

Re: Thank you and planning

John Fasullo <fasullos@gmail.com>

Mon 5/3/2021 8:46 AM

To: Benjamin Oren Goldman <bg502257@live.wpcsd.k12.ny.us>

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There are some major differences in terms of clouds so we should expect differences, but that is part of the goal as we can try to explain those differences.

On May 3, 2021, at 7:44 AM, Benjamin Oren Goldman <bg502257@live.wpcsd.k12.ny.us> wrote:

Hi John,

That's great news! I will download them promptly and start by repeating the same procedures as used on the CESM1. Are there any significant differences/biases between the CESM1 and CESM2 that I should be aware of? Is the Nino 3.4 index an ideal measurement region for both models?

Thanks!

Ben

From: John Fasullo <fasullos@gmail.com>

Sent: Saturday, May 1, 2021 3:42 PM

To: Benjamin Oren Goldman <bg502257@live.wpcsd.k12.ny.us>

Subject: Re: Thank you and planning

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Hi Ben,

You can find new files on our ftp server. These cover the CESM1 and CESM2 LE and SF-LE fields. More of the CESM2 files will likely come along in the coming weeks but this is a good start. See how the results from your CESM1 analysis compare to CESM2 and whether you can make sense of the model dependence that you might find. It will be interesting to see what differences we see.

Best,
John

PS: I think you have the information for getting fields from <ftp.cgd.ucar.edu>? under the /pub/fasullo/BEN folder?

On Apr 13, 2021, at 9:28 AM, John Fasullo <fasullos@gmail.com> wrote:

Hi Ben,

Congrats on the award. That is great! You've earned it. The single forcing runs for CESM2 are almost done (they have taken longer than I had hoped) and so I think we are ready to proceed with our final steps. The first step will be for me to get you access to the full data. You should feel free to look at all of the ideas you've listed. Often, examining ideas such as these is a great way to learn, even if the results are not novel or significant. We will also recreate our original figures with the new CESM2 simulations and compare / contrast. Hopefully we can perform some additional analyses

to inform an understanding of the differences we identify and that should make a nice paper. (Yes probably submitted to an AGU journal). We may relate the findings to CMIP6 generally but only if lends to a concise storyline.

As always I welcome your input on this too.

Best,
John

On Apr 12, 2021, at 4:36 PM, Ben Goldman <bg502257@live.wpcsd.k12.ny.us> wrote:

Dear Dr. Fasullo,

Hello, I hope your spring is going well. I am writing to give you an update on the project and to thank you for working with me this year. I recently presented our study in the Westchester Science and Engineering Fair (WESEF). My presentation won an award from the American Meteorological Society!

Thank you so much for your help and commitment to doing this study with me. I value your direction and assistance, and I am really lucky to have a professional scientist who is so willing to help a young person.

I also have a few questions regarding long-term plans for the project. If I am to compete in the same science fair next year, I have to expand on this current study or start a new one. I brainstormed a few possible methods/variables we could look at (some of which we have discussed). Here are a few.

- Correlation coefficient with other modes of internal variability (AMOC, PDO, etc.), possibly using the CVDP
- EOF-based definition of ENSO
- Employ signal analysis (Fourier transform) to examine changes to ENSO variability on a wider variety of timescales
- Role of air currents (Walker Circulation) in modulating ENSO under global warming, such as correlation with vertical air movement/pressure tendency
- Changes to seasonal cycle under global warming
- Use similar analyses on observed data (not sure how far we will get given the short record period, but it might make for an interesting discussion.)
- Use CESM2 and CMIP6 ensembles' data

One other thing that might happen next year is publishing the paper once we finish our analysis. Are you still planning to publish it with the AGU? I understand that the reviewing process can be fairly long, so is there anything I should be doing to prepare (other than drafting the paper)?

Once again, thank you so much.

Sincerely,
Ben

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