

Variations in Sediment Extrusion in Basin-floor, Slope, and Delta-front Settings: Sand Volcanoes and Extruded Sand Sheets from the Namurian of County Clare, Ireland.

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in A. Hurst and J. Cartwright, eds., Sand injectites: Implications for hydrocarbon exploration and production: AAPG Memoir, p. 221-226.

<http://jgs.lyellcollection.org/content/early/2013/05/16/jgs2012-124.abstract>

ABSTRACT

An outcrop and microtextural study of sand volcanoes from the Namurian of County Clare is presented. Sand volcanoes occur on top of mud-rich slumps that are interpreted to have loaded the sediment pile and caused rapid compaction and fluid expulsion from the underlying units. Fluids migrated into the most permeable sand-rich bodies in the slump, and fluidized grains were then extruded at the sediment-water interface. In some cases, a laterally extensive extrusive sheet of silt and sand developed, with volcanoes located at focused sites of sediment expulsion. From microtextural studies, several (geologically short-lived) episodes of sediment and fluid expulsion are recognized as distinct, normally graded silt to sand-size beds separated by clay-rich beds. The clay-rich beds may either represent background sedimentation between expulsion events or may have been part of the extruding fluidized sediment itself.