

## **Comparison and Occurrence of Event Types at Bezymianny Volcano, Russia and Mount St. Helens, Washington**

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Bezymianny volcano, Kamchatka, Russia is 50 years into an eruptive cycle, which started with a lateral blast and edifice collapse, much like Mount St. Helens in 1980. Since 1980, the occurrence of explosions and dome building at Mount St. Helens has been similar to Bezymianny volcano between 1956 and 1980. Over the past decade, Bezymianny has had twice-yearly eruptions that include plinian eruptions and continued dome building, making it an attractive target for studying such processes. Volcanoes have heterogeneous structure and thus seismic recordings of shallow (<1 km) volcanic earthquakes are subjected to large attenuation, and surface wave conversion at small distances (>1 km) from the epicenter. The result is a protracted and relatively low frequency seismic signal that is largely due to the path, with effects of the source obscured. The seismic network at Bezymianny has 8 stations within 40 km with the closest station 5 km from the active dome. In this project, we compare seismic observations of earthquakes at Bezymianny to earthquakes observed at Mount St. Helens at equivalent distances and look for events with common characteristics in the time and frequency domains. We then look at the near-field seismic data of identified events recorded at Mount St. Helens to better understand the actual character of the seismic events near the source. We use this comparison of near- and far-field seismic data to define event types at Bezymianny volcano and then look at the occurrence of those event types during different phases of activity between 2001 and 2006. The occurrence and buildup to eruption at Bezymianny is then compared to buildups in 1980 and in 2004 at Mount St. Helens. This work is important in characterizing past and future eruptive sequences at Mount St. Helens and Bezymianny volcano, and also to begin to characterize the seismicity associated with prolonged dome building.