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# A missing source of aerosols in Antarctica – beyond long-range transport, phytoplankton, and photochemistry

**Michael R. Giordano et al.**

*Correspondence to:* Peter F. DeCarlo (pfd33@drexel.edu)

**Supplemental Information**

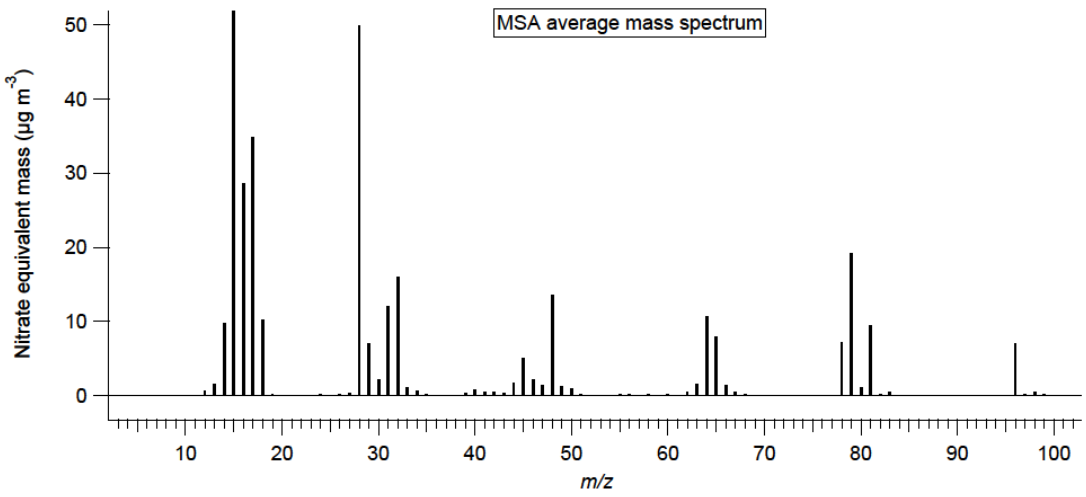


**Figure S1: MSA Mass Spectrum at 600˚C from atomizing pure methylsulfonic acid (>99.0%, Sigma Aldrich).**

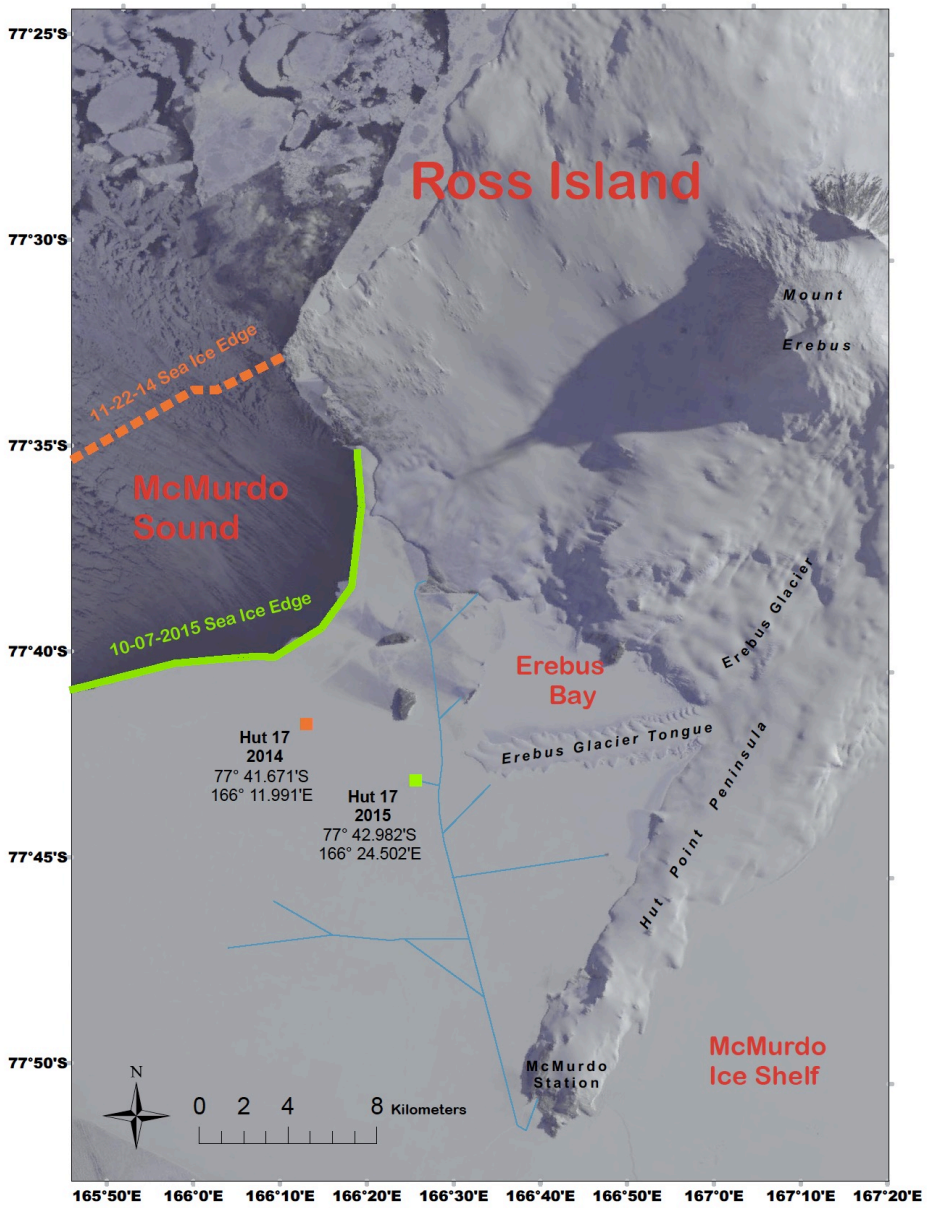


