

## **Hydrocarbon charge modelling in the Jeanne D'arc Basin: status, plans, results and implications**

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Hydrocarbons are distributed throughout sedimentary basins in response to unique combinations of physical, chemical and geologic/tectonic processes. Semi-quantitative to quantitative reconstructions of such processes through basin modelling increases our understanding of these petroleum systems. This provides a powerful petroleum exploration method which finds maximum utility when used with other tools such as 3-D seismic interpretation. The level of sophistication of basin modelling ranges from relatively simple, single point (often a well) 1-D reconstructions of burial, thermal and maturity histories, to fully integrated, dynamic, multiphase migration models in 2-D. The Hydrocarbon Charge Modelling Project (HCMP) is tasked with developing genetic models of hydrocarbon occurrence within Canada's offshore east coast frontier basins. The

program of research is executed through an association between the Geological Survey of Canada (Atlantic Geoscience Centre - AGC and Institute of Sedimentary and Petroleum Geology - ISPG), several petroleum exploration and production companies, Dalhousie University Department of Earth Sciences and NSERC. The development of genetic models of the generation, expulsion, migration and accumulation of petroleum will assist in efforts to assist the remaining undiscovered resource and define the major geological risks and uncertainties associated with further frontier exploration and production. Two-dimensional, multiphase fluid migration models are presented for test lines in the Jeanne D'Arc Basin and indicate several phases of expulsion/migration and accumulation.