Interactive comment on "Sensitivity of WRF-Chem model resolution in simulating particulate matter in South-East Asia" *by* Adedayo Rasak Adedeji et al.

Anonymous Referee #2

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General Comment This study assessed the ability of WRF-Chem in capturing the spatial variability and concentrations of particulate emissions during haze 2013. PM10 data from Brunei and PM2.5 data from Singapore were used for model validation. PM10 concentration in Brunei had a correlation coefficient around 0.4, and the simulated PM2.5 level in Singapore had correlation coefficient around 0.9. Overall the study is interesting and contribute to the new knowledge the prediction of PM using WRF-Chem Model. To improve the manuscript, the need to include information on why they choose haze in 2013 for their study. Southeast Asia experienced several longer haze episodes other than haze in 2013. The also may need to explain on only two stations were used for PM validation with each of them has different parameter (PM10

and PM2.5). The authors need to improve their reference style of writing in the main text. I encourage them to include more recent papers on haze episode from Southeast Asia.

Detail Comment The study is for Southeast Asia. Why data only compared with PM10 in Brunei and and PM2.5 in Singapore in 2013? Line 46-47: Oozeer et al. (2016) numerically studied and analyzed convective mechanisms responsible for the uplift and transport of the particulate emissions from Sumatra over to Peninsular Malaysia during the 2013 event (Oozeer et al., 2016) - Oozeer et al. (2016) was mentioned two times in one sentence. Line 49: Name the "other station" mentioned in the sentence. Line 51: Gao and co-workers: Goa et al (2018)? Line 59: The reference given is quite old and not even mention PM2.5. There are many other studies related to PM10 and and PM2.5 in Southeat Asia after 1998, especially during haze episode. Among others are Amil et al. (Amil et al. 2016); Yin et al. (2019) Pimonsree et al. (2018) and many others. Amil, N., Latif, M. T., Khan, M. F. & Mohamad, M. 2016. Seasonal Variability of Pm2.5 Composition and Sources in the Klang Valley Urban-Industrial Environment. Atmospheric Chemistry and Physics 16(8): 5357-5381. Pimonsree, S. & Vongruang, P. 2018. Impact of Biomass Burning and Its Control on Particulate Matter over a City in Mainland Southeast Asia During a Smog Episode. Atmospheric Environment 195, 196-209. Yin, S., Wang, X., Zhang, X., Guo, M., Miura, M. & Xiao, Y. 2019. Influence of Biomass Burning on Local Air Pollution in Mainland Southeast Asia from 2001 to 2016. Environmental Pollution 254 Line 60: Include year after Tan et al. Line 65: Include year after Tie et al. Line 66: I am quite confused with the paragraphing starting from this line. "This study" refers to which study? I suggest the author to rewrite the main questions and aims of their study in a paragraph. Line 155-160: Is there any particular reason on why only two ground measurements (PM10 in Brunei and PM2.5 from Singapore) were used to evaluate the model performance of the simulations in this study? Why not the authors used other data available in Southeast Asia?

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