Title: Modeling the Transport of Manganese through Packed and Undisturbed Soil Columns.

Authors and affiliations: David O'Dell and Ryan Mizia

Naturally occurring manganese compounds are fairly insoluble; however, these forms can be converted to more soluble forms through disturbances by water, resulting in manganese deposits and transport through surrounding soils. The primary objectives of this research were to determine the predictive capabilities for manganese transport, using the one-dimension convection-dispersion equation in both packed and undisturbed soil columns. This was completed through batch equilibration studies, along with experiments that monitored the concentration of manganese in leachate from the column. With this data, the model was then evaluated by comparing observed manganese concentrations with predicted concentrations as a function of time and distance. These experiments were also used to determine the effectiveness of not only the one-dimension convection-dispersion equation, but also the accuracy of the input parameters determined for the model. *(Funding support) NASA West Virginia space grant consortium.*