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The distribution and preservation of Pleistocene pteropods in marine sediments near the island of Montserrat, Lesser Antilles Volcanic Arc

M. Hart (1), C. Smart (1), J. Fisher (1) and M. Leng (2)

1. School of Earth, Ocean & Environmental Sciences, University of Plymouth, Drake Circus, Plymouth PL4 8AA, United Kingdom (mhart@plymouth.ac.uk / Fax: +44 1752 233117 / Phone: +44 1752 233122)
2. NERC Isotope Geosciences Laboratory, British Geological Survey, Nottingham NG12 5GG, United Kingdom

The island of Montserrat is part of the Lesser Antilles volcanic arc and has a well-known eruption history stretching back over 2.5 Ma. Three volcanic centres have been identified: the Silver Hills (2.6-1.2 Ma), the Centre Hills ($\sim$950-550 ka) and the most recent, which this research focuses on, the South Soufrière Hills-Soufrière Hills complex (at least 174 ka to present). Until recently these data have been based solely on sub-aerial deposits and ^{40}Ar-^{39}Ar age data (Harford *et al*., 2002). However, marine sediment coring during recent cruises (R.V. *L'Atalante* in 2002 and R.R.V. *James Clarke Ross* in 2005) have recovered a record of intermittent volcanic activity over the last $\sim$250 ka, which is more continuous and complete than the coeval sub-aerial terrestrial deposits (Le Friant *et al*., 2008). The sediment cores contain abundant, well preserved pteropod faunas.

Pteropods and heteropods are holoplanktonic gastropods that live in the surface waters of many of the world's oceans. On death, their shells sink to the sea floor but as they are composed of aragonite they are susceptible to corrosion and eventual dissolution. In the marine cores from the Montserrat area there are relatively restricted levels of abundant and diverse pteropod faunas in the glacial intervals (MIS 2 and 6) while interglacials are characterised by reduced diversity faunas. This pattern is well known

from the Caribbean Sea (Chen, 1968), the Florida Shelf (Gardulski *et al*., 1990) and the South China Sea (Wang *et al*., 1997). The quality of preservation in MIS 2 can, sometimes, be exceptional with the pteropods preserved as clear, glassy aragonite. In samples from the present day sea floor (at the same water depths) preservation is less good and it is clear that pteropods could provide a very useful barometer of current global warming by a consideration of their state of preservation.

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