深部・浅層反射法地震探査から明らかになった日高前縁盆地褶曲衝上断層帯前縁部の活構造

Active Tectonics of the frontal Hidaka fold-and-thrust belt in the Ishikari foreland basin based on deep to shallow seismic reflection profiling, Hokkaido, Japan

*石山 達也[1]、佐藤 比呂志[1]、加藤 直子[1]、阿部 進[2]
*Tatsuya Ishiyama[1], Hiroshi Sato[1], Naoko Kato[1], Susumu Abe[2]

1. 東京大学地震研究所、2. 石油資源開発株式会社
1. Earthquake Research Institute, University of Tokyo, 2. Japan Petroleum Exploration Co., Ltd.

We define structural characters of shallow to deep subsurface geometry of underlying blind thrust fault systems that comprise the frontal portion of the Hidaka fold-and-thrust belt (HFTB), Hokkaido, based on newly collected, deep (Sato et al., 2018) and shallow (Ishiyama et al., 2018; Kato et al., 2018) onshore high-resolution two dimensional (2D) seismic reflection and refraction data across the Ishikari plain. Coupled with middle to late Pleistocene geomorphic and geologic signatures of their structural growth and fault activity, we also estimate recent rates of fault slips and associated crustal shortening on the frontal blind thrust systems. Processed deep seismic profile and its preliminary interpretation illuminated up to 10 km depth of structures of the leading edge of the fold-and-thrust belt in the foreland basin, including active blind thrust-related folds at shallower structural levels beneath the Ishikari plain and Umaoi Hills. New shallow seismic reflection profiles tied with Neogene stratigraphy are also useful to define shallowly to moderately east-dipping blind thrust faults and pairs of overlying fault-related anticlines that deform Pleistocene to Pliocene sedimentary units, of which northern extension is manifested by folded late Pleistocene marine terrace deposits. We will mainly discuss (1) present fault slip rates on the frontal part of the HFTB by linking shallow to deep thrust trajectories with active folding recorded by marine and fluvial terraces, (2) comparison between the present and millennial longer-term fault slip rates across the HFTB, and its implications for (3) tectonic history of its structural growth, (4) styles of strain accommodation within the frontal HFTB, and (5) plate tectonic setting in this arc-arc collision system.

キーワード：活断層、日高褶曲衝上断層帯、伏在衝上断層、活褶曲、反射法地震探査、北海道
Keywords: Active fault , Hidaka fold-and-thrust belt, Blind thrust, Active fold, Seismic reflection profile, Hokkaido

