

Interactive comment on “Hadley cell expansion in CMIP6 models” by Kevin M. Grise and Sean M. Davis

Anonymous Referee #1

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The submission by Davis and Grise sounds at first like turn-the-crank research paper. Indeed, the analysis is a repeat of earlier work by the authors, only with some newer datasets (CMIP6 and ERA5). However, the authors do a commendable job of contrasting their results with their earlier work and under light of other recent studies. In doing so, the authors point out several outstanding questions, making this work a useful step forward.

I have a few mostly-editorial comments.

Line 15-17: the sentence “First, both..., but this...” would be more clear as “First, while..., this...” to make it clear that “First” does not refer to the first clause, but to the second.

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Line 43 and 52: there's another "First" "second" list here, but it's not clearly introduced as a list, and it sounds like the list may continue afterward. "For example" and "In addition" might be better.

Lines 125-128: This is not the Hadley circulation boundary. If you believe the EDJ to be meaningfully related to the HC edge in the different ocean basins, you should state so, and somehow justify your belief.

Line 145: "drastic" is the wrong word; "dramatic" is better

Line 166: Table 1 does not "support" the fact that the only significant differences occur during JJA—that fact doesn't need supporting. But Table 1 helps explain the difference. A more definitive way of explaining this difference would be to normalize the shifts by the respective sensitivities (or remove the component explained by the sensitivity) and determining whether the difference remains significant once the impact of sensitivity is removed.

Line 168: Fig. 2 vs Figure 2a

Line 289: "with forcing" would be clearer as "with a higher sensitivity to"

Line 346: "when which" should be "in which" or "during which"

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