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Comment on **essd-2020-312**

Anonymous Referee #1

Referee comment on "Sub-seasonal forecasts of demand and wind power and solar power generation for 28 European countries" by Hannah C. Bloomfield et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2020-312-RC1>, 2021

Referral on

Sub-seasonal forecasts of demand, wind power and solar power generation for 28 European Countries

by
Bloomfield, Brayshaw, Gonzalez and Charlton-Perez

The manuscript is written in good english and very well organized. The topic is timely and to my knowledge there exists no comparable study for the time-range aimed at (S2S). The reason for this "gap" is that the measurements and weather forecasts are prone to large uncertainties, which is adressed in this manuscript, too. I may add that I am personally very sceptical about a general capability to forecast on a range longer than 1 month with an uncertainty lower than the long-term standard deviation, being from the nonlinear dynamics community . However, with skilled data analysis, there may occur situations whcih allow a better forecast. So, a systematicapproach to clean, and process data is welcome.

In general, the estimate of demand is an issue of national regulations and the authors try to use a general approach to achieve comparability of results. This is very helpful for benchmarking and I appreciate that. The data used are preprocessed and prepared in a useful way, too.

A few technical comments:
differentiation of the data has not been explained. wrongfully computed differences (as e.g. for the temporal differentiation) can result from too short local intervals. This may not hold, here, though (cf. K Ahnert, M Abel, Computer Physics Communications 177 (10), 764-774).

A formulation like "Northern and Eastern Europe have enhanced skill ... compared to Southern Europe" is sematically incorrect, the authors probably mean The forecast skill of

.. is higher than. The formulation actually is really funny if taken literally (or may give rise to southern european discomfort).

The skill metrics used are typical, however a full statistical characterisation in terms of moments would maybe be useful. This is still unclear to me, and I have never seen a comparable study.

The study of extreme events and their predictability is a good idea, but as we understand today, they may well be explained by the instability of the polar vortex. As far as I understand, this cannot be found by the data under consideration, which in turn limits its usefulness for such analyses.

In general, I highly appreciate the idea to create a consistent dataset for the analysis of ensemble forecasts and their use for power generation.

In my opinion, the strength of the paper lies in the data processing, whereas the methodology and metrics used are rather a demonstration of the direction further studies can take with the data set.

I recommend the manuscript for publication, ideally with some of the remarks addressed.