

Sulfur lava from Golovnin volcano in 1979 (Kunashir Island, Southern Kuril Islands)

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Abstract [PDF RUS](#) [PDF ENG](#) [Full text](#) [PDF RUS](#)

Abstract. Three episodes of sulfur lava effusion occurred at Golovnin volcano in August 1979. Active sulfur flows are extremely rare, and their study therefore remains relevant. The limitation of observations of sulfur lavas in 1979 has so far been the lack of a description of their material composition. We discovered the remnants of a sulfur lava flow in September 2024 at a site corresponding to the effusion on August 26, 1979. This paper describes the structure and material composition of lava and analyzes the conditions of formation of sulfur melt and its subsequent evolution. A previously unknown natural arsenic hexasulfide, Lastarria volcano (AsS_6) was found in the lava, which dominates among the microinclusions and is the result of self-purification of arsenic sulfur during its crystallization. The results obtained in this work were compared with the available data on the effusion of sulfur lava at Lastarria volcano (northern Chile) in 2019. Studies show that the investigation of the material composition of sulfur lavas is of great importance for understanding the geochemical evolution of the lithosphere in the epithermal ($T < 400^\circ\text{C}$) temperature range and is no less important than the study of igneous rocks for higher temperature conditions.

Keywords:

mud volcanism, mud volcanoes, genetic classification, sedimentary basin, gas emission, gas hydrates

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