



Project Ukko – Design of a climate service visualisation interface for seasonal wind forecasts

Drew Hemment (1,2), Moritz Stefaner (1), Stephann Makri (3), Carlo Buontempo (4), Isadora Christel (5), Veronica Torralba-Fernandez (5), Nube Gonzalez-Reviriego (6), Francisco Doblaz-Reyes (5,6,7), Paula de Matos (1), and Jason Dykes (3)

(1) FutureEverything, (2) University of Dundee, (3) City University, (4) Met Office, (5) Barcelona Supercomputing Center, (6) Climate Forecasting Unit, Catalan Institute of Climate Science, (7) Institutió Catalana de Recerca i Estudis Avançats

Project Ukko is a prototype climate service to visually communicate probabilistic seasonal wind forecasts for the energy sector. In Project Ukko, an interactive visualisation enhances the accessibility and readability to the latests advances in seasonal wind speed predictions developed as part of the RESILIENCE prototype of the EUPORIAS (EC FP7) project.

Climate services provide made-to-measure climate information, tailored to the specific requirements of different users and industries. In the wind energy sector, understanding of wind conditions in the next few months has high economic value, for instance, for the energy traders. Current energy practices use retrospective climatology, but access to reliable seasonal predictions based in the recent advances in global climate models has potential to improve their resilience to climate variability and change.

Despite their potential benefits, a barrier to the development of commercially viable services is the complexity of the probabilistic forecast information, and the challenge of communicating complex and uncertain information to decision makers in industry.

Project Ukko consists of an interactive climate service interface for wind energy users to explore probabilistic wind speed predictions for the coming season. This interface enables fast visual detection and exploration of interesting features and regions likely to experience unusual changes in wind speed in the coming months. The aim is not only to support users to better understand the future variability in wind power resources, but also to bridge the gap between practitioners' traditional approach and the advanced prediction systems developed by the climate science community.

Project Ukko is presented as a case study of cross-disciplinary collaboration between climate science and design, for the development of climate services that are useful, usable and effective for industry users. The presentation will reflect on the challenge of developing a climate service for industry users in the wind energy sector, the background to this challenge, our approach, and the evaluation of the visualisation interface.