

Interactive comment on “Dating Hiatuses: A Statistical Model of the Recent Slowdown in Global Warming – and the Next One” by J. Isaac Miller and Kyungsik Nam

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Received and published: 5 June 2019

Referee Comment: Global warming has long attracted the attention of the climate research community, but also socioeconomic fields, for its expected huge impacts on the Earth’s climate and our living environments. To date, we have not yet sufficiently understood the physical mechanisms accounting for the causality between warming and anthropogenic and natural processes. Although the existing studies using numerical models have provided important information for understanding global warming and climate change, the known inadequacy, uncertainties, and biases in models make us today still not clearly understand warming mechanisms by model alone. This study

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used a semiparametric statistical regression model, and proposed a new oceanic multidecadal oscillation index measuring the multibasin contribution to global mean temperature, to date and attribute the temperature hiatus from the perspective of physical processes and statistical features. The approaches and results are helpful to further our knowledge of the warming temperature oscillations and climate change. As is known, the biggest disagreement with hiatus comes from data uncertainty. So the usefulness of this study lies in the worthy addition to our study approaches and thinking perspectives for global warming. Regarding the projections, the credibility is not enough to support our policy-making, instead add risks thereof. So the suggestion is that authors limit the implications of this study in the range of study methodology and perspective, and include a caveat of uncertainty in the projection into the conclusion section.

Author Response: Thank you for your careful reading of the manuscript and suggestions for improvement. We have done our best to take into account uncertainty in the underlying data and in estimation of the model parameters, but projections are of course necessarily uncertain and we now include such a caveat. In the revision, we now emphasize a usefulness in the *evaluation* of policy: the natural cycle that we estimate can have a confounding influence on mitigation, so our results may be taken as a warning to those conducting quasi-experimental evaluations of such policies.

Author Actions: **Clarified** the use to inform policy throughout. **Added** to the conclusion: “We emphasize, however, the inherent uncertainty in such an exercise, even taking into account our allowance for uncertainty in the data and estimates.” **Added** to the conclusions: “Our forecasts are *conditional* on hypothetical concentration pathways. We cannot and do not suggest that policy should be based on our results. Rather, we seek to inform scientists and policymakers of the possibility of a warming hiatus due to a natural cycle. Such a cycle may be expected to have a confounding effect on policy evaluation, because a natural downturn may be mistaken for the effectiveness

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of mitigation. Quasi-experimental statistical evaluation of such policies must take into account this effect to avoid mistaking a failed policy for a successful one.”

Interactive comment on Earth Syst. Dynam. Discuss., <https://doi.org/10.5194/esd-2018-81>, 2018.

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