Results

**Baltimore City**

To test whether spiderwebs could be used to detect fine-scale differences in pollution, we performed a Kruskal-Wallis test comparing metal percentages in webs by square. This test showed significant differences between squares in percent lead *H*(30)=64.326, *p*<.001 aluminum *H*(31)=68.253, *p*<.001, and iron, *H*(30)=58.699, *p*=0.001319. A t-test comparing the metal percentages by day between Brooklyn (*M*=0.0022337085, *SD*=0.0045349276) and Curtis Bay (*M*=0.0002960983, *SD*= 0.0001355332) showed that Brooklyn webs had significantly higher iron percentages, *t*(54.093) =3.1673, p=0.002529.

We tested whether the metal content of webs could be spatially correlated with known metal sources. A Spearman’s test of the correlation between the metal percentages in webs grouped by square and known metal sources (distance to TRI’s and AADT values) showed a positive correlation between percent iron and AADT maximum, rs(181341)=0.2254884, p=0.01683 and mean rs(185218)=0.02705, p=0.2089293.

**FRM Monitors**

We tested whether there was a relationship between the differences in monitor speciated metal values and the metals in nearby webs. There was no significant difference between the PM2.5 values in HU Beltsville, Essex, and Baltimore in 2020. Percent iron in PM2.5 in Howard University (*M*=1.467, *SD*=0.9113449) was significantly higher, *t*(40.97)= -3.4391, *p*=.001353, than Essex (*M*=.735, *SD*=0.4843993). We found no other significant differences for percentages or raw values of the relevant metals.

T-tests comparing the webs collected near the monitors showed that percent aluminum was significantly higher, *t*(29.222)=5.5349, *p* < .001, in Essex (*M*=0.0019627497, *SD*=0.0007360513) than in HU Beltsville (*M*=0.0008292952, *SD*=0.0004177085). Percent lead in Essex webs (*M*=0.0004874250, *SD*=0.0005687873) was also significantly higher, *t*(18.553)=2.4158, *p* =0.0262, than in HU Beltsville (*M*=0.0001401478, *SD*=0.0001143231).

Include information about PM 10

Include info for over time- see if