Dear reviewers, thank you for your time and for the revisions.

The paper was now updated following your instructions, we are sure the current version better describes the performed work and we hope it can be accepted for the Technical Meeting. Please find further explanations in the following: after each reviewer’s comment, our answer is reported in red.

Comment

:

Dear authors, please see below the comments from the peer review.

Reviewer 1: The paper reads well and pleasantly. I have just a few small remarks:

All figures have the same caption: ‘Adopted time-advancing scheme (adapted from [])’. Please correct this.

Thank you. Captions are now correct.

The authors indicate that the coupled simulation of NACIE-UP is not so relevant, but that the coupled simulations of NACIE-UP show more details than an STH simulation could in the CFD part of the coupled simulation. However, what could be achieved with a CFD only simulation? In any case, I think the NACIE-UP case is relevant in validating the coupled approach by showing we can get similar results in a case in which we should expect this.

Thank you for the comment. We were too much prudent in the draft version; the relevant improvements are now highlighted in the present version.

Reviewer 2: Thanks for this paper! Please find below a few corrections/remarks/requests for clarifications : fig 1-13: legends are wrong? (all of them say "adopted time-advancing scheme"). Please update them!

Thank you. Captions are now correct.

p4 fig. 3 : the figure also shows that the pressure information transmitted from the CFD side to the STH side is a pressure difference (instead of an absolute pressure such as P\_108). Could you comment on this choice? Does it lead to an improvement in stability/performance compared to the simple approach?

Thank you for the suggestion. The text has been updated answering your comment.

p5 fig 6-7: could you also compare these temperature predictions with those from standalone STH in order to show the improvement from STH to STH+CFD?

In the STH stand alone approach we could not find such a level of detail. Now we updated the label (Thank you for noticing) it is clear that it is the bulk temperature in a precise subchannel and the wall temperature on a selected rod. STH could provide a more general point of view and the comparison would not be nice. We commented this on the updated version of the paper.

p6: would the adoption of a coarser CFD model allow for a reduction in calculation time while still preserving the model's capability to simulate complex flows in the pool?

In principle I would say yes. The considered CFD domain already considers a coarser CAD than the actual one. I guess coarser cells than the ones adopted could be considered for the upper part of the pool, but sensitivity analyses should be performed. At the time of the calculations, we were happy with the achieved computational costs and we thus proceeded with the described domain.

p6 fig 9: in this case, was the CFD->STH hydraulic feedback obtained by imposing absolute pressures, or was it obtained using pressure differences, s for NACIE-UP? Was stability impacted?

Thank you, the text was updated following your comment.

Dear authors, please submit a revised paper incorporating the minor corrections above by 20 September 2022.

The authors with to thank the reviewers for their valuable comments, we feel the paper was improved after this first round of revisions. We hope the achieved quality is sufficient for the paper to be accepted for the Technical Meeting.

The Authors