

Explosion from Soufriere Hills Volcano on the island of Montserrat, August 6, 1997, in the afternoon.



Barry Voight

THE CALIPSO PROJECT

LISTENING TO A VOLCANO'S RHYTHMIC BEAT

Junior geologists Brianne and Madi taking rock core for inspection and description. Sixteen undergraduate and graduate students (9 women) from US, UK, and the West Indies aided the CALIPSO effort in this way, gaining valuable personal experience.



Drilling the 200 m hole, Gerald's site, north Montserrat.



Every few years, explosive volcanic eruptions wreak havoc on surrounding communities and spew tons of ash and corrosive gas into the atmosphere, potentially contributing to short-term global climate change. To gain a better understanding of these eruptions and the magma systems that feed them, a team of scientists from the United States and United Kingdom are monitoring the ongoing eruption of the Soufrière Hills Volcano on Montserrat. Using an array of specialized instruments, including ultra-sensitive strainmeters and seismometers in four 200-m-deep boreholes, other instruments in several shallower holes, and GPS at surface sites, scientists are investigating why some eruptions are explosive and some simply involve outpourings of sticky siliceous lava punctuated by dangerous avalanches, why eruptions often occur in rhythmic cycles, and why, worldwide, some eruptions last days or weeks, whereas others chug on for many years or decades. Data from the instruments are telemetered to the Montserrat Volcano Observatory where they can be viewed in real time and considered for crisis management. The data are also available instantly to the scientific team via the Internet. Thus, the current eruption is serving as a natural laboratory that will enable dynamic models of the magma system to be developed and the sources of various geophysical signals to be tested, permitting scientists to better forecast eruptions, eruption impacts, and eruption duration.

Barry Voight, Pennsylvania State University, EAR 01-16826; Alan T. Linde, Carnegie Institution of Washington, EAR 01-16067; Peter E. Malin, Duke University, EAR 01-15991; and Pamela E. Jansma, University of Arkansas, EAR 01-16485.