

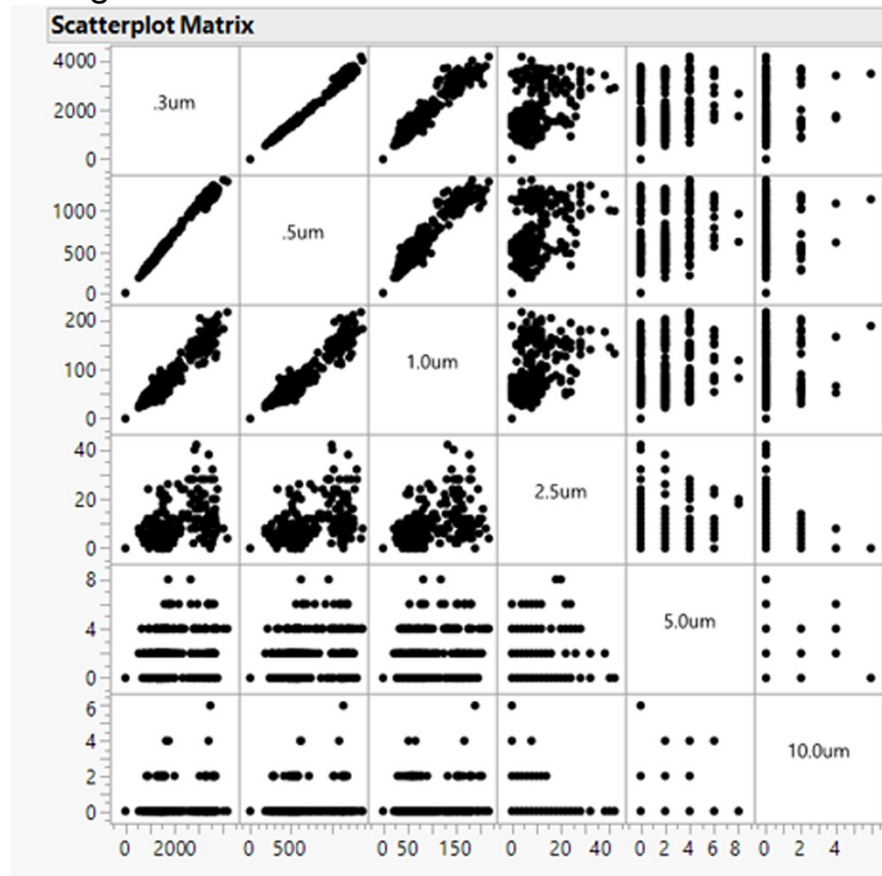
**Figure S1:** The three different sampling locations (marked with circles) along with the location of the wind sensor (marked with a triangle) are labeled on the two sites, GLSM, and LE respectively. A wind rose is included below each sample location to indicate the different fractions of wind direction and speed recorded each day measured in m/s.

**Table S1:** MCs and their quantifier and qualifier ions set in LC-MS/MS methods.

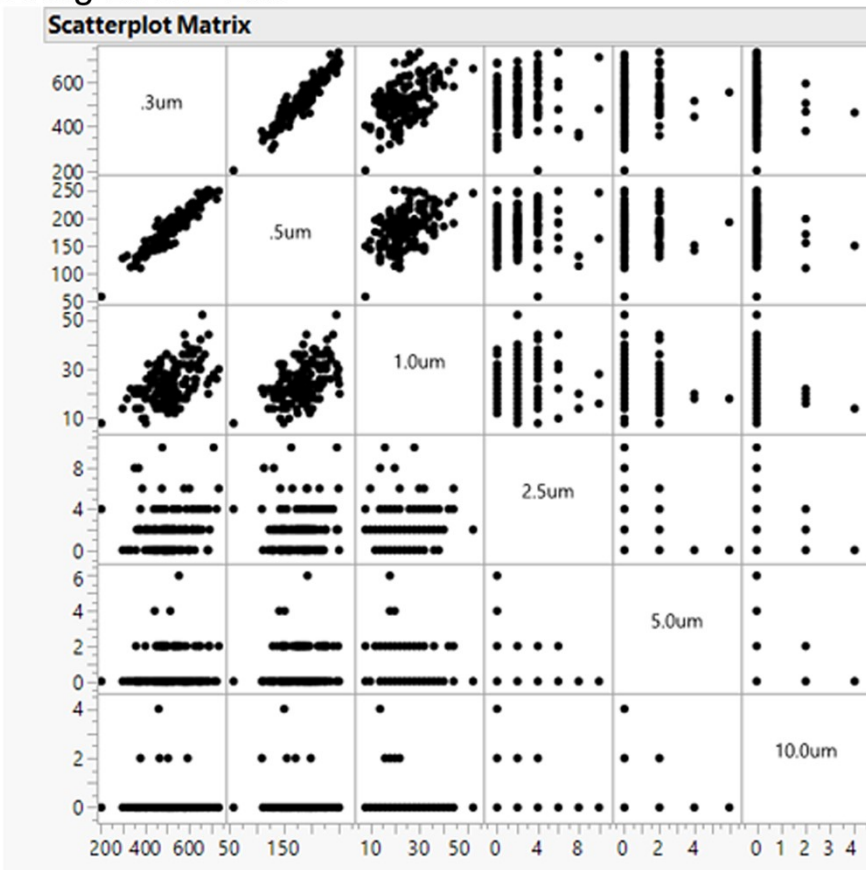
Analyte	Quantifier ion (m/z)	Qualifier ion (m/z)
[D-Asp <sup>3</sup> ]-MC-RR	135.07	498.91
MC-RR	135.07	212.94
Nodularin	135.00	389.16
MC-YR	135.00	213.03
MC-HtyR	135.05	1031.46
MC-LR	135.07	155.08
[D-Asp <sup>3</sup> ] MC-LR	135.01	213.03
MC-HilR	135.00	155.08
MC-WR	135.03	626.25
MC-LA	776.41	375.16
MC-LY	868.42	494.18
MC-LW	517.18	446.17
MC-LF	852.41	478.17
C <sub>2</sub> D <sub>5</sub> MC-LR *	135.09	163.08

