# Structural restoration of folded and faulted deepwater sedimentary units, NW Borneo

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The deepwater region offshore Sabah/NW Borneo (Malaysia) is an active fold-and-thrust province that hosts a significant number of proven hydrocarbon accumulations. Prime targets for hydrocarbon exploration are thrusted hanging-wall anticlines and large-scale folds and ridges within Neogene deepwater clastics on the continental slope. Two mechanisms have been identified that control recent compressional tectonics in this deepwater province, 1) crustal shortening and 2) gravity-related delta tectonics. Due to the complex interplay of active deformation and syntectonic sedimentation, the interpretation of the stratigraphic architecture of this setting proves to be challenging, as is the evaluation of the contribution of the respective tectonic mechanism to deformation.

This study presents new structural and stratigraphic interpretation results offshore Sabah, based on over 3000 km of multichannel reflection seismic data acquired in 1986 by the Federal Institute for Geosciences and Natural Resources (BGR). Comprehensive reprocessing and depth migration of this extensive dataset reveals for the first time true subsurface geometries of faults, folds and associated synkinematic deposits offshore NW Borneo, ultimately enabling the systematic retrodeformation and structural balancing of this deepwater province. Results highlight the importance of the integration of depth conversion and structural modelling for the quantification of the tectonic mechanisms controlling active margin development, providing at the same time a detailed record of syntectonic sedimentation in deepwater fold-and-thrust settings.