spatial distribution of large-scale fold interference patterns is key to the successful extrapolation of economically important lithologies into areas of no exposure and into the subsurface.

Structure, stratigraphy, and contact relationships of Middle Ordovician to Lower Silurian turbidites and the Dunnage Mélange, New World Island, Newfoundland

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An important contact zone between a succession of siliciclastic turbidites and the Dunnage Mélange is located along the southern coast of New World Island, northeastern Newfoundland. Detailed structural and stratigraphic field analysis along 8 km of well exposed coastal outcrop and associated small tidal flats and small islands shows a complex map pattern controlled by multiple phases of tectonic deformation.

The siliciclastic turbidites are generally north facing and lie to the north of the contact zone. This sequence consists mainly of pebble conglomerate, greywacke, and variously coloured shale. A thick unit of mélange lies to the south of the contact zone which consists of large resistive blocks of igneous blocks, and calcareous and siliciclastic sedimentary blocks, which are contained within a highly foliated, dominantly shale matrix.

Three phase of tectonic deformation have been deduced through both geometric fault analysis and fold and fabric overprinting relationships. F_1 folds are generally isoclinal and commonly intrafolial with respect to S_2, and were recumbent prior to F_2. Regionally, work by P. Williams, Karlstrom and Van Der Pluijm linked the F_1 fold structures to thrusting. F_2 folds and the associated cleavage are the dominant structures and are strongly asymmetrical, tight, upright folds which create both micro- and macro-scale mushroom fold interference structures with F_1. F_3 folds are generally kink folds which nucleate around areas of higher competence such as quartz veins and dykes. Broad warping is also related to F_3 where up to four orders of folds are observed.

A number of gold showings occur within the turbidite succession, and are concentrated in quartz veins within the greywacke units as well as within both felsic and deictic (is this correct?) dykes. A link relating mineralization with the hinges of F_1 folds can be explained by the more competent greywacke fracturing to accommodate for space problems caused by the folding of the less competent, overlying shale. Determining the