EMS Annual Meeting Abstracts
Vol. 11, EMS2014-435, 2014
14th EMS / 10th ECAC

The variability of energy demand and supply in space and time: a semi-operational prototype to forecast climate from weeks to months ahead

Francisco J. Doblas-Reyes (1), Melanie Davis (2), Verónica Torralba Fernandez (2), and Nube Gonzalez-Reviriego (2)

(1) ICREA & Institut Català de Ciències del Clima (IC3), Barcelona, Spain (f.doblas-reyes@ic3.cat), (2) Institut Català de Ciències del Clima (IC3), Barcelona, Spain

Predicting the future variability of energy resources beyond the first two weeks can allow end users to take calculated, precautionary action with a potential cost savings. Weather and its behaviour over time, known as climate, has a considerable affect on energy demand and supply and influences many decisions. For example, energy producers adjust their strategies based on a foreseen energy capacity, or wind farm operators plan for optimal meteorological conditions to undertake maintenance works. The earlier these decisions can be planned, the sooner unforeseen operational risks could be identified. To estimate future climate variability over coming weeks or seasons, current energy practices use a deterministic approach based on retrospective climatology. Recent advances in global climate models, which simulate the physics of the whole climate system, demonstrate that probabilistic forecasting can improve upon this methodology at some spatial and temporal scales. Energy decision makers now have a new set of climate risk management tools that can strengthen their decision making, but are they ready to use them?

Probabilistic climate forecasts come with a new set of challenges for end users: information is often untailored, hard to understand and apply in a decision-making context. EUPORIAS is a collaborative project funded by the European Commission to address these challenges and support the development of climate services in Europe. One outcome of this project will be RESILIENCE, a semi-operational, energy prototype of climate services that will operate on a sub-seasonal to seasonal time-scale and address the needs of the specific decisions mentioned above. State-of-the-art forecasts will be created in partnership with project SPECS, an ongoing, parallel European project that will deliver a new generation of climate forecast systems with improved forecast quality.