Overview of the Very First Mega-Transects Seismic Survey Throughout the Appalachian Gaspe Belt

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The Secteur Énergie of Ministère des Ressources naturelles du Québec acquired in October 2001, 117 km of new regional geophysical seismic reflection data. In the summer of 2002, an additional 230 km will be shot to complete the overview of regional mega-transects seismic survey across the Appalachian Gaspe belt.

These seismic mega-transects line up from north to south and cut across the Appalachian Humber Zone and the Silurian-Devonian successor basins. The aims are to visualise the structural style in depth and define the geological hydrocarbon framework.

The preliminary results from the Appalachians Humber Zone demonstrate a poor signal to noise ratio. The weak seismic wave penetration in this zone is probably influenced by the high angle dip of the stratification, which dissipates the energy source at the surface. Nevertheless, we can fairly recognise on the seismic profile some deep reflectors reasonably continuous and close, which can be associated to the St. Lawrence platform. Furthermore, above this expected platform, some SE dipping thrust-faulting planes with a faint platform profile were observed.

The Silurian-Devonian mega-transect cuts across three tectonostratigraphic zones of : the Connecticut Valley-Gaspe synclinorium, the Aroostoock-Perce anticlinorium and the Chaleurs Bay synclinorium. The seismic data quality is very good to excellent in these zones. The preliminary outcome through out the central Gaspe seem to confirm the structural complexity observed from the Matapédia seismic survey which shows a typical thin-skin thrust-fault in depth for the Silurian rocks. This new observed structural trend improves the Appalachian Gaspe belt potential for hydrocarbon plays.