

Abstract Submitted  
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**Magnetic Susceptibility of Tree Leaves as a Simple, Cost-Effective Means of Monitoring Air Quality** RYAN HEASLET, LUCAS LLOYD, STEVEN EMERMAN, Utah Valley University — The high cost of air quality monitoring stations makes it difficult for citizens or local governments to monitor air quality in their own neighborhoods, especially in low-income communities. The objective of this study was to find a cheaper method of measuring long-term air quality, especially PM-2.5 (concentration of particulate matter smaller than 2.5 microns) and PM-10. The objective was addressed by measuring the magnetic susceptibilities of leaf samples of 12 species of trees collected within a two-mile radius of each of the seven air-quality monitoring stations in Salt Lake and Utah Counties, Utah, over a two-year period. After air-drying and crushing the samples, both low-frequency (0.46 kHz) and high-frequency (4.6 kHz) magnetic susceptibilities were measured with the Bartington MS3 Magnetic Susceptibility Meter. The best correlations between tree leaf magnetic susceptibilities and air-quality parameters were between the three-year average of PM-2.5 and the high-frequency magnetic susceptibility of leaves of pine (*Pinus aristata*) ( $R^2 = 0.87$ ,  $P < 0.01$ ) and Norway maple (*Acer platanoides*) ( $R^2 = 0.86$ ,  $P < 0.01$ ). The correlation with pine has been used to estimate PM-2.5 in two unmonitored locations heavily impacted by highway traffic (corner of 800 N and I-15 and corner of University Parkway and I-15, both in Orem, Utah). Further results will be reported at the meeting.

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