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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "The efficiency of the WRF model for simulating typhoons" *by* T. Haghroosta et al.

Anonymous Referee #2

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This paper evaluated five parameters (i.e., SST, latent/sensible hear flux, precipitation rate, and wind speed) for typhoon simulation with Weather Research Forecast (WRF) model. For this, different combinations of physical parameterization schemes were used to simulate the typhoon Noul in the South China Sea. After determining the best combination of physics scheme for each parameter by comparing with CFSR dataset, the authors also evaluated with seven other typhoon cases. It is somewhat surprising that the performance for simulating typhoon Noul is also same for other 7 typhoon in their numerical experiment.

Although their approach and findings are quite clear, I think the main conclusion of this paper is well-recognized in the field of numerical weather prediction. Because the conclusion is too general, it is not much informative.

If this paper is revised with some detailed information for numerical experiment, it can perhaps give some "specific" information to whom to simulate typhoons with WRF model in similar region. More careful proofreading would be helpful for clarity, and major previous studies for typhoon simulation and forecast should be added.

Specific comments:

p289, line 23: Version of WRF is not specified. There are usually many changes in physical schemes for different version.

p291, line 9: What is meant by "categories"?

p291, line 17: Ho et al. (2002) —> (Ho et al., 2002).

p293, line 3: temperature —> SST

p293, line 6-9: I wonder if the control data (i.e., CFSR) represent a reliable SST field. Is there some reference? Also, what is the resolution of CFSR, compared with 10 km nested domain simulation? In Figure 3 - 8, the time series is for the nested domain-averaged value?

p293, line 18: number 4 —> number 5

p294, line 2: Here, it seems that CFSR is used for evaluating the precipitation rate. As above, is the precipitation rate of CFSR reliable? There are also alternative precipitation data sets, such as TRMM Multi-satellite Precipitation Analysis (TMPA).

p294, line 6-8: It is hard to say simulation 5 and CFSR are close each other. Figure 6 shows a quite large discrepancy.

p294, line 9: Does "wind speed" in this paper mean the maximum sustained wind speed of typhoon?

p294, line 21: I cannot find any information on the simulation period and/or simulation length for typhoon Noul and the other typhoons.

p295, line 8: Does the best WRF simulation mean simulation #4?

p295, line 10-14: I do not agree this. While sim#7 and #4 are in the range of CFSR, sim#8 significantly simulates a strong wind.

Figures: Time labels for fig. 3-7 are not consistent. The quality of figures can be also improved.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 287, 2014.