

Morphological study of Martian lava flows

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Martian volcanoes seem to be different from terrestrial ones in the points of their size, lifetime and numbers. But considering the difference of the plate tectonics, they have strong similarity to the terrestrial hot spot volcanoes. To clarify this we have investigated magmatic composition and eruption style of martian volcanism based on the quantitative analysis of morphology of lava flows. We have utilized high resolution images taken by Viking orbiter. The target lava flow is located at northwestern part of Elysium volcano. To reconstruct topography photoclinometric method is applied. The lava flows are modeled as a Bingham material. Well-developed levee structure can be used to specify yield strength, viscosity and effusion rate.