# SUBMARINE HYDROTHERMAL MINERALISATION OFF THE LESSER ANTILLES

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Submarine hydrothermal solutions discharge from nearshore vents off the Lesser Antilles volcanic arc. Vent field activity as gauged by numbers of vents, their flow rates and temperatures was greatest off Montserrat just after the onset of the July 1995 eruption there and lower, both before and afterwards. Vent field activity was greater off Dominica than off either St. Kitts or St. Lucia, but lower than off Montserrat.Compositionally, the vent fluids are variably enriched in Mn, Fe, As, Si, Li and B and thought to result from seawater interaction with magmatic rocks under the volcanic islands. Metalliferous sediments are enriched in Fe, As, Sb and Hg off Dominica, in Fe, P, As and Mo off St. Lucia, in Fe, P., As, Cu, Pb and Mo off St. Kitts, and in Fe, As, P, Sb and Hg off Montserrat. Manganese does not appear to precipitate much in the vicinity of the vents. The high energy setting of the sites investigated prevents build-up of hydrothermal precipitates and thus no ore deposits were found on the sea floor at them. However, sub-surface boiling may lead to a separation of brine and vapour phases. Precipitates from the former would be either in an underlying stockwork or deeper on the flanks of the volcano.