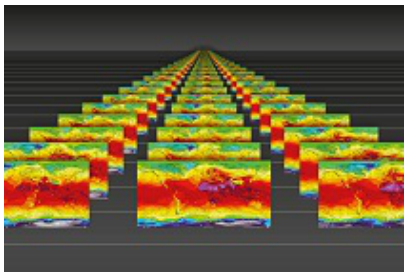

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The S2S4E project, sub-seasonal to seasonal climate predictions for energy

Friday, 5 April 2019 09:30 (15 minutes)

The S2S4E project aims to bring sub-seasonal to seasonal climate predictions to the renewable energy sector. Raw climate predictions come with a set of challenges which require the deployment of a climate service in order to produce valuable information for users. This involves the development of robust methodologies to calibrate predictions, a quality assessment, and the effective communication of the prediction products, as well as their expected added value. This work is done within the S2S4E project with focus in different areas of the energy sector. The main outcome of the project will be the provision of real-time forecasts of essential climate variables as well as energy indicators through a decision support tool that is being co-developed with users.

To illustrate the potential benefits of S2S predictions several case studies have been analysed, i.e. periods pointed out by the energy companies as having an unusual climate behaviour that affected the energy market. Two of these case studies will be presented to analyse how the climate predictions issued several weeks ahead of each event would have helped the stakeholders in decision making. In the first case, a cold wave over France and Germany in January 2017 increased the electricity demand while low wind speeds limited the renewable energy production. In the second case, a heat wave affecting Spain at the beginning of September 2016 increased the electricity demand. Sub-seasonal predictions from ECMWF monthly system issued from 4 weeks to 1 week prior to these events were calibrated with a variance inflation method using the corresponding 20 year hindcast and presented as a probability distribution with associated skill. Results show S2S predictions have potential to anticipate episodes of high electricity demand a few weeks in advance although there is still limited confidence in predicting the energy supply beyond week 2.

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