

*Response to comments of Anonymous Referee 2 on*

**Sensitivity of simulating Typhoon Haiyan (2013) using WRF: the role of cumulus convection, surface flux parameterizations, spectral nudging, and initial and boundary conditions**

Delfino et. al.

**Anonymous Referee #2 [Report #1 Submitted on 29 Aug 2022]**

Editor's COMMENTS	Authors' RESPONSES
<p>Dear Authors,</p> <p>I am glad to inform you that your paper can be now accepted subject to the technical corrections proposed by the reviewer. Please correct the manuscript accordingly. Thank you for considering NHESS for the publication of your research.</p>	<p>Dear Editor,</p> <p>Thank you very much for giving us the opportunity to publish our research at NHESS. We have made the suggested technical corrections of Reviewer 2 in the revised manuscript. All line numbers refer to the revised manuscript.</p>
Reviewer 2's COMMENTS	Authors' RESPONSES
<p><b>General comments</b></p>	
<p><b>accepted subject to technical corrections.</b></p>	
<p>Thank you for considering all the reviewers' concerns. The revised manuscript has improved a lot and should be accepted for publication with minimal revisions.</p>	<p>Thank you very much for the positive review. We have made the suggested technical corrections in the revised manuscript. Please see below our specific responses and refer to the revised manuscript for more details.</p>
<p>I think Figure 8 in the supplementary materials somehow shows the negligible impact of two-way nesting in comparison to model parameterizations in your case study. The reviewer was concerned with the distinction between the impact of model parameterizations and domain interactions due to two-way nesting.</p> <p>Kindly refer to the supplementary figures in the main text rather than saying "not shown here".</p>	<p>Thank you for pointing this out. We have referred to the Supplementary Figures in the main text, particularly: Supplementary Figures 1-5 on domain configuration (Line 218); Supplementary Figures 6-7 on different initial times (Line 225); and Supplementary Figure 8 on two-way nesting and analysis of the inner domain only (Line 236).</p>
<p><b>Minor concerns:</b></p>	
<p>Line 58 – Villafuerte uses a regional climate model.</p>	<p>We were referring to the need for using RCMs/LAMs as emphasized by Villafuerte et al 2021, but nevertheless, we have removed this reference in this line (58) to avoid confusion.</p>

Line 294: Zhang et al (2015) is not in the list of references.	Thank you for spotting this. We have added it in the references of the revised manuscript.
Line 362-365: Kindly clarify. TK is deviated by 50 km at 36h, while KF deviated by 50 km during the first 36 hrs? Please clarify if both schemes deviated by 50km in the first 36 hrs?	TK simulations deviation were LESS THAN 50km, ave=18km (indicated in Line 367 of the revised manuscript) while KF simulations were MORE THAN 50 km, ave=61.5km (indicated in Line 369 of the revised manuscript).
Line 373: Write Figure 3 to Figure 3a. May I suggest putting Line 377 first before Line 373?	Thank you for this suggestion. The text reads better that way. We have moved Line 384 to 378 in the revised manuscript.
Line 390. TK is less dependent on nudging ... then Line 392 seems to contradict it.	Thank you for the clarification. We have revised this in Line 395 of the revised manuscript.
Line 393: Statistically significant?	Not statistically significant and we have indicated the value in Line 397 of the revised manuscript.
Line 404-405. Simplify the sentence. “, this is a difference” looks like another sentence.	Thank you for spotting this complicated sentence. We have revised this in Lines 409-411 in the revised manuscript.
Line 407: “, however, this”. What does “this” refers to? Kindly rewrite.	Refers to the simulations using KF scheme and we have revised in the manuscript (Lines 412-413) .
Line 422: Statistically significant? By how much?	Yes, this is statistically significant and we have indicated the value in line 428 in the revised manuscript.
Lines 434-435: Simplify. The two sentences have basically the same meaning.	Thank you for spotting this. We have removed the second sentence and retained the first (Lines 440-441) in the revised manuscript.
Line 462: How about sf2?	Indicated in Lines 468-469 in the revised manuscript.
Line 650 : “at 25 km and 5 km”. Do you mean 5 km only since the analysis was done only with the finest domain?	The analysis was done only for the 5km inner domain. We have revised this in Line 656 of the revised manuscript
Kindly improve and simplify sentence constructions. Avoid repeating a word or a thought several times in one sentence: e.g. Line 646-649: E.g. “As climate models project more intense storms, such as Typhoon Haiyan, will occur more frequently in the future due to climate change, it is important to improve their representation in high-resolution models, in order to improve understanding of TCs under climate change and improve confidence in model projections, and more importantly, for risk and impact assessments.”	Apologies for these. We have improved these in Lines 652-655 and Lines 675-678 in the revised manuscript.
Congratulations to the authors for doing a great job and sharing their research with the community.	Thank you very much for your valuable inputs and for letting us share our research.