

Investigation on the fluid migration associated with the Chi-Chi aftershock sequence and Ontake eruption events

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Our previous studies in attenuation, noted as $1/Q_s$, for the 1999 Chi-Chi earthquake suggest that the fracture zone associated with fault zone could be considered as a fluid reservoir, which possibly yield to some observations/detections of phenomena associated with pre-, co- or post-seismic of a larger earthquake. The sudden changes in attenuation co-seismically with decay following a diffusion process indicated possible high pore-fluid saturation within fractured fault zone from fully to partial saturation, especially in the dilatational region. The migration of the fluid in the dilatational region might have the association of the aftershock sequences. Aftershock sequence following a mainshock often considered to be related to regional tectonic stress and stress triggering of a mainshock. For stress triggering, it is often considered to be in the stress increase region with some lapse time ($>$ one month) for the static stress triggering. In this study, we tried to deviate the possible fluid associated aftershocks by focusing on the region with dilatation stress (stress decrease) and one-month aftershock sequence to understand their possible association. The 2014 Ontake eruption had been considered as an eruption associated with fluid/gas within the magma chamber. We investigate the possible passage of fluid flux within the magma chamber from the observed seismicity and waveforms. The recorded waveforms near Ontake show several different types. Some waveforms exhibit the possible detection of the trap-waves from magma chamber. The simulation of the waveform might give the hints on the structure (geometry and velocity) of the magma chamber and the mechanism of the earthquake associated with 2014 Ontake eruption.