V032-019 Room: C310 Time: May 28 10:45-11:00

Fuji Volcano Dense Seismic Experiment Project

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Low-frequency earthquakes (LFs) have occurred at 10-17 km depths beneath Fuji volcano, central Japan. The number of LFs dramatically increased since September 2000 and 70 LFs occurred in November 2000. Although the number of LFs gradually has decreased, the activity of LFs is still high. In 2002-2003, two borehole (100 m depth) broadband seismic stations and a borehole (1000 m depth) station are being constructed on the northeast flank of Fuji volcano. A dense seismic station network will be constructed in 2002 in order to clarify source processes of LFs and seismic structure beneath Fuji volcano. The seismic network consists of about 30 stations. In addition to these stations, there are 18 permanent stations around Fuji volcano. Data of the seismic stations are transmitted to ERI, Univ. of Tokyo by using VSAT satellite, radio and phone-line telemeters. Since these telemeters can be driven by a 12V DC power supply, we can use the telemeters on volcanic edifices where no AC power is available. The dynamic ranges of the telemeters are from 16 to 24bit. These stations have short-period or broadband seismometers. We start to construct the stations in 2002, maintain them and collect seismic data in 2002-2004. We performed a checkerboard resolution test in order to evaluate if the station coverage is enough. We selected hypocenters occurred around Fuji volcano in 1998-1999. We assigned positive and negative velocity patterns alternately to the grid nodes of a model space and calculated the travel times for this model to make synthetic data with Gaussian noises. Then we inverted the synthetic data and checked how well the result was resolved. The checkerboard patterns were well resolved for the node spacing of 5 km at depths shallower than 20 km beneath the summit of Fuji volcano. The patterns were well resolved for the spacing 10 km at 30 km depth beneath the summit. We should use teleseismic and regional events to obtain tomographic image of deeper (over 30 km) fine structure. Since the seismic stations are widely distributed on the focal sphere of a LF beneath Fuji volcano, we will be able to estimate the focal mechanisms of LFs more accurately. We will also describe a resolution test for estimating the focal mechanisms using a waveform inversion.