

The large Atlantic-margin basins contain important frontier exploration targets. The basins are underlain at the margins by normal crust while in the central parts of some of the basins the sedimentary succession is underlain by differentially-stretched ultra-thin continental crust. This project focuses primarily on the sedimentary response and resulting basin-scale architecture, and especially on comparisons and identification of differences in sedimentary timing and style between conjugate margins. Using existing extensive high-quality wide-angle seismic data from the Irish and the Eastern Canadian offshore, integrated with regional normal-incidence industry reflection data, we are developing and testing models of the sedimentary response to crustal hyperextension.

Figure 1. Bathymetric map showing the Atlantic Margins of Ireland and East Canada. The locations of the profiles show in this poster are indicated by dashed red lines. GB: Grand Banks; GS: Global Spur; EOB: East Orphan Basin; FC: Flemish Cap; HaBk: Hamilton Bank; HB: Hatton Basin; HBk: Hatton Bank; HoB: Hopedale Basin; JAB: Jeanne d'Arc Basin; NB: Newfoundland Basin; OK: Orphan Knoll; PB: Porcupine Basin; PH: Porcupine High; RB: Rockall Basin; RBk: Rockall Bank; SB: Saglek Basin; SAB: Sant Anthony Basin; WOB: West Orphan Basin.

The Irish Margin

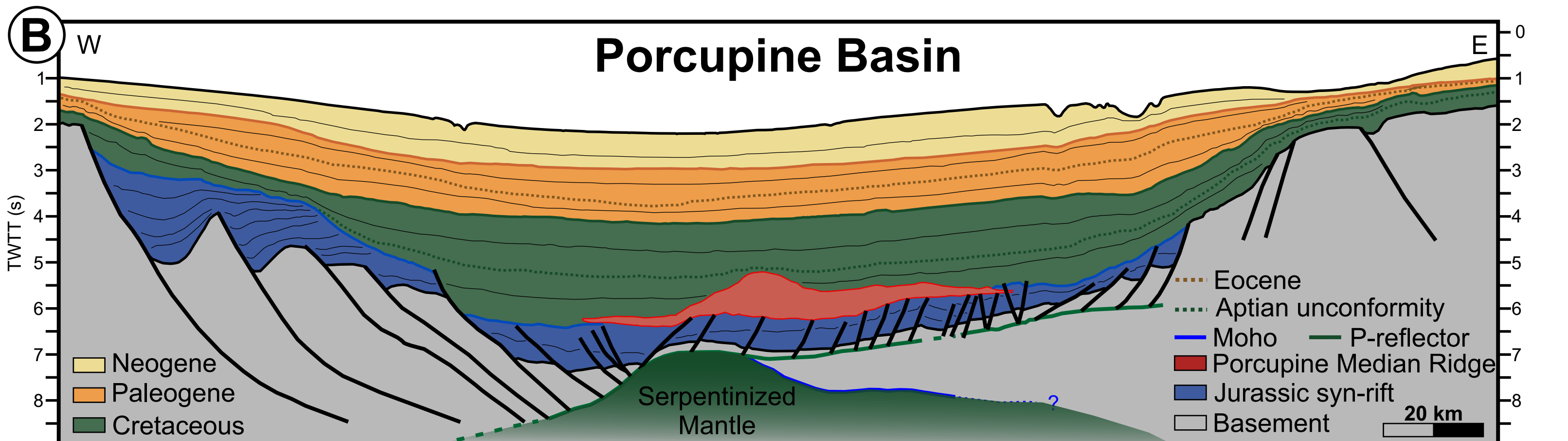
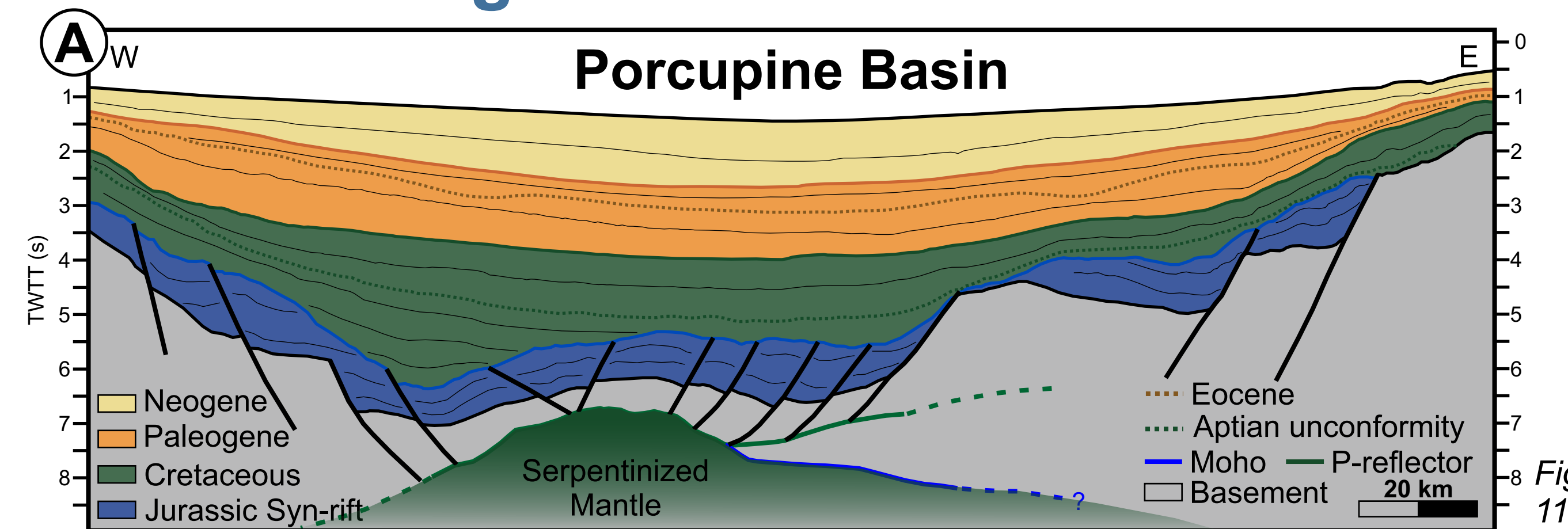


