Interactive comment on “A Methodology for Attributing the Role of Climate Change in Extreme Events: A Global Spectrally Nudged Storyline” by Linda van Garderen et al.

Anonymous Referee #2

Received and published: 20 July 2020

This paper proposes a new methodology based on global spectral nudging to perform extreme event attribution conditional to dynamical conditions, as part of a storyline approach of attribution. This method is applied to two case studies: the 2003 European heatwave and the 2010 Russian heatwave. I find the paper very clear and interesting and just have a few minor questions and comments for the authors that I list below.

I.57-59 I get your point about type 1 and type 2 error because I have read Lloyd and Oreskes’ paper. However, I feel that this sentence does not fit very well in this paragraph and will be very confusing for someone who has not read the paper. I would delete the sentence or move it elsewhere and develop it a bit more.

I.205 Why did you choose a three years spin-up? How do you know this is enough?
I.209 Is there a reason behind the choice of three runs? Do you have any idea whether the results would be different if you added more runs? I understand that it takes computational time to add more runs for a global model but if you could comment on this (maybe as a limit of your study), the number of runs would look more justified.

I.213 Could you add a reference for this statement? I know you comment on this later in the paper, but I think you should put the reference here first.

I.266 to 279 I find this whole paragraph very interesting and original. Do you have an interpretation to explain the spatial variability of the differences between factual and counterfactual simulations?

I.311-313 that’s an interesting interpretation. Do you have a reference about the direct radiative effect of GHG?
