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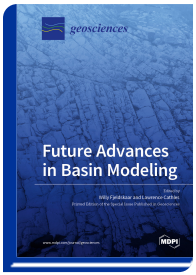

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This volume describes the nature, causes, and consequences of the diverse fluid movements that produce energy and mineral resources in sedimentary basins. The contained papers point to new capabilities in basin analysis methods and models. The processes that operate in the resource-producing thermo-chemical-structural reactors we call sedimentary basins are reviewed. Efficient ways to infer the tectonic history of basins are described. Impacts on hydrocarbon maturation and migration of glacial tilting, magmatic intrusion, salt migration, and fracturing are illustrated. The conditions under which subsurface flow will channel with distance traveled are identified. Seismic methods that can image and map subsurface permeability channels are described. The surface maturation, surface charge, and chemical reaction foundations of creep subsidence are set forth. Dynamic aspects of the hydrogen resource in basins are analyzed. There is much that is new that is presented in these papers with the intent of stimulating thinking and enthusiasm for the advances that will be made in future decades.

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