**Figure S2: Satellite image (Landsat 8 OLI, captured 10/14/15) showing the field site and sea ice edges for both field seasons.**

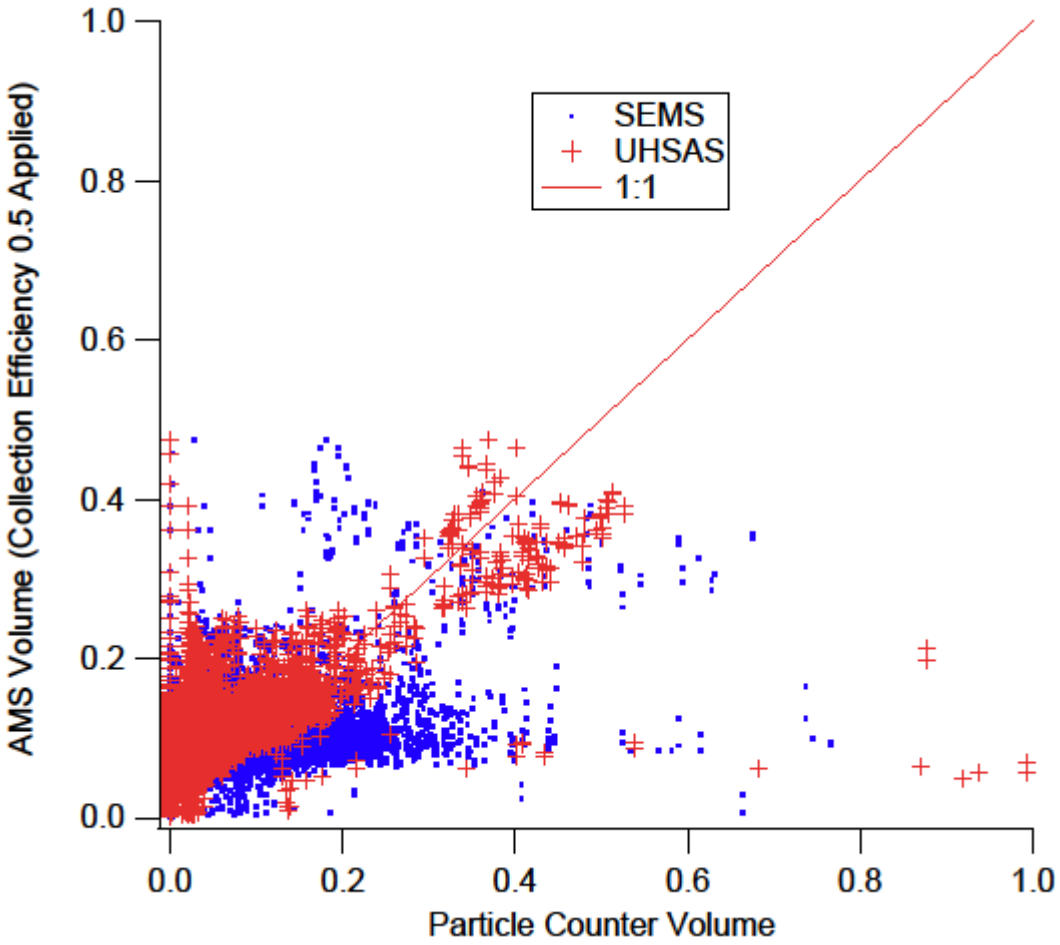


**Figure S3: Total volume measured by the AMS plotted against the total volume of the particle counting systems for 2014. AMS total volume is calculated by determining the composition dependent density at any given point and applying a collection efficiency of 0.5.**

