



Welcomes

EOS Seminar Guest Speaker:

Dr. Liliana Lefticariu, Assistant Professor

Department of Geology

Southern Illinois University Carbondale

Time: Thursday, February 23rd @ 3:30pm

Location: PSC Bldg., Room 006

Title: Oxidation of Sulfide Minerals: From Acid Mine Drainage to Life on Mars.

Recent data from Mars Exploration Rovers provide multiple lines of evidence indicating the extensive presence of sulfates on Mars surface. Near-infrared spectral data on Mars Express provides additional evidences of hydrated sulfate salt deposits in the Martian tropics. These evidences taken together strongly suggest that sulfate minerals are on the Mars surface and within the upper lithosphere.

Various scenarios have been proposed for sulfate formation on Mars, including hydrothermal alteration, precipitation from evaporating brines, and volcanic aerosols. However, to date, there is no comprehensive understanding of the oxidative mechanism which satisfactory explains all the observed features. We propose that radiolytically-induced sulfide oxidation has occurred on the Martian surface where strong ionizing cosmic radiation interacts with ice or even rising groundwater and produces a plethora of reactive oxidants.

Radiolytic oxidation of sulfides and formation of redox gradients in natural environment is a globally important phenomenon, hitherto significantly underestimated.

Come Join Us!