

Michal Nemčok, PhD

RESEARCH PROFESSOR



Michal holds a Ph.D. in Structural Geology from the Comenius University, Bratislava. He has 35 years of applied and basic research experience at the Slovak Geological Survey, University of South Carolina, University of Wales, Cardiff, Imperial College London, University of Salzburg, University of Wurzburg, and University of Utah. He joined EGI in 1998 and is a Research Professor and Structural Group leader. Michal has published 80+ articles, coauthored 5 monographs, and coedited five books.

Continental Break-up Processes & Controlling Factors

Continental break-up research focuses on both extensional and transform settings, with a focus on driving mechanisms and controlling factors to achieve predictive models with respect to structural architecture, thermal regimes, and petroleum systems. The main research contribution includes understanding anomalous thermal and uplift histories of transform margins, break-up mechanisms in extensional settings, and micro-continent-releasing mechanisms. A summary of his last eight years of break-up research is recorded in a monograph titled *"Rifts and Passive Margins; Structural Architecture, Thermal Regimes and Petroleum Systems"* published by Cambridge University Press, and authored by Nemčok, M. Together with co-authors, a new monograph called *Strike-slip Terrains and Transform Margins—Structural Architecture, Thermal Regimes & Petroleum Systems* is being written in contract with Cambridge University Press.

Thrustbelt Development & Controlling Factors

Michal's current research focuses on the thrustbelt-foreland interactions, with a concentration on driving mechanisms and controlling factors behind thick-skin tectonics, foreland plate flexure mechanisms, and flexural faulting in control of structural architecture and play concept elements. The main research contribution includes the factors and mechanisms leading to the lack of foreland flexing and transitions from initial inversion to full accretion. Accompanying research focuses on modeling of the fluid flow mechanisms occurring in the thrustbelt front and its foreland. A summary of thrustbelt research is written in a monograph called *"Thrustbelts; Structural Architecture, Thermal Regimes and Petroleum Systems"*, published by Cambridge University Press, and authored by Nemčok, M., Schamel, S. and Gayer, R.. Current research findings are summarized in several articles included in the Geological Society of London Special Publication 377, which is edited by Nemčok, M., Mora, A., and Cosgrove, J.

Fracture Development Prediction

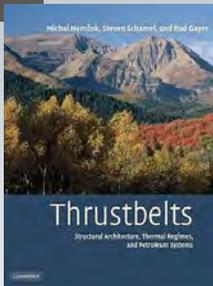
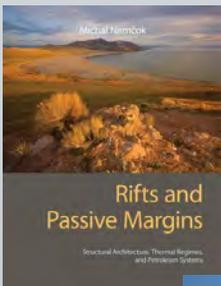
Fracture prediction research includes both detailed well core, rock outcrop and numerical simulation studies focused on predicting timing, location and kinematics of developing fractures. Most of the fracture studies come from thrustbelts, although some core-based studies come from various geothermal reservoirs. The main research contribution includes tools capable of predicting fracture locations, kinematics and propagation timing in two and three-dimensions for hydrocarbon reservoirs in thrustbelts, which were tested by well-based fracture data. Accompanying research includes understanding the role of mechanical stratigraphy on developing structural architecture. This research is published in a number of journals run by structural and geothermal communities.

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Research Interests

- Continental break-up processes and controlling factors
- Thrustbelt development and controlling factors
- Fracture development prediction



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