

Interactive comment on “JRAero: the Japanese Reanalysis for Aerosol v1.0” by Keiya Yumimoto et al.

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General Comments: This manuscript describes the development and evaluation of a new global aerosol reanalysis system in Japan. The assimilation system is based on 2D-var method, and the assimilated observation is the corrected MODIS AOD. The reanalysis results are evaluated with both the MODIS AOD and the independent AERONET AODs. The results are interesting and valuable to aerosol data assimilation studies. The manuscript is scientifically sound, original, well written and concise. I recommend accepting it after minor revision as indicated below.

Specific Comments: 1. P5 L3 says the forward model forecast aerosol volume mixing ratio, however the P8 L30 says the AGCM receives mass concentrations from the forward aerosol model. I confuse which is correct. 2. P11 L3 KK should be K. and

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how do you calculate the H and HT in the system? 3. P11 L20 how to construct the local regions in the assimilation system? And how to perform the analysis calculation independently in the system? Do you only have one analyzed variable (AOD) in each independent analysis? Please explain more about this. 4. Fig 5. In the FR experiment, do you run the model without restart every six hours? Do you integrate the model for five years one time? If so, does the frequently restart in the RA experiment affect the simulated results? Are the modeled results same with and without frequently restart? 5. P15 L5-10 Firstly, you said the dust particles were increased by assimilation for the Sahel, and you also said the dust particles were decreased for the Mediterranean Sea. Which is right? Could you explain it more? 6. P17 L9 December 2016? You experiments do not include the year 2016. 7. P18 L28 Fig.18g should be Fig. 18a. 8. The formula A2 is wrong.

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