

Examples of Salt Structures Under the Continental Shelf and Slope Offshore of Nova Scotia

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A spectacular range of salt structures is present beneath the continental shelf and slope offshore of Nova Scotia. The complexity of these structures was suspected by early workers who studied the region, but sparse seismic coverage and poor data quality hindered their comprehension of the continuous interaction between sedimentation and salt deformation that has occurred throughout much of the history of the margin. Proprietary seismic data acquired over the last several years have dramatically improved our understanding of the processes involved.

Salt diapirs rise vertically, in some cases, over 12 kilometres from the Late Triassic–Early Jurassic Argo Formation source layer. Morphologies include steep-sided domes, mushroom-shaped domes, and seaward-dipping tongues. Shallowly-emplaced allochthonous salt canopies cover areas in excess of 1000 square kilometres. Their development through time is manifested by extensional fault systems updip of salt welds, and by the presence of syn-kinematic structures such as withdrawal basins and turtle structure anticlines over top of pre-kinematic layers.

The examples given in this poster illustrate the range of salt structures. Much work remains in order to understand the regional linkages between the salt tectonics, plate tectonics, and sedimentation along the Scotian margin.