

Interactive comment on “Simulating emission and chemical evolution of coarse sea-salt particles in the Community Multiscale Air Quality (CMAQ) model” by J. T. Kelly et al.

Anonymous Referee #2

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The manuscript presents the incorporation of a sea-salt emission module and the improvement of the coarse particle mode in the CMAQ. The authors then apply the model to a special study of a coast site in Tampa, Florida 2002 and show improve predictions of aerosol species, in particular nitrate as comparing to the previous version of CMAQ. The introduction provides a good review of various aspects in examining sea-salt particle. In modeling section, the authors clearly described the development of the module which is scientifically sound. The paper is well written and useful, I would recommend for potential publication. My major concern is sea-salt emission module which developed usually base on data collected at limit surf zone that may not necessary apply to other areas. This may have some implication to the CMAQ in regulatory applications to

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set the PM standard. I would suggest a discussion about the sensitivity of the sea-salt emission module on different meteorological conditions and regions of the ocean. A test in the far inland monitor with less sea-salt emission influence would be help to tell the contribution of the increase prediction of nitrate due to sea-salt emission or aerosol module. How much the new release will affect the fine mode particle and ozone predictions? The regulatory application modeling usually set at 12 km grid, does the new release require higher resolution for sea-salt emission calculation?

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