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Volcanic activity of Mt. Kusatsu-Shirane and small repeating earthquakes

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Mt. Kusatsu-Shirane is an active volcano situated in the central part of Japan. It has repeated phreatic explosions around the three major craters, Yugama, Mizugama and Karegama. Current activity is characterized by active fumaroles and persistent volcanic earthquakes around the craters. The volcano has been seismically monitored with several seismometers including three bore-hole ones. Based on the observations, Mori et al. (2006) indicated two major seismic clusters at Yugama and North Motoshirane. In these clusters Yamawaki et al. (2007) reported existence of repeating earthquakes which are repeatedly observed as almost the same waveforms. Such repeating earthquakes are located not only in the Yugama cluster, but also in the North Motoshirane cluster. Although the surface activity of the volcano shows some change since 2008 such as formation of new fumaroles, no notable change can be identified in the seismicity rate. Seismic waveform is sensitive to the change of media through which the wave propagates. Investigation of waveform similarity in the repeating earthquakes can be a tool for detection of slight change in the crust. In this study we expand event period of Yamawaki et al. (2007) to the latest data.

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