



The Added Value of Seasonal Climate Forecasting for Integrated Risk Assessment

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- Why this EU H2020 Research & Innovation Project
The Added Value of **Seasonal Climate Forecasts** for **Integrated Risk Management Decisions** (SECLI-FIRM)?
- How SECLI-FIRM will assess the value of seasonal climate forecasts
- What will SECLI-FIRM produce



The Added Value of **Seasonal Climate Forecasts** for **Integrated Risk Management Decisions** (SECLI-FIRM)

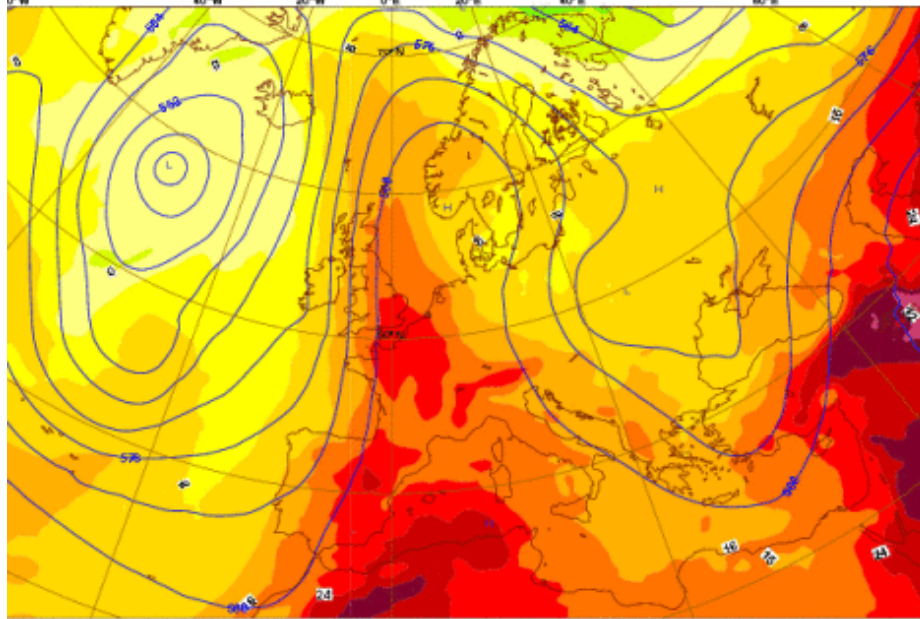
- Duration: 42 months (Feb 2018 – Jul 2021)
- Partners: 9 (see logos below)
- Budget: 4.6 M€



Climatic factors play an increasing key role in energy and water industry portfolio management due to changes in both the climate and industry



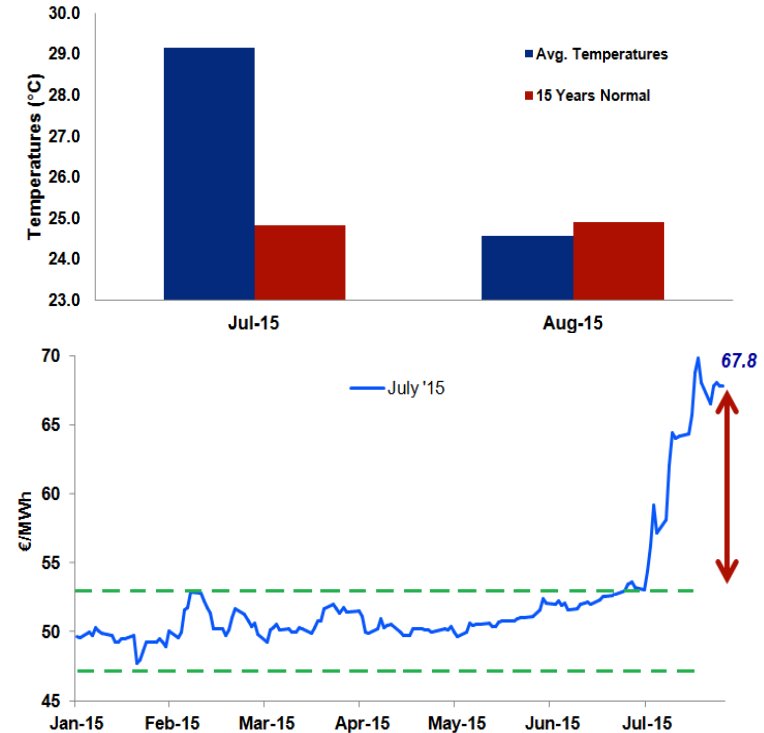
Friday 26 June 2015 12UTC ©ECMWF Forecast t+144 VT: Thursday 2 July 2015 12UTC
850 hPa Temperature / 500 hPa Geopotential



