

Earth Syst. Dynam. Discuss., community comment CC1
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Comment on esd-2021-50

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Community comment on "Ubiquity of human-induced changes in climate variability" by
Keith B. Rodgers et al., Earth Syst. Dynam. Discuss.,
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It is always hard to know how to review articles like this which depend on large groups of climate models which relatively few experts in such models begin to understand. Thus rather than focus on the methodological details of the research which most readers will not understand anyway, it might make the most sense for the authors to focus on the implications of the results for policy makers and other interested readers. The first few sections should be shortened, and the end discussion should be greatly expanded so that policy makers are led through a clear discussion of what the results imply for real problems such as sustainable agriculture that the world faces.

One methodological problem I find in many articles which utilize very high forcing results for a scenario such as 7 watts per square meter like this one does is that by 2100 the temperature increases implied alone might imply the destruction of major parts of the world and human civilization. Thus, this is a very unlikely scenario to occur, especially since policy makers are now focusing on keeping the maximum average global temperature increase to between 1.5 and 2.0 degrees C by 2050 or 2060, not 4.5 degrees C by 2100 as in this scenario.

Therefore, I think this kind of analysis would make much more sense if it were done for a scenario which achieved net zero carbon emissions by 2060 at the latest, in order to show policy makers why the world should try to achieve net zero carbon emissions even sooner given the implications of this kind of large ensemble modeling effort for the year 2060. Ignore the year 2100 in a revised paper - it is not relevant. Policy makers and the general public need to focus on analytical results for modeling efforts like this paper attempts over a much shorter time frame. The authors might even want to focus on the negative implications of this kind of frequency analysis on years even earlier, such as 2040 and 2050, if that could be done in a scientifically convincing way. If that is done in a revised paper in a convincing way it might get a large readership. It would be important to describe in detail what about the findings are really new in a revised paper. Given the too long run focus of the current paper, it is basically irrelevant for climate change mitigation policy development, and should not be published as is.