Geoscientific
Model Development
Discussions

Interactive comment on "Evaluating Lossy Data Compression on Climate Simulation Data within a Large Ensemble" *by* Allison H. Baker et al.

Allison H. Baker et al.

abaker@ucar.edu

Thank you for your thorough review. We address all comments below.

—————— General comments ——————

We appreciate the thoughtful comments on the usefulness of this work.

—————— Specific comments ——————

(1) Regarding fpzip:

Our intent is to eventually develop a smart compression framework that any compression utility (with an appropriate API) could plug into. It may well be that different compression methods will be used on different subsets of CESM variables.

C1

(2) Regarding sharing lessons learned with WGCM Infrastructure Panel:

Thank you for this suggestion. Our hope is that lossy compression will eventually be accepted for CMIP datasets.

—————— Technical corrections ——————

(1) Regarding paragraph 4.2.1 ("a figure with the differences between the maximum and minimum monthly averaged temperature is probably missing"):

Only Figure 2 accompanies this section. We intentionally did not include a second figure for Section 4.2.1, as we felt that the two sentences at the end of 4.2.1 sufficiently conveyed the important highlights. Because this paper has a large number of figures, we were careful to only include the figures that were the most useful (in our opinon).

(2) Regarding "Figures 2 3 4 5 6 7 8 9 10 11 and 13 should include 31-c and 33-c in legend instead of 31 and 33 to help understanding."

The convention in the manuscript is to label with the "-C" only in figures that were generated in a "not-blind" analysis. In the revision, rather than modifying the figures themselves, we instead added the text "Note that members 31 and 33 have been subjected to lossy compression." to the figure captions (as was already done for Figure 14) for clarification. In addition to the figures noted by the reviewer, we also added this clarifying text to Figure 16.

(3) Regarding Figure 7 ("add a reference to fpzip-24"):

We have modified the caption in Figure 7 to refer to the adjusted compression level as fpzip-24. We similarly adjusted the caption in Figure 10 for consistency.

(4) Regarding Figure 9 ("add a reference to fpzip-16"):

We have modified the caption in Figure 9 to note that fpzip-16 was used.

(5) Regarding Figure 17 ("add a reference to the 4 different variables showed")

C2

We modified the caption in Figure 17 to list variables TSMN, TSMX, PRECT, and PRECTMX and give their meanings.

C3