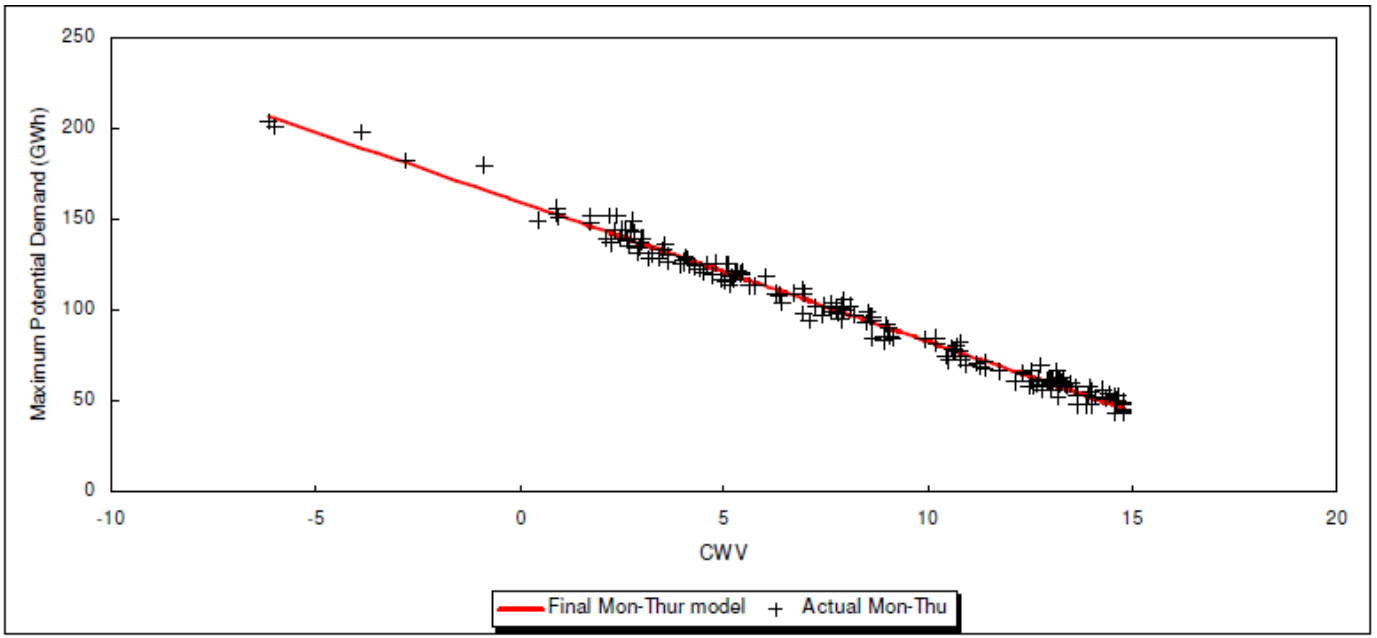
Glossary

- ECOMS glossary
  - We developed a glossary that has been shared with other project.
  - A drupal module has been put together to allow simple integration into existing websites and quick update and modification.
  - As much as possible we want to ensure these key-words are used consistently throughout the project (including ancillaries)
  - WE NEED YOUR HELP!

Composite weather variable (CWV) courtesy of Erika Palin and Ed Pope

"The relationship between weather and demand is fundamental to demand estimation and forecasting processes. It is important to produce a weather variable that provides the strongest possible 'fit' for the weather and demand models." – Xoserve (2009)

- **Single me function o**
  - effective effective
  - wind spe
  - pseudo
  - provisio low temp



"The CWV is defined to give a linear relationship between Monday to Thursday non-holiday daily aggregate demand in the LDZ"

Downscaling of global seasonal forecasts

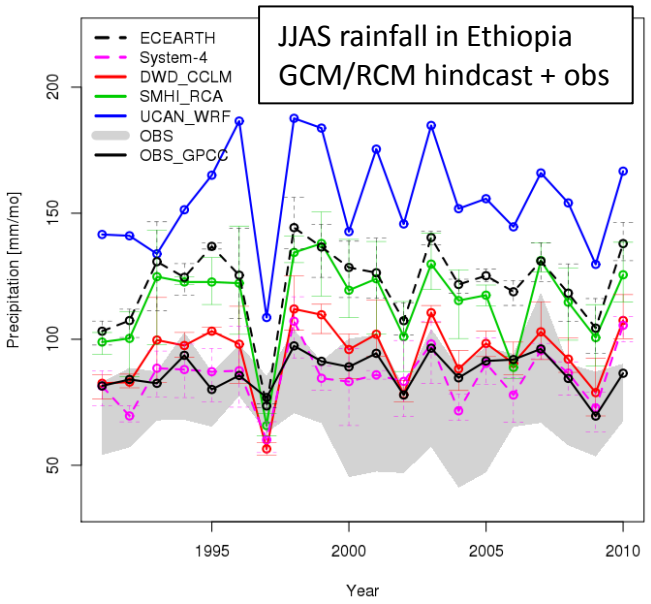
Statistical downscaling over Europe (+ bias correction)