Figure 2. Tectono-stratigraphic cross-sections across the Porcupine Basin, based on seismic lines SPB97-101 (A) and SPB-113 (B) after McDonnell & Shannon (2001), Spence & MacTiernan (2001), Reston, et al. (2004) and Prada et al. (2017). See Figure 1 for location.

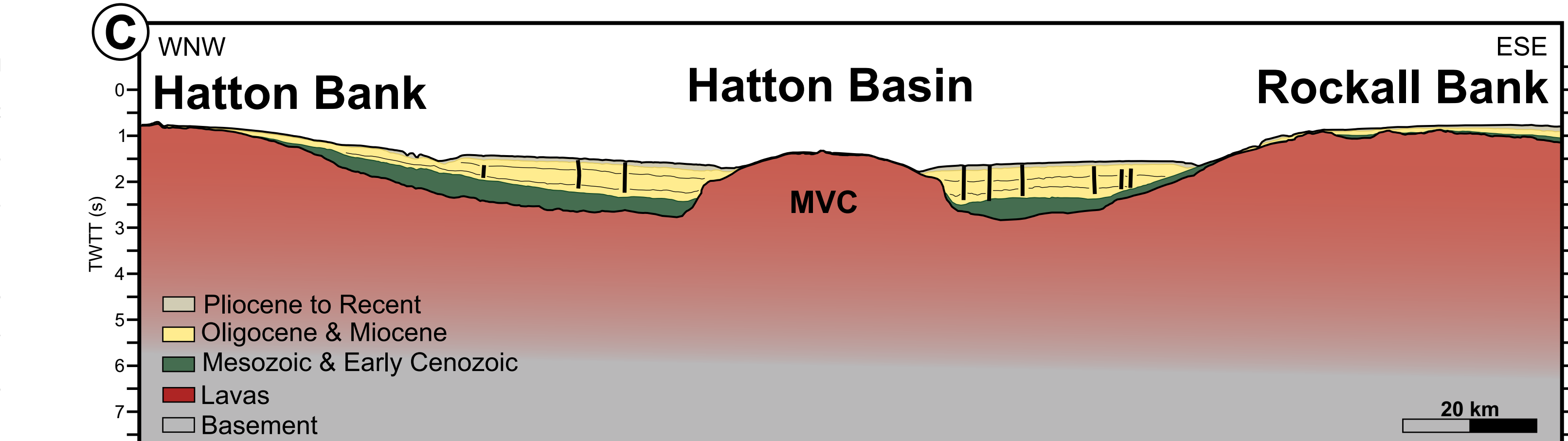
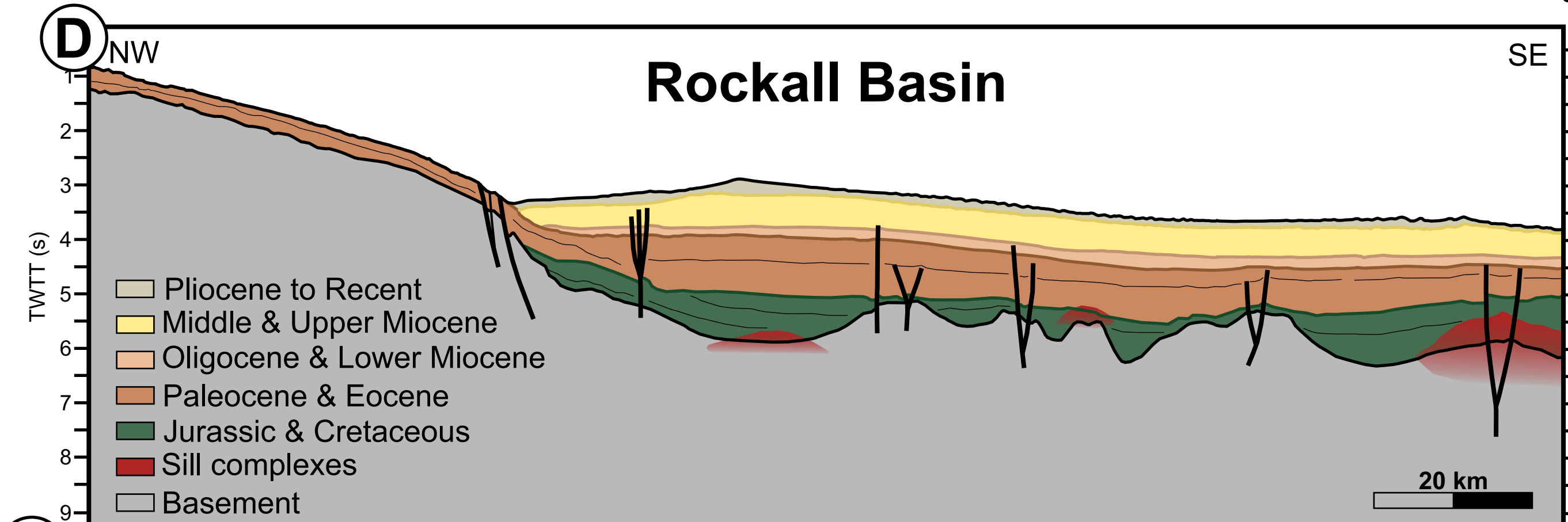
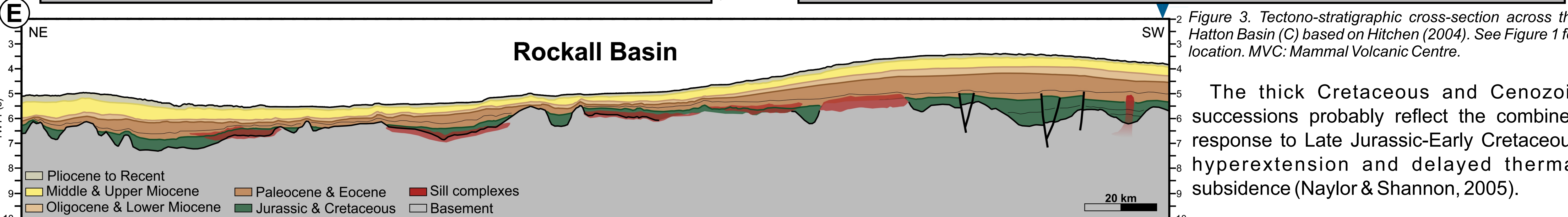


Figure 3. Tectono-stratigraphic cross-section across the Hatton Basin (C) based on Hitchen (2004). See Figure 1 for location. MVC: Mammal Volcanic Centre.



