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Source locations of explosion events and tremor associated with eruptive activity at Kirishima volcanic complex

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We used a source location method using high-frequency seismic amplitudes to locate sources of explosion events and tremor associated with eruptive activity at Kirishima volcanic complex. Source locations of explosion events were determined at depths down to about 5 km below sea level. We found that the sources of tremor were located just beneath the Shinmoe-dake summit crater as well as at depths of about 8 km beneath the crater. The estimated source depths were similar to those determined for explosion events at Tungurahua volcano, Ecuador, but deeper than those of explosion events at Sakurajima volcano, Japan. Tiltmeter observation indicated a pressure source located NW of the summit crater at a depth of 10 km, which was interpreted as a magma chamber. The explosion events and tremor at Kirishima may have been generated by magma vesiculation and fragmentation processes in a deeper portion of a conduit connected to the magma chamber.