

The *Perseverance* rover is currently collecting samples on Mars for return to Earth. One of the goals of Mars Sample Return is the search for different biosignatures. On Earth, the exchange and equilibration of the oxygen in phosphate with the oxygen in the surrounding water is a biologically mediated process. In this project, PhD student Eduardo Martinez will be working with advisor Professor Elisabeth Hausrath and collaborators at Yale University on preliminary experiments to examine the oxygen isotope composition of phosphate adsorbed to Mars-relevant clay minerals during adsorption and desorption, and during mineral transformation and recrystallization. This project, entitled “Examining phosphate sorption on Mars-relevant clay minerals and clay-mineral precursors for biosignature preservation potential” will help determine the extent to which such a signature could be preserved.