



EGUsphere, referee comment RC1
<https://doi.org/10.5194/egusphere-2022-779-RC1>, 2022
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Comment on egusphere-2022-779

Alan Robock (Referee)

Referee comment on "Dependence of Strategic Solar Climate Intervention on Background Scenario and Model Physics" by John T. Fasullo and Jadwiga H. Richter, EGU sphere, <https://doi.org/10.5194/egusphere-2022-779-RC1>, 2022

This is an excellent paper, and I recommend it be accepted after addressing all the 86 comments in the annotated manuscript, most of which have to do with how the information is communicated. The main point, that rapid adjustments in clouds and precipitation can produce different spatial patterns of response, and that these are connected to larger scale responses, such as in AMOC, is important, and this happens in two versions of the same model. So I recommend that this general result be emphasized and "CESM" be removed from the title.

Also, I think the aim of reducing risks so that SAI can be implemented in the last sentence of the paper should be deleted. This is not a result of the work here, and not supported by any analysis. Should you rather say that we should work to emphasize the risks so that SAI is never implemented? I think it would be better to just say that we want to characterize the risks and benefits so that any future decisions to implement SAI will be informed decisions.

The formatting of degree symbols and subscripts, such as for CO₂, is not working, although superscripts for W m⁻² are working.

Also, it seems that undefined strange codes (e.g., FSNT) are used for variables, but never explained. It seems like NCAR inside baseball, where people who use CESM all the time memorize these codes, but they are hard to understand for others. And the direction of the fluxes are not specified. Is downward TOA radiation positive or negative? Is this true for shortwave and longwave? What about net?

I recommend that the insignificant regions on the maps in the figures be stippled, not the significant ones. As is, all the important information is covered by stipples, but the part we should not focus on is not covered.

In several places, the authors use "it is notable," but everything in the paper should be notable or it should not be there. These should be deleted to save space.

Review by Alan Robock

Please also note the supplement to this comment:

<https://egusphere.copernicus.org/preprints/2022/egusphere-2022-779/egusphere-2022-779-RC1-supplement.pdf>