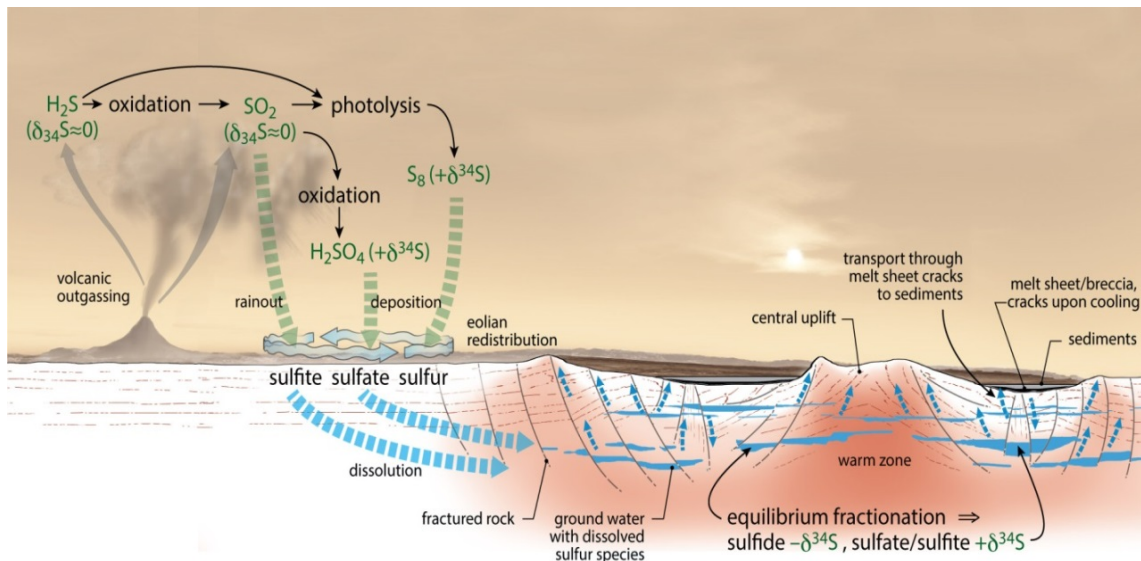
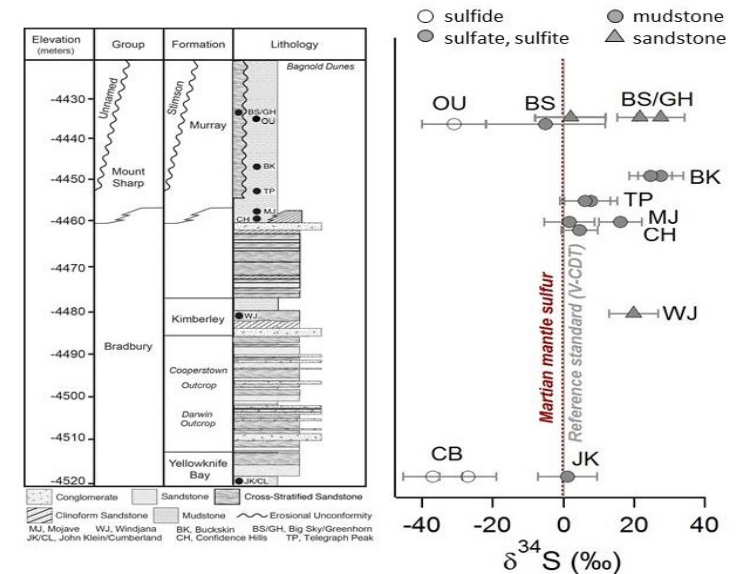


Sulfur in Martian Sediments Points to Hydrothermal, Photochemical (and Biological?) Activity

- **What is the science question?** How are sulfur isotopes distributed in sedimentary rocks on Mars, how do they compare with those found in igneous martian meteorites, and can they tell us anything about the potential for life on Mars?
- **What are the findings?** The Sample Analysis at Mars (SAM) instrument on Mars Science Laboratory's Curiosity rover has made the first-ever *in situ* measurements of sulfur isotope ratios on another planet, and the first such measurements in martian sedimentary rocks. Results indicate large variations in sulfur isotope ratios within the rock layers explored by Curiosity, which are not seen in igneous rocks.
- **What is the impact?** The pattern of sulfur isotopes found in sulfides and sulfates can be explained by a combination of impact-driven hydrothermal activity at Gale crater and atmospheric photochemistry.



- **Why does it matter to non-scientists?** Sulfur isotope ratios on Mars are of special interest because Earth's sulfur cycle is dominated by biological processes, which produce isotopic signatures similar to those measured by SAM. Geochemical evidence indicates that Gale crater hosted a habitable environment on ancient Mars. Although we have no ancillary data at this time that indicate a biogenic origin, biological processing of the sulfur analyzed by SAM cannot be ruled out.