

## Morphometric study of pahoehoe lava entered to the sea: 1990 Kaimu Bay flow of Kilauea, Hawaii

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[www.sci.shizuoka.ac.jp/~geo/Staff/Umino\\_j.html](http://www.sci.shizuoka.ac.jp/~geo/Staff/Umino_j.html)

Episode 48 of the ongoing eruption of Kilauea, Hawaii, began in July 1986, at a new vent, Kupaianaha, 3 km northeast of Pu'u 'O'o. The eruption changed in March 1990 to its most destructive period, when the flows turned toward Kalapana. By the end of the summer, the entire town lay buried under 15-25 m of lava. As the flows advanced eastward, they took to the sea, replacing the palm-lined Kaimu Bay with a plain of lava that extends 300 m beyond the original shoreline. From August 1 to October 26 lava buried almost 200,000 square meters of the bay. When lava entered the sea, it flowed along the shoreline as a narrow flow lobe up to 300 m long and 50 m wide, which in turn inflated as thick as 10 m. Inflating flow lobes occasionally ruptured at proximal and/or distal ends as well as mid-points between the two ends, feeding new lobes which are emplaced along and on the shore side of previous lobes. Outflows through the circumferential cracks and axial inflation cracks of inflated lobes buried the lows between lobes, hiding the original outlines of the older lobes. The flow lobes mapped with the aid of aerial photographs were correlated with daily observations of growing flow field, and more than 10 flow lobes were dated. Lobe thickness was estimated to be ca. 10 m on the basis of cross sections of selected lobes measured using an optical measurement tool, measuring tape and hand level. The total flow-lobe volume during August 7 - October 26 is ca. 4,400,000 cubic meters, giving the average supply rate of 35 cubic meters/minute.