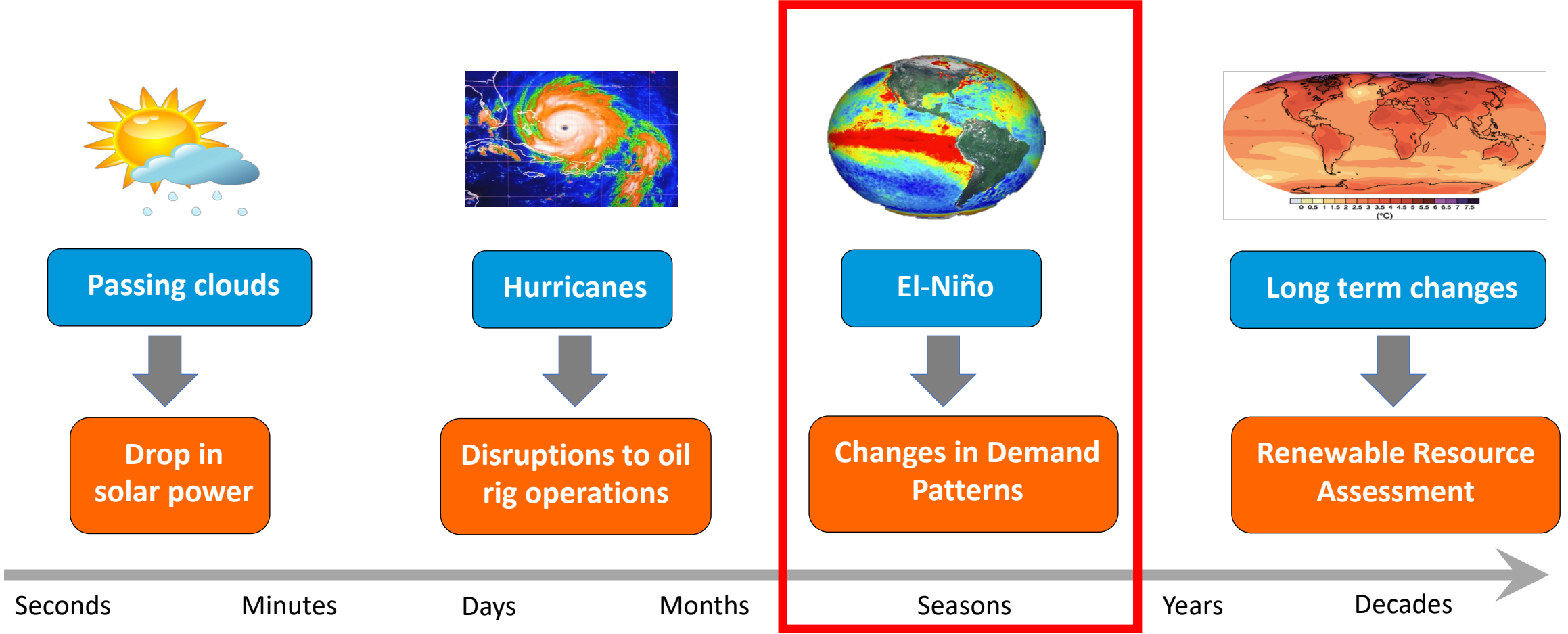
Extreme heat wave in southern Europe July 2015