\* Internal standard for MC method

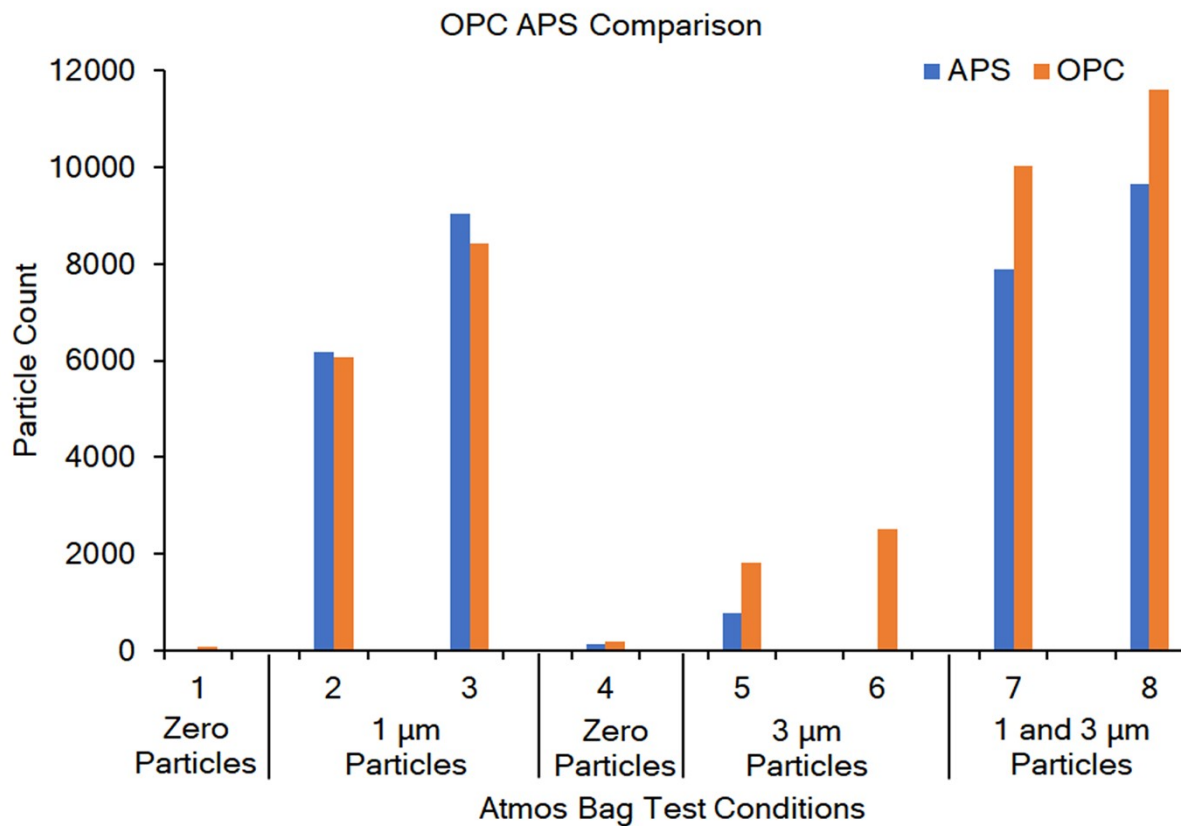
5 Aug 2019 - GLSM



8 Aug 2019 - Erie



**Figure S2:** Graphical representation of the correlations between particle count size bins over a whole day at GLSM and at LE.



**Figure S3:** Calibration experiments for the OPC in the AirDROPS. Experiments were performed in a sealed bag filled with air mixed with different aerosolized particle sizes. Experiments 1 and 4 were done with no added particles as a chance to run a zero test for the sensors and give a background of particle levels in the bags. Experiments 2 and 3 were run with aerosolized 1 μm diameter particles, experiments 5 and 6 were run with aerosolized 3 μm diameter particles (data was not recovered from the APS in experiment 6), and experiments 7 and 8 contained both 1 μm and 3 μm particles. Overall, data recorded from the OPC across all of these calibration experiments were robust and consistent with simultaneous measurements recorded from the APS.