

Review of ***Anthropogenic climate change drives non-stationary phytoplankton variance*** by Elsworth et al.

This work investigates the internal variability of phytoplankton biomass in an Earth System Model large ensemble (CESM1-LE). The results show a decrease in internal variability under RCP8.5.

The manuscript is well written and well laid out and the results are novel and important. I have only some minor suggestions.

Comments

Line 128: The *coefficient of variance* seems to be much more commonly referred to as the *coefficient of variation*. Is there any reason why you use the term “coefficient of variance”?

Line 130: Should the nominator in this equation read $LE(x,y,t)$ (with a line above) as it is defined on line 132? In that case I would rephrase the sentence on line 131 to say something like: *where $LE(x,y,t)$, the forced response of the large ensemble, is calculated as the mean of ensemble members at a given location and time.*

Line 140: Should be biomass *standard deviation* instead of *variance*? Also on line 145. Also check other places throughout the manuscript like on lines 225-229.

Line 169 - 175: It is not specified in the text that it is *surface* chlorophyll that you are using. Also, could you please clarify why you used surface chlorophyll for the validation of internal variability instead of biomass as in the rest of the analysis?

212: Specify that it is *surface* chlorophyll.