

Geosci. Model Dev. Discuss., referee comment RC2  
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## **Comment on gmd-2022-38**

Anonymous Referee #2

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Referee comment on "The E3SM Diagnostics Package (E3SM Diags v2.7): a Python-based diagnostics package for Earth system model evaluation" by Chengzhu Zhang et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2022-38-RC2>, 2022

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### **General comments**

The paper provides a description of the E3SM Diags package. The package produces sets of plots comparing a E3S 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 ESGGF which is a nice capability. The tool is flexible and it allows customization of the plots. The package is an open-source software written in python and available on github.

The authors provide various examples of the diagnostics produced by the E3SM Diags. All the diagnostics in the figures are directly coming from E3SM Diags for demonstration purposes.

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.

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.

### **Specific suggestions/corrections**

- L85: two dots after workflow
- L90: define API (Application Programming Interface)
- L183: sentence incomplete ?
- 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.
- L454: Link should be fixed: [https://https://portal.nersc.gov/project/e3sm/e3sm\\_diags\\_v2.6\\_GMD/v2\\_6\\_0\\_all\\_sets\\_paper/viewer/](https://https://portal.nersc.gov/project/e3sm/e3sm_diags_v2.6_GMD/v2_6_0_all_sets_paper/viewer/).