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Scrubbing Masks Magmatic Degassing During Repose at Cascade-Range and Aleutian-ARC Volcanoes: Open-File Report 2003-435 (Paperback)

By Robert B Symonds

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.Between 1992 and 1998, we sampled gas discharges from ~173°C fumaroles and springs at 12 quiescent but potentially restless volcanoes in the Cascade Range and Aleutian Arc (CRAA) including Mount Shasta, Mount Hood, Mount St. Helens, Mount Rainier, Mount Baker, Augustine Volcano, Mount Griggs, Trident, Mount Mageik, Aniakchak Crater, Akutan, and Makushin. For each site, we collected and analyzed samples to characterize the chemical (H₂O, CO₂, H₂S, N₂, CH₄, H₂, HCl, HF, NH₃, Ar, O₂, He) and isotopic (δ¹³C of CO₂, 3He/4He, 40Ar/36Ar, δ³⁴S, δ¹³C of CH₄, δ¹⁵N, and δD and δ¹⁸O of water) compositions of the gas discharges, and to create baseline data for comparison during future unrest. The chemical and isotopic data show that these gases contain a magmatic component that is heavily modified from scrubbing by deep hydrothermal (150? - 350°C) water (primary scrubbing) and shallow meteoric water (secondary scrubbing). The impact of scrubbing is most pronounced in gas discharges from bubbling springs; gases from boiling-point fumaroles and superheated vents show progressively less impact from scrubbing. The most effective strategies for detecting gas precursors to...



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