Journal title: Solar Energy

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Article title: Hourly solar power forecasting using ARMA models

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Dear Dear Bismark,

The paper topic is of interest to the journal, but I would like to request that you make a few revisions before I send it out for review. My priority as Section Editor for Solar Resources and Energy Meteorology is to improve the probability and speed of publication for every manuscript while reducing the workload on the reviewers.

Please send the revised manuscript to me via email at jkleissl@ucsd.edu at your earliest convenience and I will upload it for you. I understand that the Elsevier Editor System is cumbersome and I would like to make your experience as smooth as possible. Please let me know when I can expect the revised paper.

1. At the end of the introduction state the novelty of the paper. ARMA methods have been applied frequently in solar forecast papers, so it must be clarified how this paper goes beyond that.

*We have now added a paragraph at the end of the Introduction. It is described as follows:*

﻿*The main contribution of this article is to provide a step-by-step approach and easy-to-implement ARMA model to forecast PV solar power generation. The proposed model is able to capture the important statistical features of the parameters, while maintaining simplicity. The model allows modelers to embed it into more complex decision-making structures, statisticians to have an all-in-one place ARMA model design for PV power generation, and policy makers and electrical engineers to have a scenario generation tool.*

2. L15: I would not call two pages of text 'in depth'.

*Corrected*

3. L19: Briefly introduce the power plant, especially tilt, azimuth, location.

*We have now added a brief introduction to the plant, as well as added two citations that describe the installation and technical specifications, respectively.*

4. L21: It is more common in solar resources to apply a criterion based on the solar zenith angle.

*We have now added a comment on the zenith angle.*

5. Figure 1: 1000 MW seems like a large output for a single plant. Do you have the correct units?

*Actually, the data comes from a PV site which is likely a collection of plants. We have provided more details now, as well as a reference.*

6. L45: Units?

*Fixed*

7. L52-56: Motivate this analysis.

*We have now added a few sentence to motivate the analysis.*

8. Section 2.3: It is a standard in Solar Energy to compare forecast performance to smart persistence forecasts, which assume constant clear sky index kt = GHI / GHI\_clear sky. Forecast accuracy depends on weather conditions and forecast temporal and spatial resolution. Therefor forecast accuracies are not comparable site-by-site or hour-by-hour unless normalized by a benchmark. The forecast skill = 1 - RMSE\_yourforecast / RMSE\_smartpersistence is a way to normalize forecast accuracy. See Coimbra, C., J. Kleissl, and R. Marquez. "Overview of solar forecasting methods and a metric for accuracy evaluation." Solar Resource Assessment and Forecasting, edited by: Kleissl, J., Elsevier, Waltham, Massachusetts (2013).

*We thank the editor for this article. However, in our analysis we do not include weather conditions-we forecast directly based on historical power estimates. As a result, we cannot use the smart persistence forecast. Further, we do not compare site-by-site forecasts, but rather compare the forecast (and prediction) with the actual values. We have now added a citation to the above mentioned paper to reflect this difference.*

9. L57: The conclusions section should be numbered.

*Fixed*

10. In the conclusions further discuss your results against the literature. What is the utility of the different tests? What have others missed by not applying these tests? Is your methodology applicable to any type of solar forecast? Etc.

*We have now amended the conclusions section. We have also added the need to ensure statistical tests are comprehensively accepted (or rejected), as well as two references.*