



Distribution, stratigraphy and grain size characteristics of pyroclastic sequences from the Lesser Antilles

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Pyroclastic flows ranging from small-volume block and ash flows produced by gravity-collapse of a dome to voluminous column-collapse ignimbrites have dominated the explosive activity over the last 100,000 years from all potentially active volcanoes in the Lesser Antilles. Detailed descriptions of the distribution, stratigraphy and grain size characteristics from eruptive sequences of different types of pyroclastic flows are presented and analyzed to elucidate the range of processes observed in the Lesser Antilles arc. Examples include the last eruption of the Quill, St. Eustatius, which progressed from andesitic semi-vesicular block and ash flows of limited areal extent through basaltic andesite scoria and ash flows to phreatomagmatic ash flows that covered most of the island; the 2000 year B.P. eruption of Mt. Pelée, Martinique which is characterized by thick valley-fill pumice and ash flows on the flanks of the volcano and wide-spread fines-depleted ash hurricane deposits that reached the outskirts of the present-day capital of Fort-de-France; the 1902 AD eruption of Soufrière St. Vincent, the deposits of which show a complex eruptive sequence from phreatomagmatic surges at the base passing up into magmatic scoria and ash flows followed by phreatomagmatic flows and surges, this flow-dominated sequence is overlain by a succession of scoriaceous lapilli and ash falls. These examples, together with others from Montserrat and Dominica, are used to assess both general and island-specific hazards posed by Lesser Antillean volcanoes.