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## Seismic reflection profiling across the Yukyuzan fault in the eastern margin of Niigata basin, central Japan

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Inverted rift-basins form a fold-and-thrust belt along the backarc side of Honshu. The Niigata basin is one of the inverted rift-basin and frequently attacked by devastating earthquakes. To reveal seismogenic source faults beneath thick-sediments, deep seismic reflection profiling was undertaken across the northern part of epicentral area of the 2007 Chuetsu-oki earthquake (Sato et al., 2011: JPGU). The deep seismic profiling aims crustal scale image and for the imaging of shallow fine-scale structure its resolution is not enough. To obtain complete image of the active-seismogenic source fault system, we carried out the high-resolution seismic reflection and refraction profiling across the Yukyuzan fault in the eastern margin of the Niigata basin for 5.7-km-long seismic line. Seismic data were acquired using a vibrator truck (IVI, EnviroVib). The sweep signals (8-100Hz; reflection profiling, 8-60Hz; refraction profiling) were recorded with 10 Hz geophones deployed at 10 m intervals, off-line recorder (JGI MS2000) and digital telemetry system (JGI G-DAPS4). The seismic data were processed using conventional CMP-reflection methods and refraction tomography (Zelt & Barton, 1998). The obtained seismic section portrays the seismic image and velocity structure down to 1 km. The seismic section demonstrates an asymmetric fold with steeper western limb and gentle eastern limb. It western limb shows rotation with growth strata. Based on the image of deep seismic section, the fold is a fault-related-fold, the growth strata has been produced by a deep sited, eastward dipping thrust. On the high-resolution seismic section, an eastward dipping thrust is interpreted at the crest of the anticline, based on the discontinuity of reflectors and velocity structure. The thrust is not emerged to the surface and forms a small-scale wedge-thrust. As the main anticline was formed by the deep-sited thrust, this shallow thrust played a secondary role for the development of the Higashiyama hills.