

Windsor Group stratigraphy, Magdalen Islands, Quebec

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Windsor Group rocks on the Magdalen Islands, transported to the surface as tectonic rafts by salt diapirs rising from depths as great as 10 to 12 km, provide key insight into the character of the marine Viséan in the north-central portion of the western Maritimes Basin. Volcanic rocks, closely associated with regionally more typical marine carbonate rocks and evaporites, make this local succession unique in the Viséan of eastern Canada. Lithostratigraphic and biostratigraphic assessment suggests that carbonate marker beds represent equivalents of middle and upper parts of the Nova Scotia 'type' Windsor Group, including the highest marine beds known in the type area. Carbonate members equivalent to both the Herbert River and Kennetcook limestone members of the upper Windsor type succession can be recognized on the Magdalen Islands, attesting to the widespread distribution of these relatively thin marine bands in the Late Viséan of eastern Canada. The volcanics, including vesicular and amygdaloidal basalts with minor pyroclastic rocks, occur only in association with middle Windsor Group gyp-

sum, limestone and siltstone in surface exposures. Volcanic rocks occur at two main stratigraphic levels within the middle Windsor, in a succession estimated at approximately 1000 m in thickness. Similar sedimentary suites higher in the Windsor Group lack any associated volcanic rocks (Île Boudreau) or are in tectonic contact with volcanic-bearing successions (Île d'Entrée). Thick salt deposits, which underlie and are presumed to diapirically intrude middle and upper Windsor Group strata, represent the product of the first major cycle of Viséan marine sedimentation in the region. The Magdalen Island Viséan succession, except for its regionally unique volcanic component, is most comparable to that of central and eastern Nova Scotia. This seemingly complete Windsor Group succession contrasts with rocks of similar age in southeastern New Brunswick and northwestern Nova Scotia, which lack Upper Windsor marine carbonate members. The Magdalen Islands' exposures, albeit imperfectly preserved and structurally complex, help to constrain the interpretation of regional Viséan facies in the western Maritimes Basin.