



## **Pan-European seasonal forecasting services: Limitations and need for knowledge purveyors**

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### **Abstract**

Climatic variations can have a significant impact on a number of sectors (i.e. water, energy, health, tourism etc.) and therefore managing such variations through better predictions is crucial. Over the last years, seasonal meteorological forecasting skill has been significantly improved over Europe allowing the development of operational continental services in order to address various user needs. Although efforts were put to bridge the knowledge gap between data providers and users, there is still a need for strong user engagement through better communication of results and co-evolution of knowledge. Purveyors act as knowledge brokers providing guidance on ways that climate services can address regional problems, and therefore “teach the teachers” training is a vital element of ensuring that results are adequately communicated.

SMHI recently developed a demonstrator interface for pan-European seasonal information as a proof-of-concept for the Copernicus Climate Change Service (C3S) at ECMWF. Together with a number of knowledge purveyors the web demonstrator was co-designed and also the key seasonal indicators for different case studies were defined. Here, we present the pan-European seasonal forecasts visualized (as maps and graphs) in the demonstrator interface (<http://swicca.climate.copernicus.eu/indicator-interface/seasonal-forecasts-maps/>). User-focused workshops have led to the identification of user needs at the seasonal time scale across different sectors, whilst a continuous dialogue and co-design of the service resulted into a number of lessons learnt for advancing further the service. Finally, we highlight the occasional limitations of continental services at the regional scale, particularly when the impact of human intervention is unknown during the service setup. Driven by regional examples, we present how challenges can be partially tackled when service providers act also as knowledge purveyors.

### **Keywords**

Seasonal hydro-climatic forecasting, pan-European scale, user needs, communication, climate services