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ABSTRACT BOOK

Poster Mp Exposure Modeling**Abstract M-07p****Statistical Evaluation of Metal Concentrations as a Method for Identifying World Trade Cen**

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The explosion and collapse of the World Trade Center (WTC) produced an aerosol plume of dust and smoke that impacted several buildings in southern Manhattan. Because of the potential health risks associated with residual WTC dust within commercial and residential buildings, a method for identifying WTC dust versus normal indoor dust is needed to prioritize the cleanup of these impacted buildings. For this analysis, metals concentrations from samples of known WTC dust and indoor dust from residences were used to develop a discriminant analysis model to determine if metal concentrations could be used to differentiate between WTC dust, and ordinary indoor dust. Discriminant analysis is a multivariate statistical method that can be used to classify samples based on a particular set of variables, in this case, metals concentrations. In addition, the sensitivity of the discriminant analysis model was evaluated by mathematically diluting the known WTC dust samples with indoor dust to examine at what dilution the discriminant analysis model would fail to differentiate WTC dust from indoor dust and background soil. This method is able to differentiate known WTC dust samples from indoor dust with an accuracy of 94%. In addition, this method is able to differentiate WTC dust with an accuracy of 80% up to a dilution of 2 parts WTC dust to 1 part indoor dust. The accuracy of the method does not fall below 50% until the WTC dust content of the dust falls below 56%. This illustrates the potential utility of using discriminant analysis with metals concentration data to identify WTC dust in indoor dust from buildings impacted by WTC dust.