AVERAGE TEMPERATURES IN ITALY 01/07/2015 - 31/08/2015

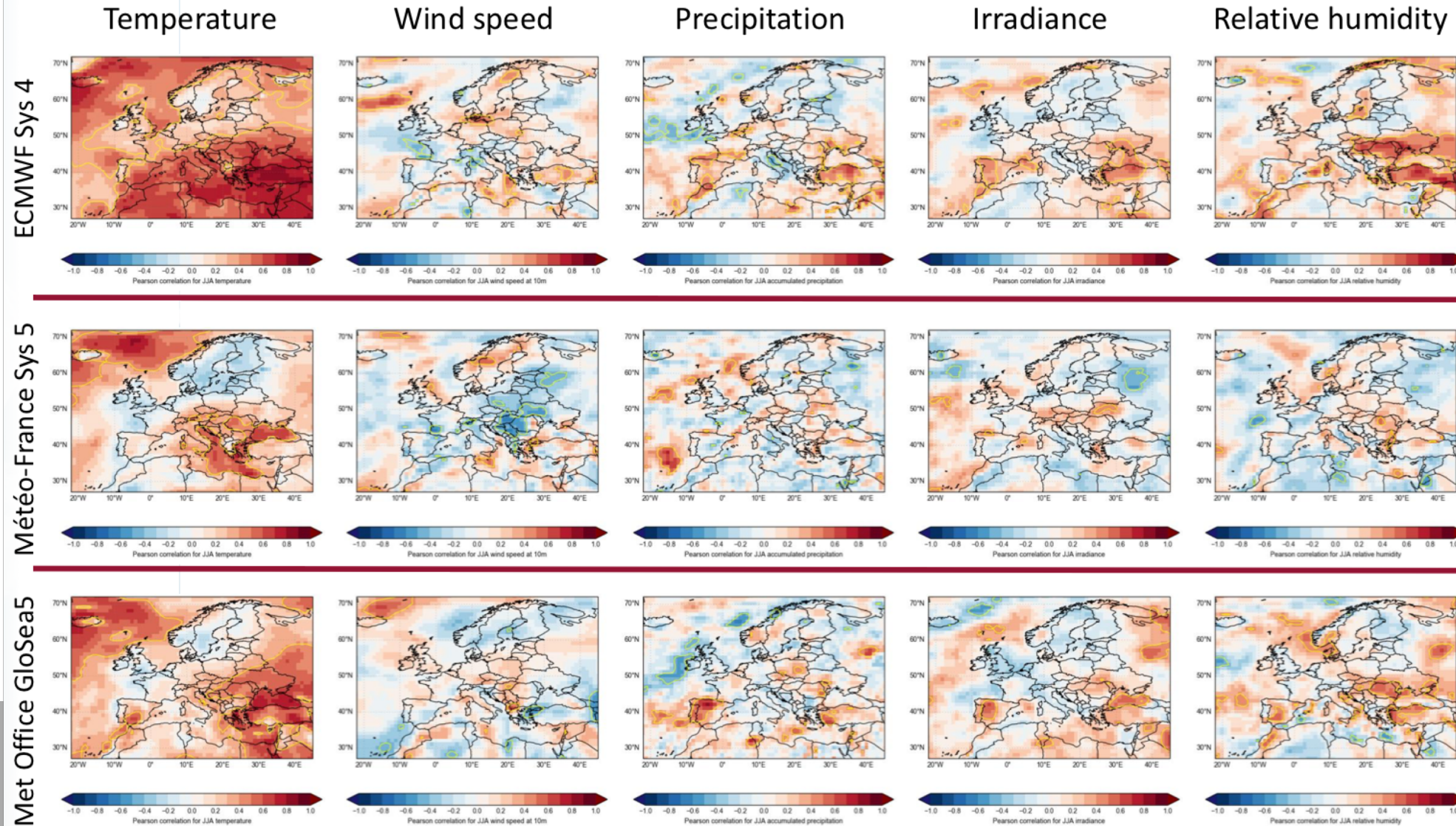


Increase in power prices associated with spike in summer



Correlation
for Summer
(Jun-Jul-Aug)
with forecast
start date
1 May

Bett et al., 2018

