

Review Comments on the Manuscript: “Tropical Pacific Climate  
Variability under Solar Geoengineering: Impacts on ENSO  
Extremes”

The authors have addressed my questions concerning the model’s performance in simulating ENSO variability and the underlying mechanisms which are responsible for ENSO changes under various climate scenarios. Overall, I am satisfied with the revised version. However, some minor modifications are needed:

1. P3 line 3 the meaning of “until Cai et al. (2018) used SST indices based on Principal Component Analysis (PCA).” Is not clear.
2. P3 line 13-14 the meaning of eastern and central Pacific ENSO mode should be clarified in the text somewhere (see studies in Wang et al., 2019).
3. P3 line 18 “a significant mean warming response” might be better replaced as “a significant mean state warming response”.
4. P3 line 20 “CMIP 3” should be “CMIP3”.
5. P3 line 39 “argue” should be “argued”.
6. P3 line 42 “90 %” should be “90%”.
7. P6 lines 14-15 “BJ feedback is an equatorial zonal wind stress dynamic response to equatorial SST anomalies.” might be revised as “BJ feedback is a dynamical response of equatorial zonal wind stress to equatorial SST anomalies.” for clarity.

8. P14 lines 5-6, the definition of extreme events is not clear, do you mean the averaged rainfall anomalies over the Nino3 region exceeding 5 mm/day? Why 5 mm/day in Cai et al. (2014) as the threshold? This should be mentioned and clarified. Is it the same reason as Wang et al. (2020)? Thus, the first paragraph in section 3.2.2 can be better organized.
9. In section 5, the possible implications of CP ENSO frequency and amplitude changes due to atmospheric and oceanic changes under 4×CO<sub>2</sub> and G1 scenarios should be discussed. The formation of EP and CP ENSO can be distinct since BJ feedback and heat flux feedback can play a relatively different role in determining the evolution of ENSO events. As inferred from the results based on 4×CO<sub>2</sub> and G1 simulations, how might the CP ENSO be changed?