

HIGHLIGHTS AND BREAKTHROUGHS

**Anhydrite: An important sulfur binder limiting the climatic impact of subaerial volcanic eruptions**

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**Abstract:** Gaseous sulfur compounds are critical climate active volatile components released by volcanoes. Volcanic eruptions can emit massive amounts of H<sub>2</sub>S and SO<sub>2</sub> into the atmosphere, which react with oxygen and H<sub>2</sub>O to sulfuric acid. Formation of H<sub>2</sub>SO<sub>4</sub> aerosols, which have on a geological timescale short-term residence times of month or years, may have global climatic impact. The phase stability of sulfur-bearing minerals such as anhydrite in erupting magmas may be a key controlling factor limiting SO<sub>2</sub> emission during subaerial volcanic activity (Huang and Keppler, January 2015 issue of *American Mineralogist*). **Keywords:** Sulfur fluid/melt partition behavior, anhydrite stability, degassing, volcanic eruptions

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