

This paper develop a new tool coupling OpenFAST and OpenFOAM where the hydrodynamics and dynamic responses of platform is considered in OpenFOAM and the aerodynamics of blade and controller is simulated in OpenFAST, to obtain the high-fidelity results, especially the nonlinear hydrodynamic loads. I believe this paper more or less makes contribution to the community. However, there are some technical issues must be addressed to increase the quality of the paper. Please address them or rebut them in your answer to present review:

Major comment:

As the hydrodynamics of platform is considered in OpenFOAM, and the motions of platform is transmitted to OpenFAST. Why the OpenFAST calculate the hydrodynamics again based on potential-flow and Morison equation? I think the coupling between OpenFOAM and OpenFAST should be explained in detail.

Minor comments:

1. Listing 1 can be given as an appendix.
2. I think it needs some words to introduce how the mesh around the platform's surface is refined, instead only show some figure. In addition, I think the edge of column of platform above the free surface does not need refinement.
3. Please give the reason why the laminar simulation is carried out in OpenFOAM. In my opinion, the turbulence model should be used to capture the nonlinear wave loads.
4. Please specify the wave theory which is used to generate the wave. And the figure 6 should present the more results to make sure the wave is simulate accurately. From the presented results, it is hard to estimate whether the wave amplitude decreases with time or not.
5. Why the platform move towards opposite directions at the beginning of simulations in Fig7(b). The difference of mean heave position can be removed in Fig7(c). Even though the difference of mean heave position is removed, the mean value of heave motion between OpenFAST and OF² is also very large. Under this condition, there is no wave, I think the mean value of heave should be very close. And the difference of heave force is quite small in Fig.8. Please check the results of heave motion again.
6. The legend of figure should be OF², not OF2.