

The petroleum geology of the Moroccan basins facing Nova Scotia

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Some 850 km of Morocco's Atlantic margin between Cap Beddouza (Safi) and Cap Juby (Tarfaya) face Nova Scotia. From north to south, the offshore Safi and onshore Essaouira basins (total discovered reserves 82 BCF and 5.5 MMBO/C) lie opposite the producing Sable Island portion of the Scotian Basin, the offshore Agadir and onshore Souss basins tie with the Emerald Basin and the Tarfaya Basin (heavy oil development) is the conjugate of the Mohawk Graben Complex. The Tafelney Plateau separates the Safi and Agadir basins. Many aspects of the geology of the facing region of coastal Morocco are analogous to those of Nova Scotia. Atlas Mountain tectonism complicates correlations in the Agadir and Souss regions, though the localised events there are creating new play opportunities. Overall, five play phases are recognised. From the base upwards, these involve: 1) the Predrift (Hercynian and older) succession, 2) the initial rift (mainly Triassic) succession, 3) the initial drift succession (Jurassic carbonate dominated), 4) the main drift succession (Cretaceous and older Tertiary clastics) and 5) the compressionally influenced succession (younger Tertiary). Existing production and development are associated with play phases 1), 2) and 3). New understanding driven by the pursuit of basin dynamics through time is identifying the risks associated with the two youngest and also minimally explored play phases. Considerable potential is emerging. Combination of this growing insight with the established play controls of the Scotian Basin will further progress Moroccan understanding. In turn, Nova Scotia will gain from access to Moroccan 'state-of-the-art' knowledge.