

Results of 2013 Off-Kanazawa and Noto peninsula survey for the integrated research project on seismic and tsunami hazard

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To estimate Tsunami and seismic hazards along the coastal area of Sea of Japan, more detailed survey to identify source faults are needed. A new research project funded by MEXT named "the integrated research project on seismic and tsunami hazards around the Sea of Japan" began in FY 2013. To obtain the information of source faults, we performed deep seismic reflection profiling off-Kanazawa and Noto area in the central part of Honshu, Japan. The source faults were estimated together with the results of seismic sections in the epicentral area of the 2007 Noto peninsula earthquake (Sato et al., 2007, BERI). We used two vessels; a gun-ship with 3020 cu. inch air-gun and a cable-ship with a 2-km-long, streamer cable with 156 channels and 480 cu. inch air-gun. Common-mid point reflection data were acquired along 4 seismic lines with total 245 km in length. The seismic profiles portray the reactivation of normal faults, which formed during syn-rift periods, associated with the opening of the Sea of Japan. 2007 Noto peninsula earthquake occurred by the oblique motion on source fault dipping 60 degrees, which is favorable normal faulting. The back arc side of the SW-Japan arc experienced NS trending shortening deformation in the latest Miocene. From the Noto peninsula to the west, undeformed Pliocene sediments covers folded Miocene. Some normal faults reactivated as active strike-slip and reverse faults in Quaternary. The survey results contributed to construct source faults models of Tsunami and seismic hazards estimation.

Keywords: Sea of Japan, source fault, crustal structure, seismic reflection profiling, Off-Kanazawa, Off-Noto Peninsula