

Structural diagenesis, resource plays, the Highlands of Scotland, and curriculum development*

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Structural diagenesis is the study of the relationships between deformation or deformational structures and chemical changes to sediments. In shale resource plays, in tight gas sandstones, and in many other rocks the cross disciplinary structural diagenetic approach to fracturing, fault growth, compaction and other mechanical processes is a key to unlocking scientific knowledge about a part of the Earth's interior that is of great intrinsic and practical interest and a perspective that is increasingly important in the geoscience curriculum.

Using examples from core-based studies of shales and tight gas sandstones from Texas, Colorado, and Argentina, and outcrop examples from NW Scotland, this talk shows how this approach leads to new insights into fracture growth rates, how natural fractures evolve, how they may impact production, and how the surprisingly heterogeneous attributes of fractures can be better predicted and efficiently diagnosed. Some important remaining challenges are outlined that have implications for industry practice and for student training.