Inversion of velocity and Q structures beneath a volcano based on the finite-difference calculation of travel times

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We analyzed data of explosion seismic experiment by using an inversion method to determine velocity and Q structure under volcanic area. The inversion method to determine velocity structure is one presented by Benz et al. (1996). Since this method estimates the first-arrival time based on the finite-difference method, the travel times can be calculated stably for complex velocity structure. We modified this inversion method to determine Q structure from pulse width data, which are estimated by the Sompi cepstrum method. As the result, we obtained detailed velocity and Q structures in Kirishima Volcano, southern Japan.