Phase chemistry of volcanic ash from Site 949

PETER A. CAWOOD
Evan C. Leitch

Tectonics Special Research Centre
School of Applied Geology
Curtin University

Department of Applied Geology
University of Technology
Sydney, PO Box 123
Broadway
NSW 2007
Australia

Abstract

In this paper we report compositional data for a number of ash layers recovered at Ocean Drilling Program (ODP) Site 949 (Fig. 1). We have selected eight samples ranging in age from early Miocene to early Pleistocene (Table 1) that provide a reconnaissance of ash compositions and of the nature of preserved important pyrogenic phases. Previous investigations of marine tephra deposits adjacent to the Lesser Antilles arc have been mostly concerned with late Quaternary deposits (e.g. Sigurdsson et al., 1980; Carey and Sigurdsson, 1980). The data presented here thus extend the stratigraphic record considerably. The new data compliment the compilation of Natland (1984), who summarized the distribution of volcanic ash-fall layers in cores from Deep Sea Drilling Project (DSDP) Sites 541, 542, and 543, showing that ash was concentrated in sediments of middle Miocene, late Miocene, early Miocene, and Pleistocene-Holocene age. Because of the limited intervals over which coring was attempted on Leg 156 and low core recovery, our sampling has been incomplete. We have, however, analyzed phases from each of the major eruptive pulses identified by Natland (1984),who did not present any analytical data.

Reference for the full paper:

Cawood, P.A., Leitch, E.C. Phase chemistry of volcanic ash from Site 949. In: Shipley, T.H., Ogawa, Y., Blum, J.M. (Eds), Proceedings of the Ocean Drilling Program, Scientific Results, College Station, TX (Ocean Drilling Program), 156: 343-351, 1997.