

110.

NI (II) PRECIPITATION AND DISSOLUTION KINETICS ON PYROPHYLLITE: AN IN-SITU AFM STUDY. K.G. Scheckel, A.M. Scheidegger, and D.L. Sparks, Department of Plant and Soil Sciences, University of Delaware, Newark, Delaware 19717-1303.

Precipitation kinetics of heavy metals on natural surfaces has recently become an area of great interest. X-ray absorption fine structure (XAFS) spectroscopic studies have shown that formation of

mixed Ni/Al complexes can occur within a matter of minutes even with surface loadings less than monolayer coverage. In this study, in-situ atomic force microscopy (AFM) and batch techniques were employed to examine precipitation of Ni on pyrophyllite, an ideal 2:1 clay mineral, over a 24 hour period. More important is the dissolution of the metal from the surface precipitate and the overall alteration of the mineral surface. However, research in this area has been very limited. To accurately predict the fate of metals in the environment, comprehension about rates and mechanisms regarding dissolution kinetics of surface precipitates is imperative. Using a Fluid Cell, AFM was applied to follow in-situ dissolution of the surface precipitates and the results were compared with batch dissolution studies.