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Comment

Interactive comment on “The impact of a deep convection on sulfate transport and redistribution” by V. Spiridonov and M. Curic

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Interactive comment on "The impact of a deep convection on sulfate transport and redistribution" by V. Spiridonov and M. Curic

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I think that manuscript by V. Spiridonov and M. Curic has sufficient quality for eventual publication. I will support this state by several issues on scientific nature that are well addressed. Their model represents an interesting extension of already published work concerning warm clouds as well as extension of our common study recently published in Journal of Environmental Protection and Ecology. The obtained values for SO₄-S as wet deposition through 3-d simulation of mutual relations and transformations

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on pH, OH⁻, O₃, SO₂ and SO₄ into atmosphere are in good agreement with those obtained by the laboratory measurements. Some inconsistencies and weak points of the manuscript I suppose they are only due to the fact that cloud-chemistry modeling is a novel aspect of treating those problems in Macedonia. But I would like personally to encourage the authors to continue their comprehensive work and soon to bring the manuscript in publishable form following referee comments and suggestions.

My comment in regard to specific points in the manuscript.

The model chemistry:

• Sulfate and ammonium ions are distributed as aerosols. Are they treated as CCN in the model and if so, is a separate CCN field also advected? • Nucleation of sulfate aerosol particle matter sounds like CCN? • Table 6 - are the cloud water pH and rain-water pH values averaged over entire domain? • What is the reason for a cloud water pH=8.1 at 40 min? • In Figure 11 the maximum measured pH value is 8.2, not as in the text 8.0. • Section 4.3 - Where are the sounding and initial vertical distribution of sulfate aerosols used to start simulation?

Sincerely

Marija Andreevska

Interactive comment on Atmos. Chem. Phys. Discuss., 2, 385, 2002.

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