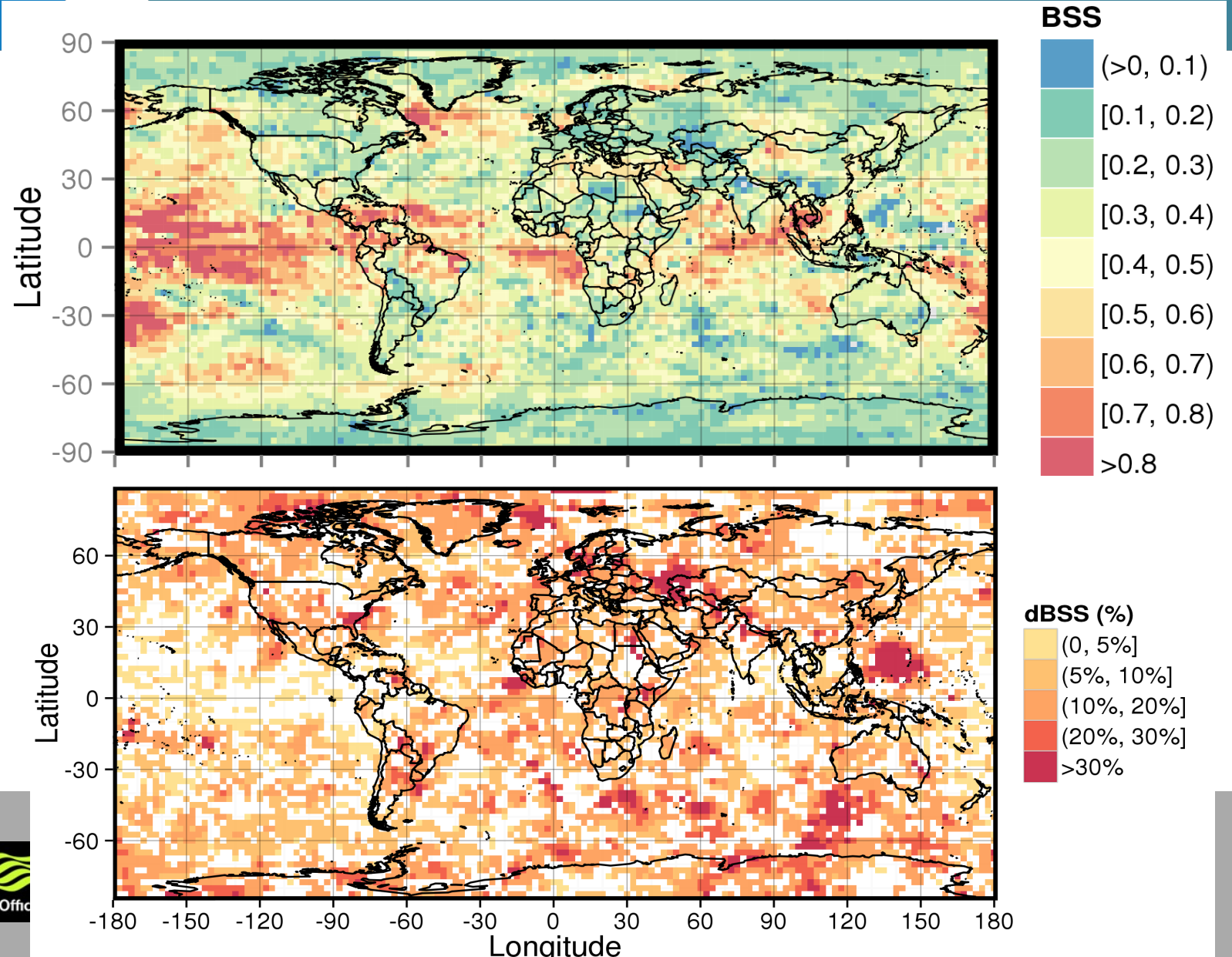


The 'power' of the multi-model

Max [Grand MME]

Max [Grand MME] minus
Max [ENSEMBLES or
CliPAS/APCC] JJA

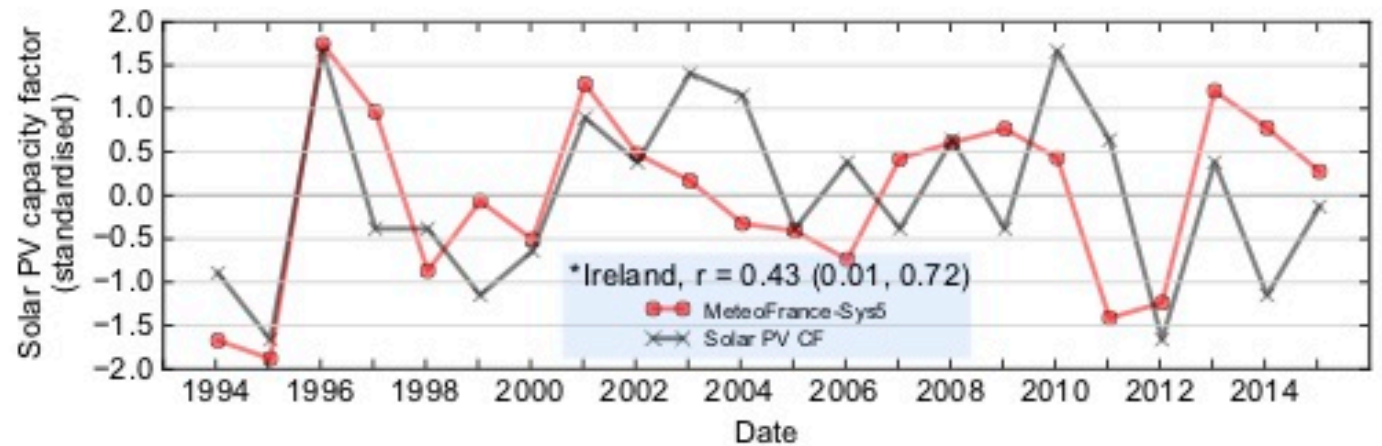
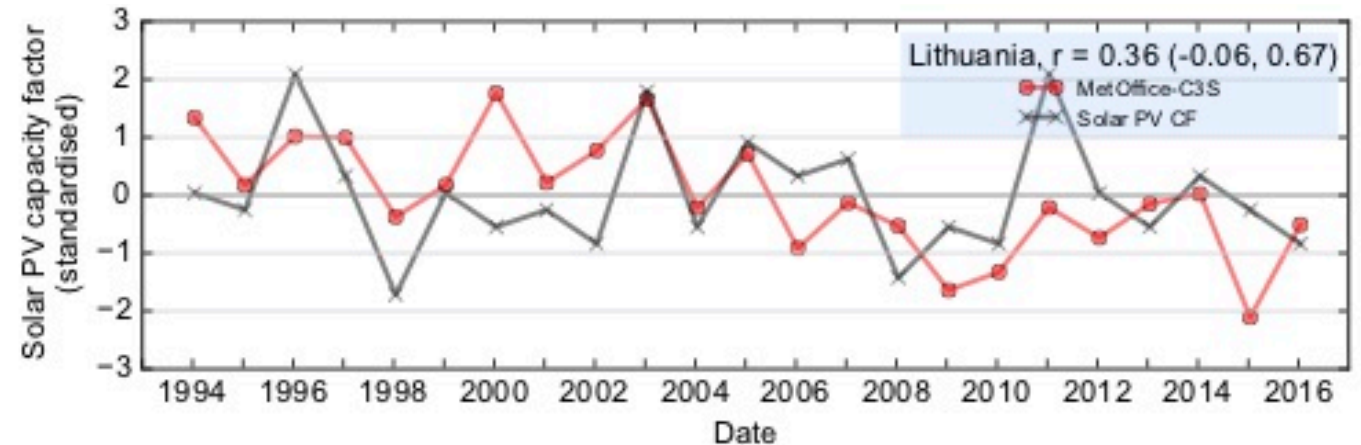
Alessandri et al., 2017

