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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Technical Note: simulation of detailed aerosol chemistry on the global scale using MECCA-AERO" *by* A. Kerkweg et al.

Anonymous Referee #1

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Referee Comment on "Technical Note: simulation of detailed aerosol chemistry on the global scale using MECCA-AERO" by A. Kerkweg et al.

The paper described the MESSy submodel MECCA-AERO, where aerosol phase chemistry was treated in more detail: e.g. halogen chemistry in the MBL, Arctic ODEs and air quality studies. It is new and important for AC-GCM to simulate aerosol chemistry with MECCA-AERO. The authors introduced the numerical aspects and coupling capabilities of MECCA-AERO. This technical note was also clearly written and well structured. I recommend it to be published after the minor revisions as follows:

1.Because the aerosol dynamical model was referred as ADM in the section "Intro-

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duction", it could be better to use "ADM" instead of "aerosol dynamical model" in the following sections.

2.Page 3305, line 9, what is M7?

3.Page 3311, Last sentence could be "The emission fluxes (and the tracer mixing ratios) of these ions are determined by multiplying the chloride emission flux (and mixing ratio) by these ratios".

4.If the ratio for Cl- is 1 in table 2, how is the emission flux of Na+ assumed the sum of the emission fluxes by Cl-;, Br-;, HCO3-, I-; and IO3-?

5.From which global model are three panels of Figure 2 created? As shown in the upper panel, in the arctic region the LWC is lower than 1.E-12 m3/m3 no aerosol chemistry can be calculated for Arctic halogen chemistry ?

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 3301, 2007.