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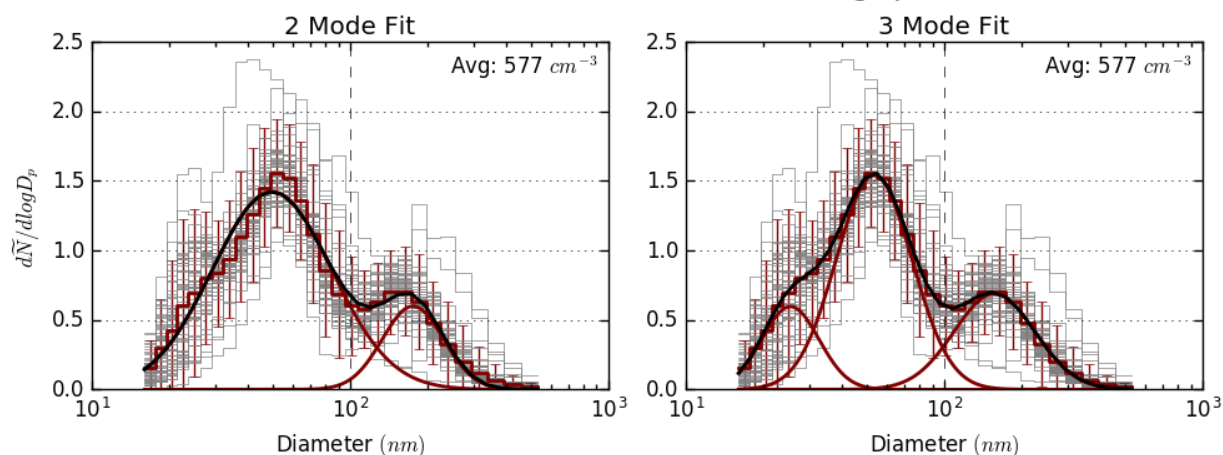
## **Size-resolved aerosol and cloud condensation nuclei (CCN) properties in the remote marine South China Sea – Part 1: Observations and source classification**

**Samuel A. Atwood et al.**

*Correspondence to:* Jeffrey S. Reid ([jeffrey.reid@nrlmry.navy.mil](mailto:jeffrey.reid@nrlmry.navy.mil))

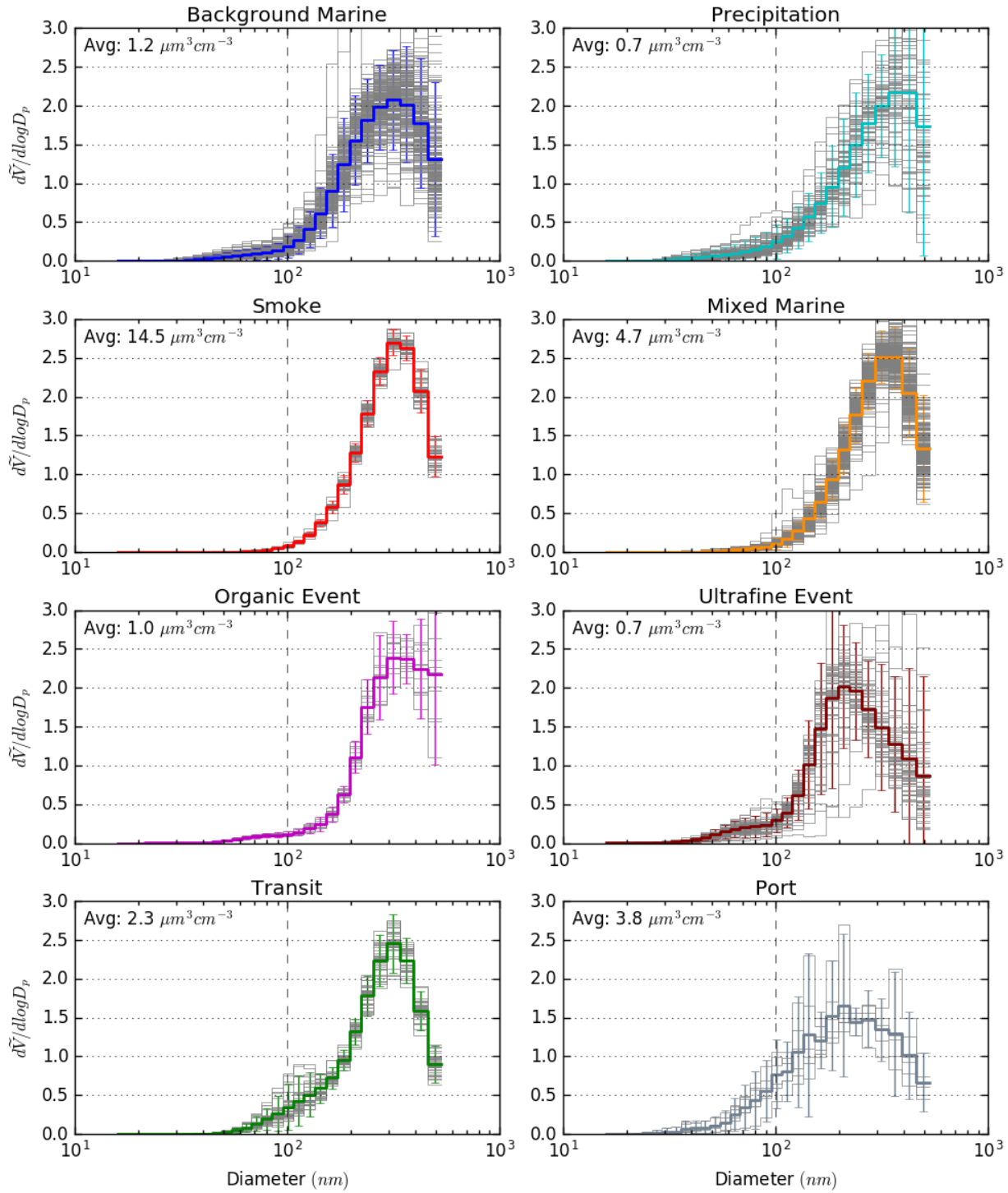
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## Ultrafine Event - Normalized $dN/d\log D_p$



Supplemental Figure S1: The best fit of the Normalized  $dN/d\log D_p$  particle size distributions for the Ultrafine Event population type using two lognormal modes (left) and three lognormal modes (right). A three mode fit was indicated by the Hussein et al., (2005) algorithm for this population type, however for clustering purposes the two mode fit was used. Shown in these plots are the particle size distribution spectrum for each data point within the population (grey), the associated average bin values with error bars at 95% confidence interval (colored step lines;  $1.96 \times$  bin standard deviation), and best fit lognormal modes (colored curves) with multi-modal fit (black). The average particle number concentrations of data points within each population type are listed.

# Normalized $d\tilde{V}/d\log D_p$



**Supplemental Figure S2: Normalized  $dV/d\log D_p$  particle size distributions for each spectrum within identified aerosol population types (grey), the associated average bin values with error bars at 95% confidence interval (colored step lines;  $1.96 * \text{bin standard deviation}$ ). The average particle volume concentrations of data points within each population type are listed.**