

## ***Interactive comment on “C-Coupler2: a flexible and user-friendly community coupler for model coupling and nesting” by Li Liu et al.***

### **Anonymous Referee #2**

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#### General Comments:

This paper is a general overview of the C-Coupler2. The paper is largely a list of operations that the coupler performs and the intended audience for this paper is potential users. Overall, I think the paper is fine, but it's too long and is not concise enough. For example, the motivation is mentioned multiple times and would be easier to understand if in one location. I suggest the authors re-think the motivation and re-tool the description section to focus on the main points. I provide specific suggestions below to make the paper shorter and more concise.

#### Specific Comments:

Page 1, line 23: Have couplers (as described here) been used in disciplines other

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than environmental prediction? If not, combine these two sentences into one shorter sentence.

Page 1, line 29 to Page 2, line 15: There are two representative applications of C-Coupler1. What does representative mean in this context? How about just say the C-Coupler1 was built to support Chinese global and regional coupled modeling efforts? And then briefly mention limitations of C-Coupler1, which led to C-Coupler2. If the components models are mentioned, WRF, POM, MASNUM, and other abbreviations should be defined. Also, I am not sure FGOALS-g2 is a common known model and should be introduced.

Page 2 and 3, the list: Details of these features are discussed elsewhere in this paper. They do not have to be discussed in the amount of detail here.

Page 3, line 25: This description of Figure 1 is not clear. Figure 1 may not be needed.

Page 4 through 8: I feel that section 3 can be summarized in a table similar to Table 10 (or use Table 10). The motivations are repeated in the Design section. Removing this section will increase readability for this paper.

Page 8, Line 20: The items in 1) have been mentioned before. Specifically, the text talking about the C-Coupler should be in the motivation and this section should be more about description.

Page 11, line 19ish: Throughout section 4.1, I was curious if there are defaults for each option.

Page 11, section 4.1.1.x: Is there a way to make the discussion of the APIs shorter? Could some of this be easily summarized in a table? And/or the API descriptions may be deleted.

Page 15, line19: coupling field instances from itself. I'm not exactly sure why a component would want field instances from itself? I may be missing something. Could you provide an example?

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Page 15, line 35: How is a source fraction calculated? What are the multiple sources that would be used?

Page 15, line 40: Coupling procedures. Could you list some of these procedures at this point.

Page 17, line 4: CESM needs to be defined. Also, CESM has a lot of components, and I'm not sure what the model CESM means in this context.

Page 22, line 6: OASIS-MCT\_3.0 needs an introduction.

Page 33, line 13: 960 cores seems small to stop the diagnostics. Many high resolution models require more than 960 cores.

Page 34, line 24: Guarantee is a strong word and you may not want backwards compatibility for all applications.

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Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2018-27>, 2018.