

## Auxiliary Material for Paper

Reconciling modeled and observed atmospheric deposition of soluble organic nitrogen at coastal locations

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### Introduction

This auxiliary material contains 3 figures and 2 tables.

1. Figure S1. Relationship between ammonium deposition rates and soluble ON deposition rates observed at coastal and marine locations. The solid line represents a 1-to-1 ratio. The dashed lines show deviations from the solid line by a factor of  $\pm 5$ .
2. Figure S2. (a) Comparison of simulated (Experiment 2) and observed deposition rates for soluble ON (b) at coastal and marine locations. In addition to soluble ON in Experiment 1, Experiment 2 also includes the primary soluble ON from biomass burning, biofuel and fossil fuel combustion sources as well as marine sources. The solid line represents a 1-to-1 ratio. The dashed lines show deviations from the solid line by a factor of  $\pm 5$ . The colors in the scatter plot (a) correspond to the colors of the locations of the observation sites in (b). The blue colors represent the modeled values that fall within a factor of five of the measured values.
3. Figure S3. (a) Comparison of simulated (Experiment 3) and observed deposition rates for soluble ON (b) at coastal and marine locations. In addition to soluble ON in Experiment 1, Experiment 3 also includes the secondary ON transformed from reduced N on preexisting aerosols. The solid line represents a 1-to-1 ratio. The dashed lines show deviations from the solid line by a factor of  $\pm 5$ . The colors in the scatter plot (a)

correspond to the colors of the locations of the observation sites in (b). The blue colors represent the modeled values that fall within a factor of five of the measured values.

4. Table S1. Modeled Secondary Oxidized ON in Gases and Aerosols.

5. Table S2. Annual Average Deposition Fluxes of Soluble ON ( $\text{g N m}^{-2} \text{ year}^{-1}$ ) at Coastal and Marine Locations.