

## **A 2,000 YEAR B.P. PLINIAN ERUPTION FROM MT PELÉE, MARTINIQUE: DISTRIBUTION, GRAIN SIZE CHARACTERISTICS AND IMPLICATIONS FOR FUTURE VOLCANIC HAZARDS**

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### **ABSTRACT**

Mt. Pelée, Martinique, is associated in the geological literature with the eruption of pyroclastic flows and surges composed of clasts of angular dense andesite in a matrix of ash (Pelean-style eruption), and with the general public with the destruction of St. Pierre and the loss of 30,000 lives by such an eruption in 1902. In the past, however, Mt. Pelée has erupted highly pumiceous magma of potentially a much more devastating nature. These Plinian-style eruptions have produced pumice and ash flows, ash hurricanes, and relatively thick pumiceous lapilli falls. The largest of these recent Plinian eruptions occurred approximately 2,000 years ago and generated pumice and ash flows which flowed down nearly all the valley draining the volcano, and ash hurricanes that reached to within a few kilometers of the present day capital of Fort-de-France. These distal ash hurricane deposits are fines-depleted and rich in lithics of Morne Jacob and Pitons du Carbet lithology, and were deposited from highly fluidized pyroclastic flows. In contrast, the proximal ash hurricane deposits are relatively rich in fines suggesting a smaller degree of fluidization. The areal distribution of the deposits from this eruption indicates that much of the northern half of the island of Martinique would have been devastated. The widespread distribution of the deposits from such Plinian eruptions makes them the most dangerous of all eruptive styles characteristic of Lesser Antillean volcanoes.