

**Immediacy and Accuracy of Earthquake Early Warning Method Based on P-wave Threshold Exceedance  
Applied to the 2004 Mid Niigata Prefecture Earthquake**

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The immediacy and accuracy of the earthquake early warning method based on P-wave threshold exceedance was verified by applying it to data from the 2004 Mid-Niigata Prefecture earthquake. The result confirmed that it is possible to issue an earthquake warning in less than one second in the vicinity of the earthquake source fault region by directly predicting the S-wave by multiplying the pre-calculated amplitude ratios of the S-wave to the P-wave by the P-wave observed in real time. Furthermore, the logarithmic standard deviation of the peak ground acceleration (PGA) of the observed S-wave from the PGA of the predicted S-wave was as small as 0.284, indicating that this method can predict S-wave amplitudes with high accuracy.