

Iron(II) Oxidation in New Mexico Waters: Experimental Development of a Molecular-Level Predictive Model

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Purpose of the Study

Previous models of iron [Fe(II)] reduction/oxidation reactions in natural waters have been unsuccessful predicting oxidation rates in some natural waters. The researcher will develop experimentally a kinetic molecular-level model for iron(II) oxidation.

Study Underway

- The researcher will measure the rate constants for the oxidation of two different iron species and will then integrate the new rate constants into an improved comprehensive iron(II) oxidation model for natural waters.
- The new iron(II) oxidation model will be tested in a variety of natural waters in New Mexico, including the geothermally influenced waters in the Valles Caldera National Preserve.

Benefits

- This research will help explain the geochemistry of waters within the Valles Caldera National Preserve, a unique protected area in New Mexico.
- Iron redox chemistry is an important consideration for drinking water treatment professionals.



Right: Andrea working in the lab. She plans to attend graduate school with an emphasis in environmental science after she graduates. Top: Alamo bog lake, where Andrea is conducting some of her field work.

