

Earth Syst. Dynam. Discuss., author comment AC1
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Reply on CC1

Keith B. Rodgers et al.

Author comment on "Ubiquity of human-induced changes in climate variability" by Keith B. Rodgers et al., Earth Syst. Dynam. Discuss., <https://doi.org/10.5194/esd-2021-50-AC1>, 2021

We appreciate the comments offered through the public comment on our manuscript. The core suggestion of the reviewer concerns our choice of scenario (SSP3-7.0) and our choice to run our simulations through the year 2100 so as to consider variance changes at the end of the 21st century, rather than choose the near-term years 2040 or 2050. Our decisions in these matters were anchored in community-based decisions as reflected for example in the O'Neill et al. (2016) ScenarioMIP paper, that suggested SSP3-7.0 for large ensemble simulations. And more broadly, we chose to follow in most ways the CMIP6 protocols that were developed through broad community decision-making over the last 5 years. We wish in no way to denigrate or dissuade research focusing on nearer-term changes, nor does our work endorse or "choose" most likely outcomes of political decisions or put our money on the most likely scenario for future change. The O'Neill et al. (2016) study was quite specific in its recommendation that as a relatively strong scenario, SSP3-7.0 offers relatively strong forcing, with this being appropriate for studying changes of variance over the 21st century. We're sorry for any misunderstandings in this regard. In the revised text, we will state more clearly how our model configuration was chosen within the context of broader CMIP6 efforts.

As a matter of procedure, we would encourage the reviewer to participate in the development of protocols for CMIP7, as this is where the protocols that shape studies such as ours are developed and expressed to the climate community. To reiterate, the interests and questions raised by the reviewer are clearly of value and interest for enhancing both public awareness and policy. But procedurally the most constructive way to bring such concerns to the table may not be through arguing posteriori that submitted manuscripts have illegitimate priorities for their chosen timescales (is any timescale illegitimate in climate science?), but rather in shaping community priorities through open processes.