

Interactive comment on “Characterisation of Intra-hourly Wind Power Ramps at the Wind Farm Scale and Associated Processes” by Mathieu Pichault et al.

Anonymous Referee #1

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In this paper, the authors present an automated characterization of wind power ramps in wind farms using data from the Australian Mount Mercer wind farm. The methodology is based on a wavelet transform through which the amplitude and duration of the ramps are detected. The authors set up a decision tree based on which the ramps are categorized into events related to cold fronts, moist convection, turbulence, etc. As a result, the paper offers a comprehensive analysis of more than a thousand ramp events spanning measurements of almost two and a half years. The paper is very well written and appears technically sound. The results promise real-world applicability in wind farm operations. Therefore, I am happy to recommend the paper for publication in Wind Energy Science in its current form.

Still, I would like to ask the authors to address the following points:

- Why do the authors refer to a dot product in eq.(1)? Do they mean the inner product of p_t and $\Psi(t)$ in some function space? Or would it be enough to call it a product?
- Eq.(1) is missing a "dt" in the integration. I would also leave out the "\cdots".
- p5: "'Haar' Wavelet", "Wavelet" should not be capitalized.
- Please check the normalization of the PDF presented in Fig. 4.
- Instead of the scatter plot presented in Fig. 6, would it be possible to compute the joint PDF, e.g. using kernel density estimation?

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Discussion paper

