



MEETINGS: SSA 2010: ABSTRACTS

SSA 2010 Annual Meeting Abstract

Session: Volcanic Plumbing Systems: Results, Interpretations and Implications for Monitoring

Schedule: Fri 23 Apr – 8:45 AM

Location: Salon A

Presentation Type: Oral

Presenter: West, Michael

REAL-TIME TRACKING OF EARTHQUAKE SWARMS AT REDOUBT VOLCANO, 2009

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We have designed a real-time earthquake swarm monitoring system that can provide on the fly metrics to quantify volcano-seismic swarms. These metrics provide a quantitative perspective of the swarm's activity relative to comparable sequences elsewhere. This system also identifies the start and end of an earthquake swarm, and also significant escalations in a swarm. Our system consists of a real-time event catalog, a swarm tracking system and a generic alarm management system. The tracking system continuously measures mean event rate, median event rate, mean magnitude and cumulative magnitude. These are compared with (configurable) swarm start, escalation and end thresholds that define the levels at which alarms are declared. The alarm management system dispatches alarms to a call-down list, allowing observatory scientists to be notified in sequence until someone acknowledges the alarm via a confirmation web page. Swarm tracking has proven to be an effective way to characterize the conduit processes as they unfold. By serving parameters that describe seismic swarms while the processes are still unfolding, systems such as the one described here provide an ability to quantify the seismic behavior within the conduit system and provide tools for on the fly comparisons to similar events elsewhere and/or earlier in the same volcanic sequence.

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