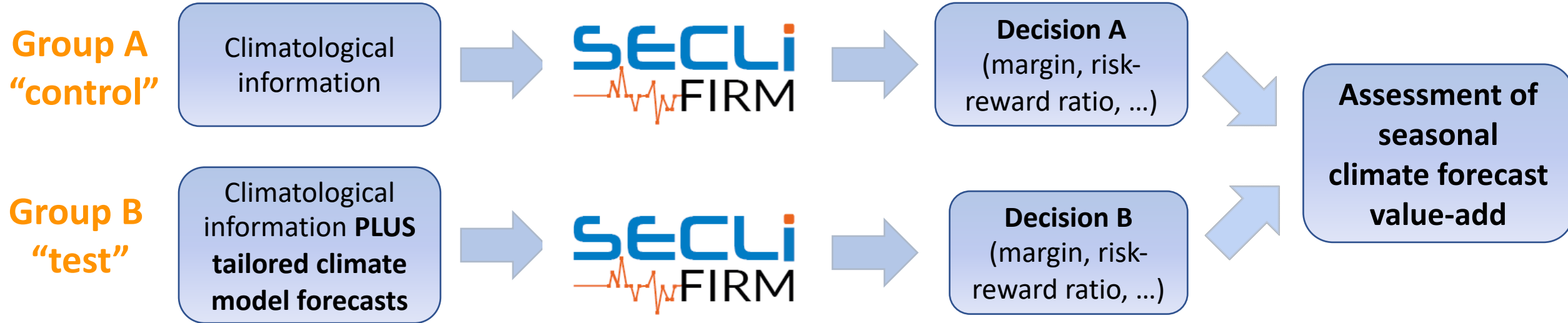


Beyond the simple long term statistics

Standardised forecasts of solar PV capacity factor for DJF, using Met Office (top, Lithuania) and Météo-France (bottom, Ireland) SF systems.

Bett et al (2017)

