

Interactive comment on “Impacts of Horizontal Resolution and Air–Sea Flux Parameterization on the Intensity and Structure of simulated Typhoon Haiyan (2013)” by Mien-Tze Kueh et al.

Anonymous Referee #2

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This contribution aims at investigating the impacts of model horizontal resolution and surface flux formulas on structure and intensity of tropical cyclones. The authors intend to study the sensitivity of the intensity of tropical cyclones to surface fluxes parameterizations of the Weather Research and Forecasting Model (WRF) at very high resolutions (1, 3 and 6 km, when model resolution approaches the convective scale).

The paper is in general structured and scientifically sound. English should be revised by a native speaker in order to correct some typos, but also to rephrase long sentences that make the manuscript hard to read. Scientifically, there are several limitations, especially regarding the design of the simulations, that require major revisions of the

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submitted version.

1. Is convection parameterized (K-F cumulus scheme) for all resolutions? 6 km simulations are in the grey-zone, but cumulus should be explicitly resolved when working at resolutions below 3-4 km. How this parameterization impacts the results?
2. P. 4: What is the nesting approach followed in the simulations? Is it a one way or a two way nesting?
3. Nudging is critical for correctly representing the TC structures, their paths and intensities. So, ideally, some sensitivity runs should take nudging options into account. If not possible, further details about nudging approach followed and its impacts on the results should be elaborated.
4. P. 8, lines 5-10: It is not clear to the reader why 1 km F2 test is omitted. The authors indicate that the "the simulation result of F2 is somewhat between those of F0 and F1 for other resolutions, we omitted the F2 test at 1-km resolution". Can you extrapolate that for the 1 km resolution? I think the authors should elaborate on F2 at 1 km.
5. I cannot find the observed structure of the TC in the manuscript, which would be very important for building confidence on the modelling results.

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