

## ***Interactive comment on “Developing a common, flexible and efficient framework for weakly coupled ensemble data assimilation based on C-Coupler2.0” by Chao Sun et al.***

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We thank the anonymous reviewers and Dr. Lars Nerger for carefully reading the manuscript and for providing the very valuable comments. The review comments reveal weak points of this manuscript and give us a lot of suggestions for further revision. Guided by the review comments, we will try to significantly improve the manuscript in the following main aspects:

1. Based on the comments of anonymous reviewers and the discussions with Dr. Lars Nerger, we will revise the statements about PDAF in our manuscript and significantly rewrite about our motivation part for developing DAFCC, as the discussions in

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the replies to the reviewers.

2. We will add more introductions and references to the related works, such as EMPIRE and the examples of operational coupled data assimilation mentioned by anonymous reviewers.

3. We will clarify or reformulate some statements, such as why the weakly coupled ensemble data assimilation system is designed as the first step target, the specific data assimilation method used in our experiments and "accelerating the DA system" will be rephrased as "enables the DA method to utilize more processor cores in parallel execution", etc.

4. We will make clear how we evaluate the effectiveness, and considering DAFCC enables a DA algorithm to flexibly utilize a wide range of processor core number (even from 1 to the total core number of the corresponding model ensemble), we will further evaluate the corresponding impact when revising the manuscript.

Best regards,

Chao Sun,

on behalf of all authors.

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