Shallow seismic reflection profiling across the Furano Thrust System, Hokkaido, Japan

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The Furano thrust system, northern Japan, run along the topographic boundary of Furano basin. The western marginal faults of Furano basin are mainly composed of low angle reverse faults dipping to west. This study is aimed at revealing profiling and geological survey.

The seismic exploration was carried out across the faults. The specifications for the exploration are as follows: seismic line, 3.5km in length; Yuatsu impactor, JMI200-II (JGI Inc.); interval between shot points, 5m; recording system, G.DAPS-4 (JGI Inc.); recording length, 1.4sec. ; sampling rate, 1msec. ; the number of channels, 100 channels. The data processing is standard one, including automatic gain control, band-pass filtering, deconvolution, refraction analysis, static correction, velocity analysis, CMP stack, and migration.

The geological structure around the seismic line is characterized by Nakafurano-Namakoyama fault, Goryo fault and boundary fault from west to east and fault-related folds. Nakafurano-Namakoyama fault and boundary fault are thrusts dipping to west, and Goryo is a thrust dipping to east. Geological Survey suggests that boundary fault is vertical.

The seismic reflection profiling suggests that Nakafurano-Namakoyama fault is major and wedge type blind thrust, and that Goryo fault is a branch of Nakafurano-Namakoyama fault. It is also presumed that Goryo fault is a back thrust associated with Nakafurano-Namakoyama fault.

The basal horizon of growth strata almost corresponds to the top of Tokachi welded tuff dated at 1.4Ma.