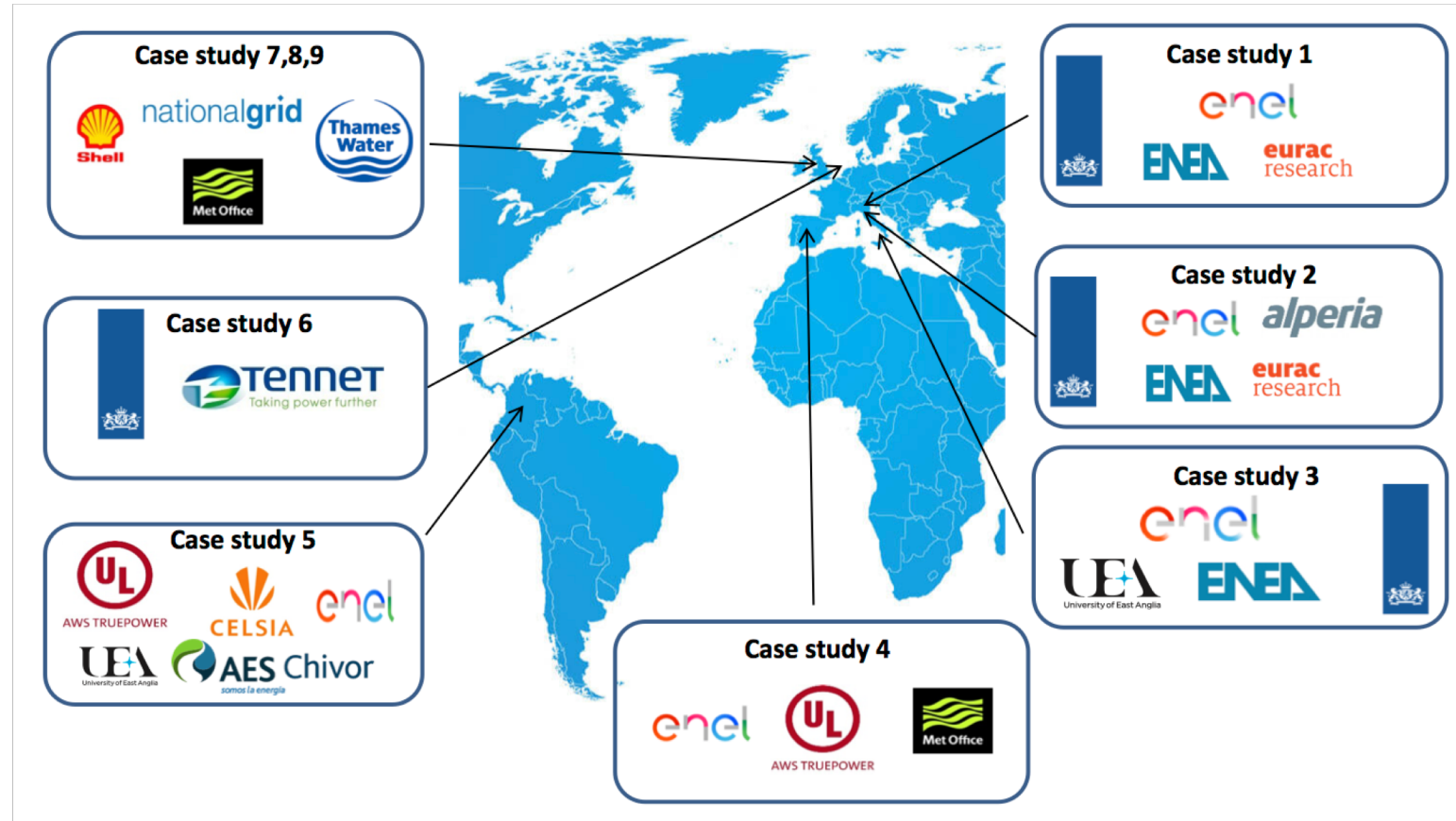




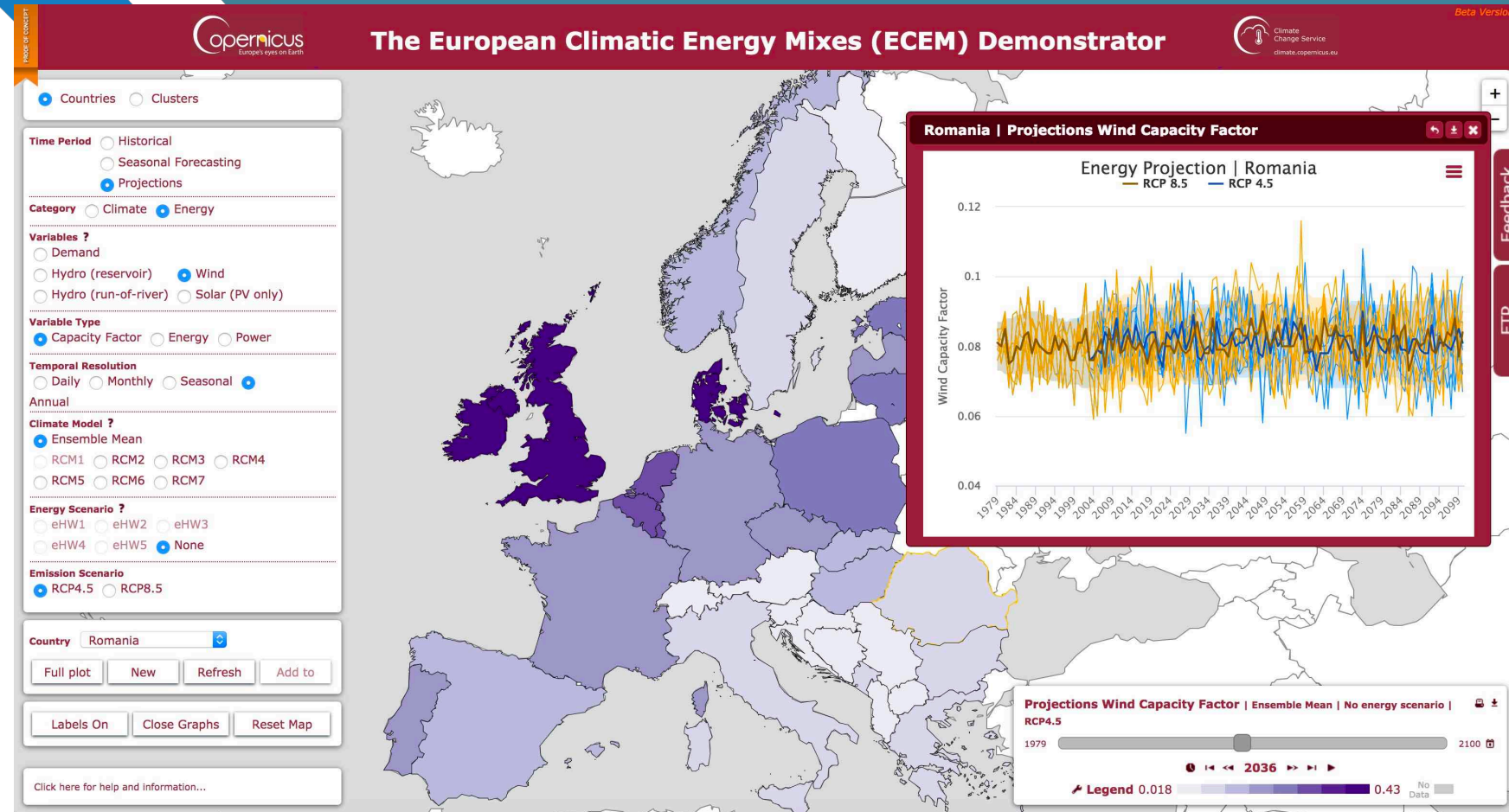
A control case will only utilise climatological conditions based on historical averages, while a test case will also consider individually optimised and tailored state-of-the-art probabilistic seasonal forecasts

Nine cases for Europe and S. America will be investigated.

These represent recent seasons with anomalous climate conditions leading to problematic and quantifiable impacts for the energy and/or water industry. They will be co-designed by industrial and research partners



SECLI-FIRM will demonstrate how the use of improved seasonal climate forecasts can add socio-economic value to decision-making, in the energy sector, as well as in the water sector, with implications for other sectors



<http://ecem.climate.copernicus.eu/demo>

Use of seasonal forecasts by the UK National Grid Operator



The objective is to illustrate the benefits of using seasonal forecast information to better predict the UK winter mean electricity demand and wind power



Focus: The use of seasonal forecasts by the UK National Grid Operator

Boosting decision making

- The main objective of this case study is to illustrate the benefits of using seasonal forecast information to better predict the UK winter mean electricity demand and wind power.

The seasonal forecasting context

- This case study focuses on demonstrating the impact of using seasonal temperature, wind and atmospheric circulation forecast information for the United Kingdom (UK) National Grid operator.
- The climate forecasts will be translated into energy information, to give a forecast of winter UK energy demand and wind power.

Sectoral challenges and opportunities

- The grid network has a central role to play in the future energy mix. In a fast-changing energy landscape, National Grid is working to meet ambitious low carbon energy targets, connect new sources of energy to the people who use them, and find innovative ways to enable the decarbonisation of heat and transport.
- Ahead of each winter, the UK grid operator must estimate the demand over the coming winter, with a particular focus on peak electricity demand. This is to ensure there is sufficient electricity supply available to meet this demand.
- By identifying potential risks to the system ahead of the winter, we will explore whether it is possible to reduce balancing costs over the winter period.

