

## **The 22 June 2002 Avaj, Iran Earthquake: Analysis of the Strong-motion Records**

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On 22 June 2002 a strong earthquake,  $M_w$  6.5, occurred in northwest Iran and caused serious damage in Avaj and nearby areas. The earthquake had a shallow depth of 7.0 km and epicentral coordinates of 35.63N and 49.05E. The shock left 230 deaths, about 1,500 injured, and more than 50,000 homeless. The maximum intensity of VIII-IX was observed in the epicentral area. The earthquake had a reverse mechanism, striking 104° from the north and dipping 62° toward the southwest. A regional network consisting of 77 strong-motion stations (SSA-2 accelerographs) registered the earthquake. The stations were located within 25-250 km from the epicenter. The recorded peak ground accelerations range from 0.5 to 0.03.

A local magnitude,  $M_L$ , of 6.5 was calculated from the synthesized Wood-Anderson records using 150 horizontal components. Spectral information of both P and S waves of those accelerograms recorded within 100 km from the epicenter were used to estimate the source parameters of the earthquake. The results for  $M_0$ ,  $M_w$ ,  $r$  (source radius), and stress drop are  $8.05 \times 10^{25}$  dyne-cm, 6.5, 8 km, and about 70 bars, respectively. The corresponding results from spectral analysis of P waves recorded by the regional broadband stations are in good agreement with those obtained from the accelerograms.

Peak accelerations recorded by the stations located in the southwestern part of the fault (hanging wall) generally show higher values than those recorded by the stations located on the opposite side of the fault (footwall).