- bias corrected seasonal hindcast (via ECOMS UDG)
- statistical downscaling has a strong focus on the hydropower sector and hydrological applications
- climate indices on seasonal scale

3 river systems in northern Sweden

Combined statistical and dynamical downscaling over eastern Africa

- focus on June-September rainfall in Ethiopia
- 5-month hindcast initialised on May 1st
- EC-EARTH re-run of S4 (model levels needed)
- 1991-2012, 15 members
- 5 RCM groups downscale EC-EARTH (0.22deg)
- 1 RCM group: downscaling GloSea5
- 1 group: statistical downscaling (EC-EARTH)
- the first results (3 RCMs) are available



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Climate information indices (WP22)

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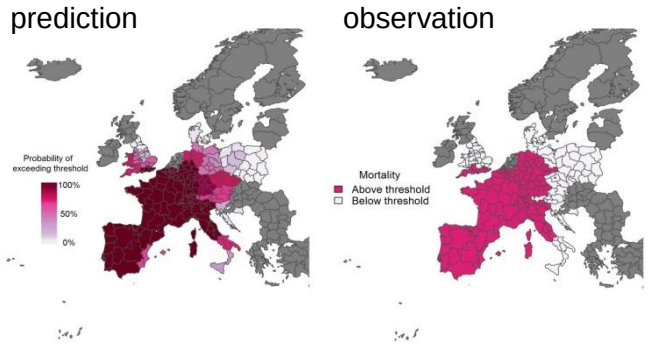
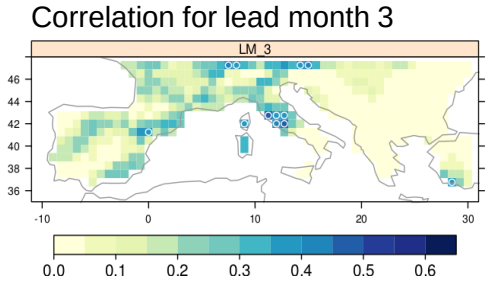
Examples:

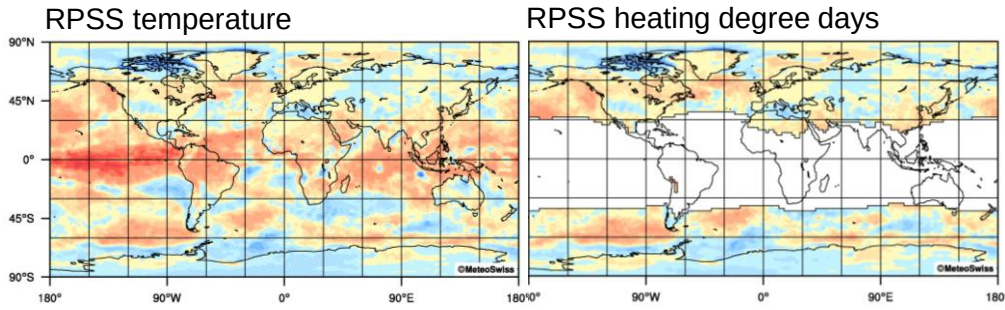
- Forecasts of heat wave related mortality (IC3, WHO)