<http://www.secli-firm.eu/case-studies/>



Use of seasonal forecasts for water management to identify periods of stress to the supply-demand balance

Case Study 9

Water management to identify periods of stress to the supply-demand balance



By targeting periods of stress to the UK supply-demand balance, we will assess the role of seasonal forecasts in the operational management of the water system and in the experience of the consumer through supply restrictions



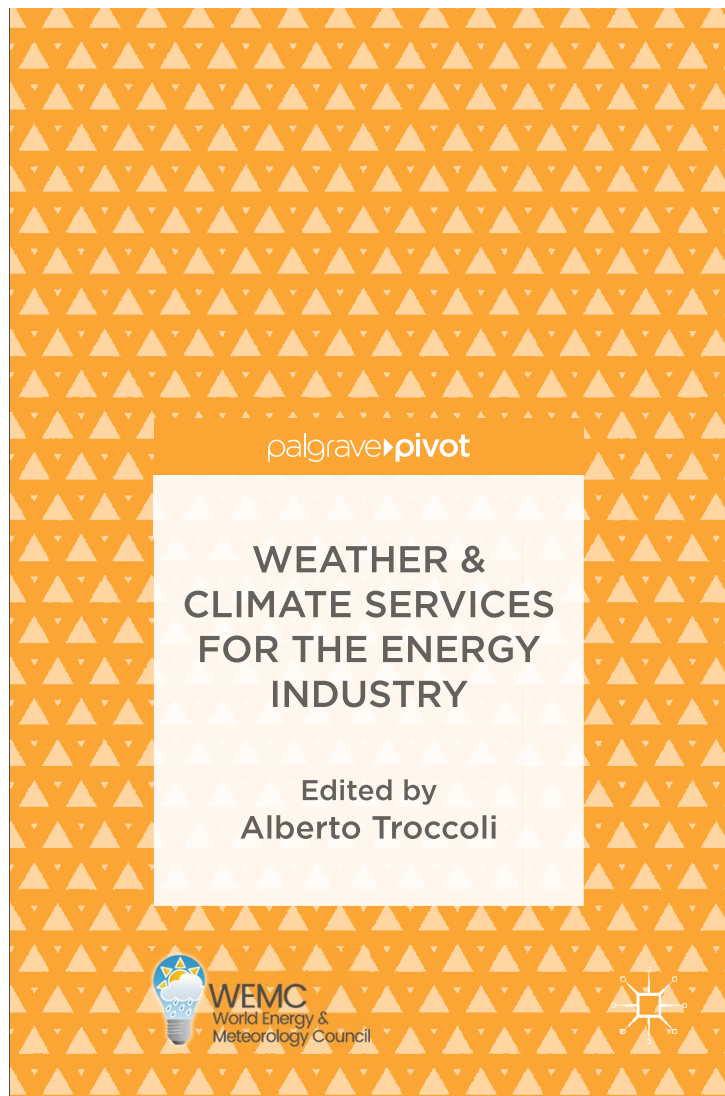
Executive Summary: Use of seasonal forecasts for water management to identify periods of stress to the supply-demand balance.

Boosting Decision Making

The water industry case studies will explore the application of seasonal forecasting to identify periods of stress to the UK supply-demand balance. These seasonal signatures may highlight chronic or acute periods of stress many weeks out, which will affect the operational management of the water system and experience of the consumer through supply restrictions.

The seasonal forecasting context

The ability to identify periods of chronic stress (prolonged excessively high demand) including conditions indicative of a drought or extreme prolonged peaks in demand due to long periods of below average temperatures or dry and hot summers will be explored. If such conditions were predictable at seasonal resolution, it would help flag high demand and support preparedness in terms of capacity and demand management. The ability to identify acute stress (highly variable demand) including heat waves or extremely cold winter conditions will also be explored. If such conditions were predictable at seasonal resolution, it would help flag high variability in demand and support preparedness in terms of resilience.



To download it (it's free!), please visit:
<http://www.wemcouncil.org/wp/resources/>



Seasonal Climate Forecasts:
Latest Advances in their
Skill and Value Assessment

Milan - Italy 17.01.2019

STAKEHOLDER
WORKSHOP

Join climate researchers and experts from the energy and water industries, to explore the ways seasonal climate forecast models can be assessed and combined to increase their value.

Collaborate with colleagues and help influence the next stage of our research.



AWS TRUEPOWER



WEMC
World Energy &
Meteorology Council



eurac
research


icem
2019



6th International Conference
Energy & Meteorology

24-27 June 2019
Copenhagen, Denmark

<http://www.wemcouncil.org/wp/icem2019/>



The SECLI-FIRM project has received funding from the European Union's Horizon 2020 Research and Innovation Program under Grant Agreement 776868.

<http://www.secli-firm.eu/events>



Thank you for your attention

If you would like to know more about the
SECLI-FIRM project, please visit:

<http://www.secli-firm.eu>