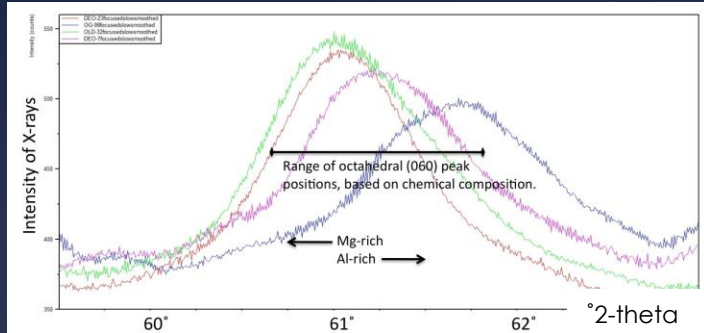


Experimental Synthesis of Authigenic Clay Minerals: Implications for Lacustrine Deposition and Diagenesis

Daniel M. Deocampo
Department of Geosciences
Georgia State University, Atlanta, Georgia



In the first year of the project, students have generated the first clay synthesis results, including the successful magnesium enrichment of standard clay SWy-2 (right). Presence of new synthesized product is confirmed by both the XRD peak at 1.522\AA , and the XRF results showing increased MgO content. Students have also initiated CO_2 -induced clay and rock dissolution experiments, and presented these results at national meetings.

Magnesium-enriched clay minerals in lake deposits are being used in paleoenvironmental and climate change studies as an indicator of ancient aridity. This project is using experimental approaches to understanding the basic mineralogy and geochemistry of these clay minerals, how they form, and how they may change over time. Undergraduates are leading individual experimental thrusts, including studies of major thermodynamic and kinetic controls, CO₂-induced dissolution, and impacts of biological Fe-reduction.

