

## ***Interactive comment on “Characterising regime behaviour in the stably stratified nocturnal boundary layer on the basis of stationary Markov chains” by Carsten Abraham and Adam Monahan***

### **Anonymous Referee #2**

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This is a well-written paper on the characterization of the nocturnal boundary layer in terms of Markov chains. The authors utilize measured data and define a hidden Markov model (HMM). Next they estimate the HMM parameters using a maximum likelihood approach. The work is interesting and the model seems to be well thought. The authors present a convincing comparison of the trained model with observations and they also perform a rigorous sensitivity analysis. The only point that I believe should the authors spend more effort is a more detailed discussion on the justification of the Markov assumption in terms of the physical properties of the nocturnal boundary layer. This should be particularly useful especially for non-experts on SLB.

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Interactive comment on Nonlin. Processes Geophys. Discuss., <https://doi.org/10.5194/npg-2018-44>, 2018.

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