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Geoscientific Model Development Discussions

Interactive comment on "The implementation of NEMS GFS Aerosol Component (NGAC) Version 2.0 for global multispecies forecasting at NOAA/NCEP: Part II Evaluation of Aerosol Optical Thickness" *by* Partha S. Bhattacharjee et al.

Anonymous Referee #1

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General comments

This paper presents the evaluation of the performance of NGACv2, the upgraded NEMS GFS Aerosol Component. The evaluations are mostly performed with observed AOT comparison with multi-model product. The description of the model is very simple because it is written in the companion paper (gmd-2017-306). The evaluation methods are simple and conventional RMSE and correlation factor against observations.

The model uses a well-established GOCART, which makes it reliable as a operational

forecast model but not very innovative. The evaluation methods are conventional but not new approaches. If there are some original characteristics or new concepts in the model, the authors should highlight that part.

Specific comments

p.5, line 19: "AERONET AOT at 440 nm and 675 nm were linearly interpolated on a log-log scale to provide 550nm AOT": Isn't the 500 nm wavelength used for the estimation of AOT at 550 nm?

Section 5: What are the standards or criteria for the scores, especially for correlation coefficient? For example, generally R = 0.28 seems low but the authors descript it is moderate (p.9, line 34).

p.12, line 13: "The model underestimates AOT over the Amazon region in both years and also for the Indonesian fire event in 2015.": It is better to include a presentation of the Indonesian fire event in 2015 in the result or case study section.

Technical corrections

p.1, line 15: 3-dimensioanl -> 3-dimensional

p.2, line 10-11: I don't think the paper of Tanaka and Chiba (2005) is about data assimilation (Probably confused with Sekiyama et al. (2010,ACP)?).

p.3 line 6: "... but is is also ...": there is one extra "is".

p.3 line 13: "... observations.": there is strange bar over the period.

p.3, line 34 and p.4 line 9: "Wang et al., 2017" should be "Wang et al. (2017)"

p.4, line 35 and after: References are separated by commas, the others are separated by semicolons.

p.5, line 3: MASSINGAR -> MASINGAR

p.5, line 6: UKMO's model is just written "(UKMO)" while other models are written with

names as "(Institution-ModelName)".

p.6, line 31: "the s kind that ...": the "s" may be unnecessary?

p.11, line 6 and after: Please check whether "Capo Verde" is correct, or typo of "Cape Verde".

p.4, line 28 and p.13 line 10: SNPP or S-NPP?

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