

Syn depositional Evaporite Diapirism and the Effects on Sedimentation in the Permo-Carboniferous Strata of the Northeastern Part of the Cumberland Basin of Nova Scotia

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The major structural features of the northeastern part of the Cumberland Basin trend east-west. The features include the Cobequid Highlands, the Tatamagouche Syncline, the Claremont-Malagash Anticline and the Wallace Syncline (Canfield Dome).

Within the northeastern part of the Cumberland Basin there are two styles of evaporite diapirism: (a) fault-related diapiric anticlines, i.e. Claremont-Malagash Anticline and (b) concentric evaporite domes, i.e. Canfield Creek.

A north-northwest paleocurrent direction is dominant in the Namurian to early Permian strata of the eastern part of the Tatamagouche Syncline. The paleocurrent data for the western part of the Syncline are bimodal with a division of flow at approximately the synclinal axis. The flow direction on the southern limb is to the north-northwest. However, on the northern

limb the direction of flow is to the east-southeast. This indicates the influence of a possible topographic high developing to the northwest due to uplift in the vicinity of an evaporite diapir.

The southeastward flow directions are found in progressively older strata towards the west suggesting that diapirism of the Windsor Group evaporites initiated during the Westphalian B in the west but not until the Stephanian in the east. The divergent paleocurrents provide a useful indicator that Windsor Group evaporite diapirism migrated through time from west to east.

The unimodal distribution of paleocurrent determinations in the Canfield Creek dome area suggests diapirism postdated sedimentation of the surrounding Upper Carboniferous strata (Westphalian C).