Review 2:

1. The mention of the "most popular model" regarding WRF appears subjective (Short summary, and beginning); unless this is proven, suggest rephrasing L38: "among the most popular..." in both occurrences.

We have corrected the text as proposed by the reviewer.

2. L38: not convinced that "numerical performances" are among the main reasons for the success of WRF. Unless the latest versions have changed this, WRF is known for limited scalability.

We agree, we have suppressed this reference to WRF numerical performances.

3. L61 please introduce the acronym C-Coupler used later

We corrected that, when introducing the Community Coupler: *"Community Coupler (C-Coupler, Liu et al, 2014)"*. We also added the missing reference for YAC and repeated C-Coupler reference, line 359.

4. L83 the sentence "The de facto" needs to be rephrased for clarity

We agree, we have removed this sentence that was repeating information already mentioned in the previous/following sentences.

5. Section 2.3 refers to the standard OASIS functionalities. This needs to be stated clearly; also, the associated schemes (fig3) and text do not consider any delay (LAG) in the time-stepping to exchange fields and avoid deadlock communication. I recommend adding a discussion on that, which could be useful for many users.

We have added "Following OASIS3-MCT approach" at the beginning of the first sentence in Section 2.3.
We have also added the following paragraph at the end of section 2.2 (lines 167-185):

In forced mode, WRF reads the surface boundary conditions at the beginning of the time step. In coupled mode, these quantities are provided by the coupler. In the « real world » the air-sea exchanges are continuous, but it is not easy to achieve such synchronicity in coupled models. The cleanest way would be to iterate the coupling procedure several times at each coupling time window until flux computation converges (Lemarié 2008). The computational cost of this methodology is, however, prohibitive. A compromise could be to have a coupling time step small enough to represent the continuous air-sea exchanges. This solution is often *not compatible with the relatively large time step of ocean models and the uncertain validity over small time windows (< 10 minutes) of bulk formulations that have been calibrated using average hourly measurements (Large, 2006). The usual solution is to exchange averaged fields over a coupling time window that is considered “small enough” to represent a kind of synchronicity while being compatible with the ocean model time step and the bulk formulations. To obtain the best compromise between numerical performance and the coherence of the coupling fields, the ocean and atmospheric models run in parallel rather than sequentially (see figure 4 of Valcke et al. 2013) using dedicated MPI resources (see details on MPI communication in section 2.4 and MPI resource allocation in section 2.6). The atmosphere modifies the ocean state which will not feedback to the atmosphere immediately but with a delay of the coupling time window. In OASIS3-MCT, a functionality called “lag” is used to synchronize the send and receive functions and avoid deadlock between models (detailed in section 2.5.3 of the OASIS3-MCT user guide, Valcke et al. 2021). In our implementation, the sending function is called at the end of the time step, and the receiving function is called at the beginning. Synchronous exchanges therefore require sending to take place during the time step preceding reception, which is ensured by defining the lag to one time step of the sending model. Note that at the beginning of the simulation, the variables to be received are read in NetCDF restart files written by the sending models at the end of the previous simulation.*

6. L200 decision -> strategy

Corrected.

7. In Table 2, every interpolation method is given also with the “F” (BICUBIC and BICUBICF) without explaining the meaning

We have now specified in the text of the table: “with (BILINEAR) / without (BILINEARNF)” and repeated these modifications for BICUBIC, DISTWGT and GAUSWGT. We have also specified LOCCUNIF, LOCCDIST and LOCCGAUS definitions.

8. L281 as shown in Figure 9.

Corrected.

9. It is not clear why the use of relative wind is implemented only in two PBL schemes, and not in all; is there a specific reason? Can the authors at least say how to do it for the other schemes?

The modifications for the relative wind were done in the two (most) popular PBL schemes. We have modified the sentence line 412:

"The implementation of the requested modifications has, for now, been done in 2 popular PBL schemes: the Yonsei University (YSU, Hong et al. 2006) and the Mellor–Yamada Nakanishi Niino (MYNN, Nakanishi, M., and H. Niino, 2009) schemes."

We have added a reference to a paper from Samelson et al., in which they modified other PBL schemes (line 414):

"Samelson et al. 2014 explored the impact of the relative wind in other PBL schemes and proposed the corresponding WRF modifications in the GitHub repository associated with the publication."

10. The same applies to the Charnock coefficient in the Revised MM5 Monin-Obukhov surface scheme, which could be discussed in more detail. What about other schemes?

The use of a Charnock coefficient from a wave model was added as one of the options of the namelist parameter "isftcflx" which is described in the README.namelist as "alternative Ck, Cd formulation for tropical storm application". In WRF 4.6.0, the "isftcflx" parameter is implemented only in the surface schemes 1, 91 and 5 which corresponds to the revised and the old MM5 and the MYNN surface layer schemes. Following the suggestion of reviewer 2 and what was already done for "isftcflx", we added the possibility to use a wave model Charnock coefficient in MYNN surface layer scheme.

We modified "module_sf_mynn.F", the caption of figure 17 and the following paragraph (lines 434-442):

Here, the implementation has been performed in the 3 schemes that use the "isftcflx" namelist parameter defining alternative Cd formulation: the Revised MM5 Monin-Obukhov scheme (Jimenez et al. 2012, sf_sfclay_physics = 1 or 91 in "namelist.input") and the MYMM scheme (Olson et al. 2021, sf_sfclay_physics = 5 in "namelist.input"). Coupling through the exchange of the Charnock coefficient is activated by using "isftcflx = 5". The changes made in "module_sf_mynn.F", "module_sf_sfclay.F" and "module_sf_sfclayrev.F" are shown in Figure 17.

11. L631 "other kinds"

Corrected.

12. In general, the technical paper will be very useful if associated with realistic examples collected by the authors and the community (in terms of masks, grids, namelists). The example provided in the github is quite limited (exchanges of only SST and TAUX); having at least two complete configuration examples (e.g., one with no nested domains and one with), complete as in realistic applications of all domain and grid files, the scripts to

generate them and the associated namelists to run, could be very useful to guide users in their implementations.

We agree with the reviewer and create two Zenodo repositories containing all input files to run two different examples. We added the following lines at the end the Appendix 2.

Input files for running real applications are also provided in two Zenodo repositories. The first one is an example of a coupling between WRF, WAVEWATCH III and CROCO (https://zenodo.org/records/14235410), the second one is an example of a WRF-CROCO coupling with a 2-way nested domain in CROCO (https://zenodo.org/records/14235450).