

DEEP SEISMIC PROFILING OF METROPOLITAN AREAS IN JAPAN FOR STRONG GROUND MOTION EVALUATION: PRELIMINARY RESULTS OF SAGAMI 2003

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The metropolitan areas in Japan, such as Tokyo and Osaka, have high risk of seismic hazards. For example, if present Tokyo is attacked by the great earthquake same as Kanto earthquake of 1923 (M7.9), the most pessimistic estimation of the economic loss reaches to 1 - 3 trillion USD. The Headquarters for Earthquake Research Promotion Japan determined to start the new program targeting the reduction of seismic hazard in the metropolitan areas. As a part of this program, the project to reveal the regional characterization of metropolitan area, including the deep seismic profiling, began from 2002 as a basically five years project. A long-term goal is to produce a map of reliable estimations of strong ground motion. This requires accurate determination of: source, propagation path, ground motion response. This projects focuses on identification and geometry of: source faults, subducting plates and mega-thrust faults, crustal structure, seismogenic zone, sedimentary basins, 3D velocity properties. Reconstruction of source fault and velocity models allow for more realistic 3D EQ wave simulations. All of these information will be synthesized and provided to communities involved in probabilistic hazards analysis, risk assessment and societal response. In the fiscal year of 2002, deep seismic profiling was carried out along the Sagami bay. In Sagami 2003, total 1500 channels are deployed for 72-km long seismic line. Receiver intervals were mainly 50 meters. The central portion of the seismic lines (40 km) is mainly along the beach. Along the western 20 km of seismic line, data were acquired using four vibroseis trucks. Along the eastern part of the seismic line, due to the severe traffic noise the air-gun signals (1500 CUI) will be used as seismic source and signals will be recorded by land geophones.