

2003 Fall Meeting
Search Results

Cite abstracts as *Eos Trans. AGU*, 84(46),
 Fall Meet. Suppl., Abstract xxxxx-xx, 2003

Your query was:

volcano thompson

 HR: 0830h

AN: **V51F-0342**

TI: [The Rise and Fall of the Soufriere Hills Volcano Lava Dome, Montserrat, BWI, July 2001-July 2003: Science, Hazards, and Volatile Public Perceptions](#)

AU: **Dunkley, P**

AF: *Montserrat Volcano Observatory, Salem, Montserrat, 1600 Montserrat*

AU: * **Voight, B**

EM: *voight@ems.psu.edu*

AF: *Dept. of Geosciences, Penn State Univ., Univ. Park, PA 16802 United States*

AU: **Edmonds, M**

AF: *Montserrat Volcano Observatory, Salem, Montserrat, 1600 Montserrat*

AU: **Herd, R**

AF: *Montserrat Volcano Observatory, Salem, Montserrat, 1600 Montserrat*

AU: **Strutt, M**

AF: *Montserrat Volcano Observatory, Salem, Montserrat, 1600 Montserrat*

AU: **Thompson, G**

AF: *Montserrat Volcano Observatory, Salem, Montserrat, 1600 Montserrat*

AU: **Bass, V**

AF: *Montserrat Volcano Observatory, Salem, Montserrat, 1600 Montserrat*

AU: **Aspinall, W P**

AF: *British Geological Survey, W. Mains Rd., Edinburg, EH9 3LA United Kingdom*

AU: **Neuberg, J**

AF: *School of Earth Sciences, Univ. of Leeds, Leeds, LS2 9JT United Kingdom*

AU: **Sparks, R**

AF: *Dept. of Earth Sciences, Univ. of Bristol, Bristol, BS8 1RJ United Kingdom*

AU: **Mattioli, G**

AF: *Dept. of Geosciences, Univ. of Arkansas, Fayetteville, AR 72701 United States*

AU: **Hidayat, D**

AF: *Dept. of Geosciences, Penn State Univ., Univ. Park, PA 16802 United States*

AU: **Elsworth, D**

AF: *Dept. of Geosciences, Penn State Univ., Univ. Park, PA 16802 United States*

AU: **Widiwijayanti, C**

AF: *Dept. of Geosciences, Penn State Univ., Univ. Park, PA 16802 United States*

AB: Days after the major collapse ($45 \times 10^6 \text{ m}^3$) of the eastern flank of the lava dome on 29 July 2001, new dome growth was observed within the 200-m deep collapse amphitheatre. accompanied by cyclic seismicity. By January 2002 the summit was broad with an altitude of 990m. A switch in dome activity occurred in April, but Growth nearly stagnated in June and part of July, with the top of the extrusion lobe at 1048m. but GPS monitoring suggested that the magma reservoir continued to inflate, and growth resumed in late July. In August, a lobe grew toward the north and buried the northern buttress and an important drainage channel that formerly led to the east. One of the regular six-monthly meetings of the Risk Assessment Panel (RAP) took place on 3-4 Sept 02 and concluded that if a NW switch in dome growth were to occur, the margins of the Belham Valley on the west could be at high risk; a flow and surge hazard line was provided to

officials, crossing the populated area near Salem. Shortly after the RAP Report was finalized, a switch in growth direction toward the northwest in fact occurred. On 7 Oct, the RAP were asked to re-appraise Belham Valley risks given the altered but not unanticipated circumstances; they judged that a potential existed for a hazardous flow down Belham Valley, although RAP emphasized that their assessment did not predict that a large flow would occur soon, nor in that sector. On 8 Oct the Governor ordered an evacuation of an exclusion zone defined by the RAP's hazard line as adjusted to permit administrative control, and the boundary remained in force until Aug 03, with growing public discontent toward the Governor's exercise of Emergency Powers, and toward MVO, as expressed by a caustic vocal minority with provocative exacerbation by the local newspaper and some politicians. Meanwhile, dome growth continued with some switches in direction, a collapse of $5 \times 10^6 \text{ m}^3$ occurred eastward on 8 Dec to Spanish Point, and pyroclastic flows occurred in several drainages, mostly in Tar River to Tuitts Ghaut on the east, but also to Tyers Ghaut on the west, a tributary to Belham Valley. By late March the general summit area was at 1090m. In early June activity declined, but a hybrid earthquake swarm began on 9 July at a time of low SO₂ emission and intensified generally in size and frequency to the morning of 12 July, when dome/talus collapses leading to pyroclastic flow activity began, building up during the day and peaking with larger flows in the evening. Mechanisms inducing collapse include a new pressurized growth pulse heralded by the hybrid events, and heavy morning rains. When the retrogressing collapse slices exposed conduit magma, explosions occurred, with the strongest (before midnight) causing a strong acoustic signal and an ash column to about 50,000 ft (VAAC). Heavy ash and lapilli fall (thickness to 15 cm) from these events affected all inhabited areas, and a hot pyroclastic surge destroyed monitoring equipment and killed many animals between Spanish Point and Tar River. The collapse volume greatly exceeded that of 2001, and the events were detected on MVO and CALIPSO monitoring systems, including three strainmeters. The exclusion zone restriction was lifted on 1 Aug 03.

DE: 8400 VOLCANOLOGY

DE: 8414 Eruption mechanisms

DE: 8419 Eruption monitoring (7280)

SC: Volcanology, Geochemistry, Petrology [V]

MN: 2003 Fall Meeting

[New Search](#)

[AGU Home](#)