

Reply on RC2
Chengzhu Zhang (on behalf of all co-authors)

We appreciate the positive feedback and helpful suggestions from the referee. Our responses to the specific comments are listed below:

General comments

Referee comment: The paper provides a description of the E3SM Diags package. The package produces sets of plots comparing a E3SM model run to observation or to another model run. It is used routinely in the E3SM model development cycle. The tool can also retrieve CMIP data files from the ESGF which is a nice capability.

Author response: We thank the referee for the positive comment. Just to clarify that E3SM Diags only handles CMIP data files on local disk and do not support retrieve files on-the-fly. The files need to be already existing locally or be downloaded from ESGF as a separate step. We revised the relevant description of the application in CMIP data to avoid ambiguity.

Referee comment: The authors also provide a link to a complete example of E3SM Diags run for model versus obs. It would be nice to also provide a link to model versus model runs.

Author response: This is great suggestion. We now provide a link to show a model versus model runs. The link (https://web.lerc.anl.gov/public/e3sm/diagnostic_output/ac.forsyth2/zppy_test_complete_run_ww/v2.LR.historical_0201/e3sm_diags/atm_monthly_180x360_aave_mvm/) is added in the sample availability session.

Referee comment: While the section 1-3 reads quite well, section 4 is a bit tedious. It provides a flurry of details about the installation, configuration and installation of the package. I personally think Section 4 could be summarized into a simpler overview and the “nuts of bolts” could be moved to an appendix.

Author feedback: We agree with the referee that the detailed instructions provided in session 4 on how to run the package could distract the reader and moving these instructions to an appendix would smooth out the story. We added a new Appendix: General Guide for Running E3SM Diags, to cover these details.

Specific suggestions/corrections

Referee comment: L85: two dots after workflow

Author feedback: This has been fixed.

Referee comment: L90: define API (Application Programming Interface)

Author feedback: Definition of API has been added.

Referee comment: L183: sentence incomplete ?

Author feedback: Fixed. This sentence now reads as follows: “While the model captures the downward propagation of the equatorial zonal winds in the stratosphere, the simulated easterly phase is too weak.”

Referee comment: L340: While it is clear that the E3SM diags could be easily run on supported machines, the portability of the tool on other machines (non DOE machines) is not discussed.

Author feedback: We agree that it is important to discuss portability for majority of the readers who don't have access to those DOE machines. In the newly formed Appendix A: General Guide for Running E3SM Diags, we explicitly added the following instruction: “For users who don't have access to the E3SM supported platforms, the setup on a Linux/MacOS system would require both installation and to download the observational datasets (see data availability session for location).”

Referee comment: L454: Link should be fixed:

https://https://portal.neresc.gov/project/e3sm/e3sm_diags_v2.6_GMD/v2_6_0_all_sets_paper/view/.

Author feedback: The link has been fixed. Thank you for catching this!

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