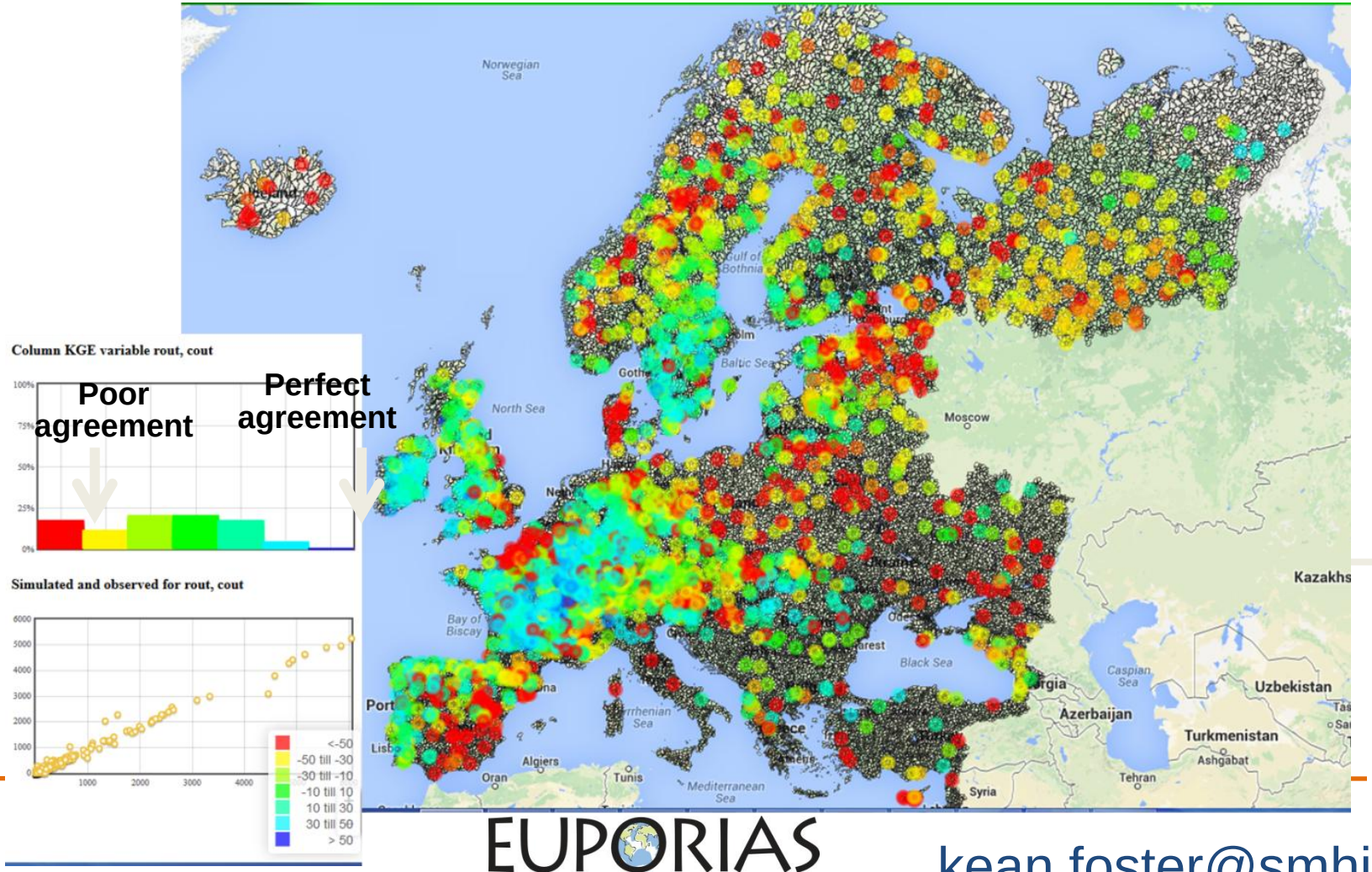
- Skill of forecast of fire weather index (Uni Cantabria):



- Skill of forecast of underlying variable vs. skill of climate information index (MCH)



Kling-Gupta validation of river flows: EHYPE model (SMHI)



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Collaboration*

- Inter-disciplinary approaches are now much more common than they were a few years ago and the funding agencies have certainly played an important role in such process.
- On the other hand a resistance still exists in bringing this multidisciplinary approach outside the academia and involve the users in the co-production or at last co-post-processing of new relevant knowledge.

*is a function that brings actors together in an effort—by different experts or experts and decision makers—to coproduce applied knowledge (e.g., models, forecasts, and assessment reports). Such efforts are manifest in analyses, research and development (R&D), or assessments that are interdisciplinary, cut across multiple levels, or involve multiple different perspectives along the continuum of expert to decision maker.