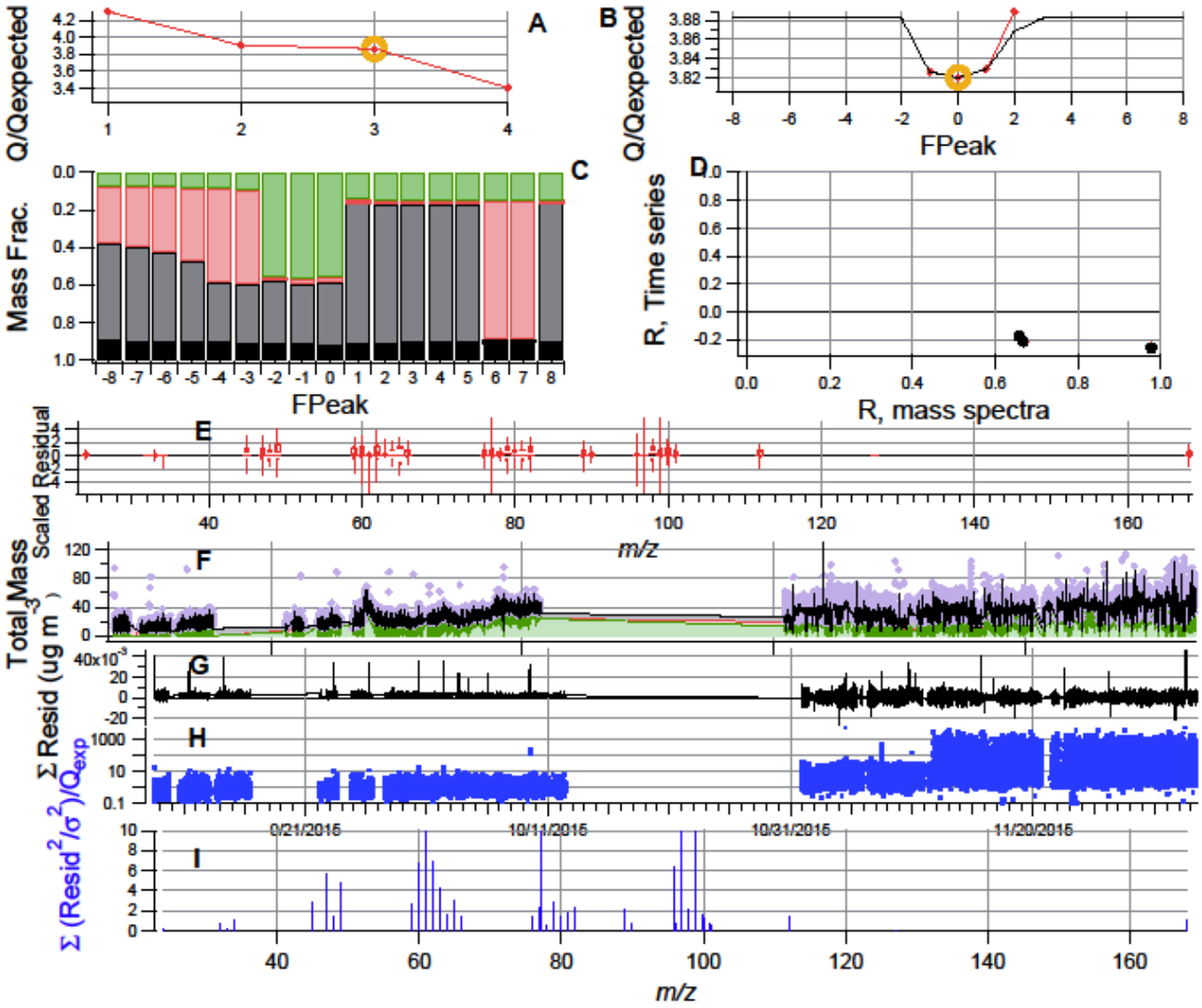


**Figure S4: Key diagnostics plots from the PMF solution presented in Fig. 6. (a) Q/Qexp as a function of number of factors (P) selected for PMF modeling. For the four-factor solution: (b) Q/Qexp as a function of FPEAK, (c) fractions of OA factors vs. FPEAK, (d) correlations among PMF factors, (e) the box and whiskers plot showing the distributions of scaled residuals for each m/z, (f) time series of the measured sulfate mass and the reconstructed sulfate mass, (g) variations of the residual (= measured − reconstructed) of the fit, (h) the Q/Qexp for each point in time, and (i) the Q/Qexp values for each m/z**