

## Detailed Image of Aftershock Activity of the 2004 Niigata Chuetsu Earthquake (M6.8)

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The 23 October 2004 Chuetsu earthquake (M6.8) was followed by intense aftershock activity, which included the occurrence of four events with M larger or equal to 6.0. In order to analyse in detail the spatial and temporal characteristics of this earthquake sequence, we first determined accurate hypocenter locations using the double-difference algorithm (Waldhauser and Ellsworth, 2000). The relocated events show an increased spatial clustering. One can recognise at least three main fault-like structures, which are clearly defined by the aftershock distribution. About three days after the mainshock the seismic activity extended to the NW and SE. One of the large aftershocks (M6.1), which occurred to the SE, was preceded by few small events. We are presently cross-correlating the waveforms of events recorded at the same seismic station to obtain highly accurate relative arrival times. By using them as input for the double-difference relocation algorithm, we hope to obtain a very detailed spatio-temporal pattern of seismicity.

The seismic activity of each cluster of aftershocks is analysed for its frequency-magnitude distribution and decay rate of aftershocks. To have a more accurate estimate of the aftershock decay immediately after the mainshock (minutes-hours), we analyse the continuous Hi-Net waveform data at several stations located closely to the aftershock distribution and try to detect as many early aftershocks as possible.