Water resource management in France

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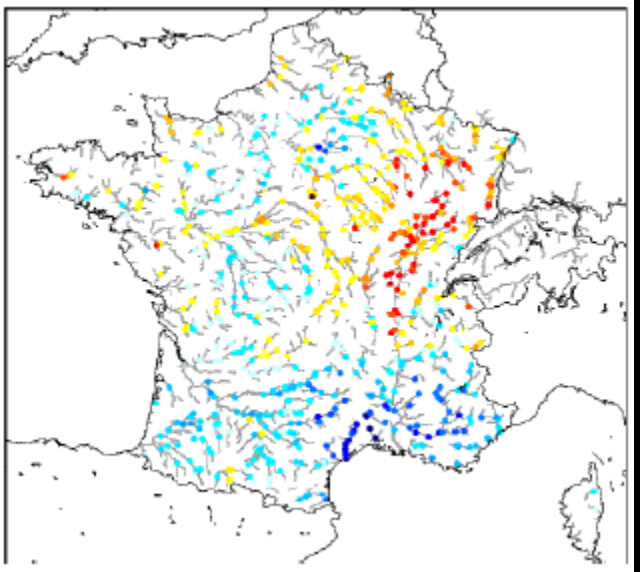
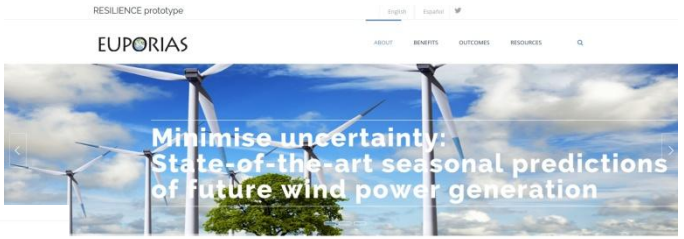
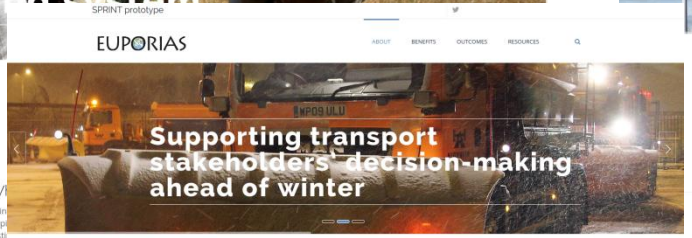


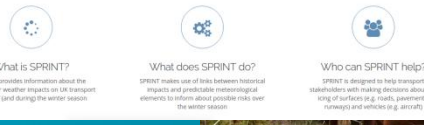
Objective: to provide relevant and tailored information leading to an effective decision for the water stock management for both the refilling and low-flow periods.

- *Stakeholder*: EPTB Seine Grands Lacs www.**seinegrandslacs**.fr
- The main stakes to be managed in this prototype are related to fresh water supply, power station cooling, summer irrigation and reservoir refilling in France.
- More info: Christian.Viel@meteo.fr

Micro-sites







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Mediation

- This is the phase in the process that is probably less developed and would require most attention as very few examples exist of a successful mediation in the generation of a climate service.
- Mediation on climate service development is a process that is probably further ahead in some developing countries and, for example, we should be looking with more attention at the experience of the RCOFs

Climate service principles

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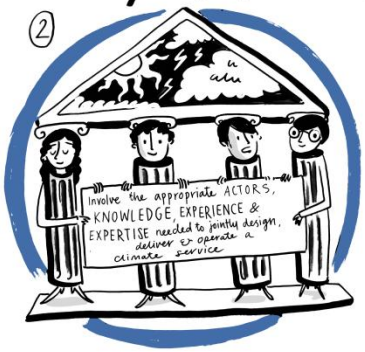
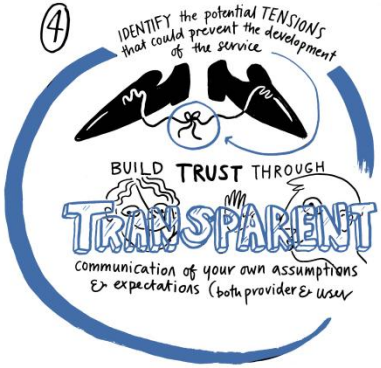
SUCCESSFUL CLIMATE SERVICE

Principles





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It takes (at least) two to "service"

- Are all the relevant people involved in the discussion?
- Does the project initiator have a good understanding of the end-users needs?
- Do the providers have all the skills needed to deliver the service in time and in full?
- What expertise/knowledge will the users put in the service development?

Conclusions

- There is a urgent need to develop knowledge and services which are scientifically sound, trusted, robust, usable and used.
- We have come a long way but more effort is needed to bridge the gap that still divides climate service providers and users.
- More effort has been put on the translation than on the co-production of knowledge.
- Within EUPORIAS a few principle of climate service development have been identified but much more effort is needed (e.g. on the mediation) to re-think the way in which climate-related knowledge can be co-developed and made relevant to decision-makers.
- Climate services is a new area and we are bound to make errors, I hope we can all learn from those.

Thank you

For further info

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