The thick Cretaceous and Cenozoic successions probably reflect the combined response to Late Jurassic-Early Cretaceous hyperextension and delayed thermal subsidence (Naylor & Shannon, 2005).

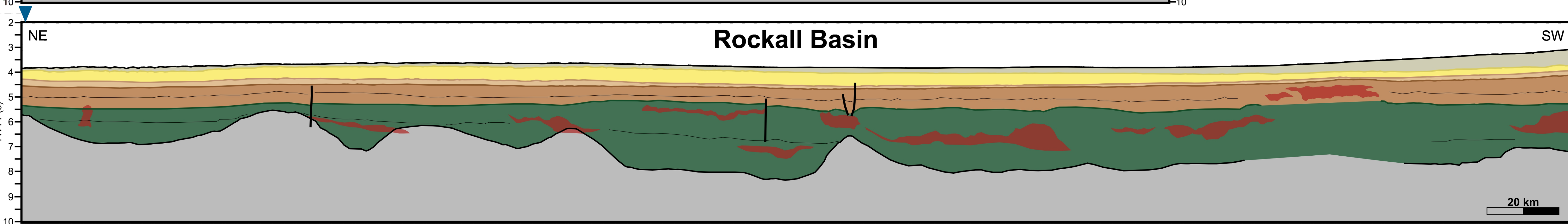


Figure 4. Tectono-stratigraphic cross-sections across (D) and along (E) the Rockall Basin based on PAD14-11 and PAD13-29 (respectively) after Spencer & MacTiernan (2001), McDonnell & Shannon (2004), Morewood et al. (2004), and Naylor & Shannon (2011). See Figure 1 for location.

The Canadian Margin

Geoseismic profiles highlight the thinning of Cretaceous succession, the presence of a thick Jurassic sequence and of salt in the Jeanne d'Arc Basin, reflecting differences in the rifting processes and responses in the conjugated Atlantic basins.

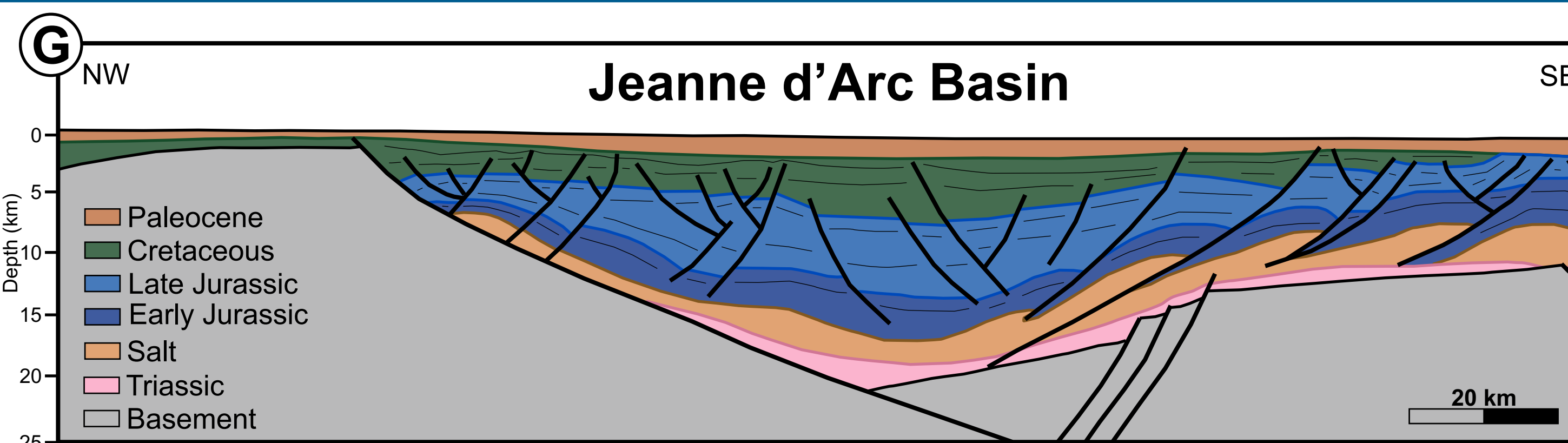
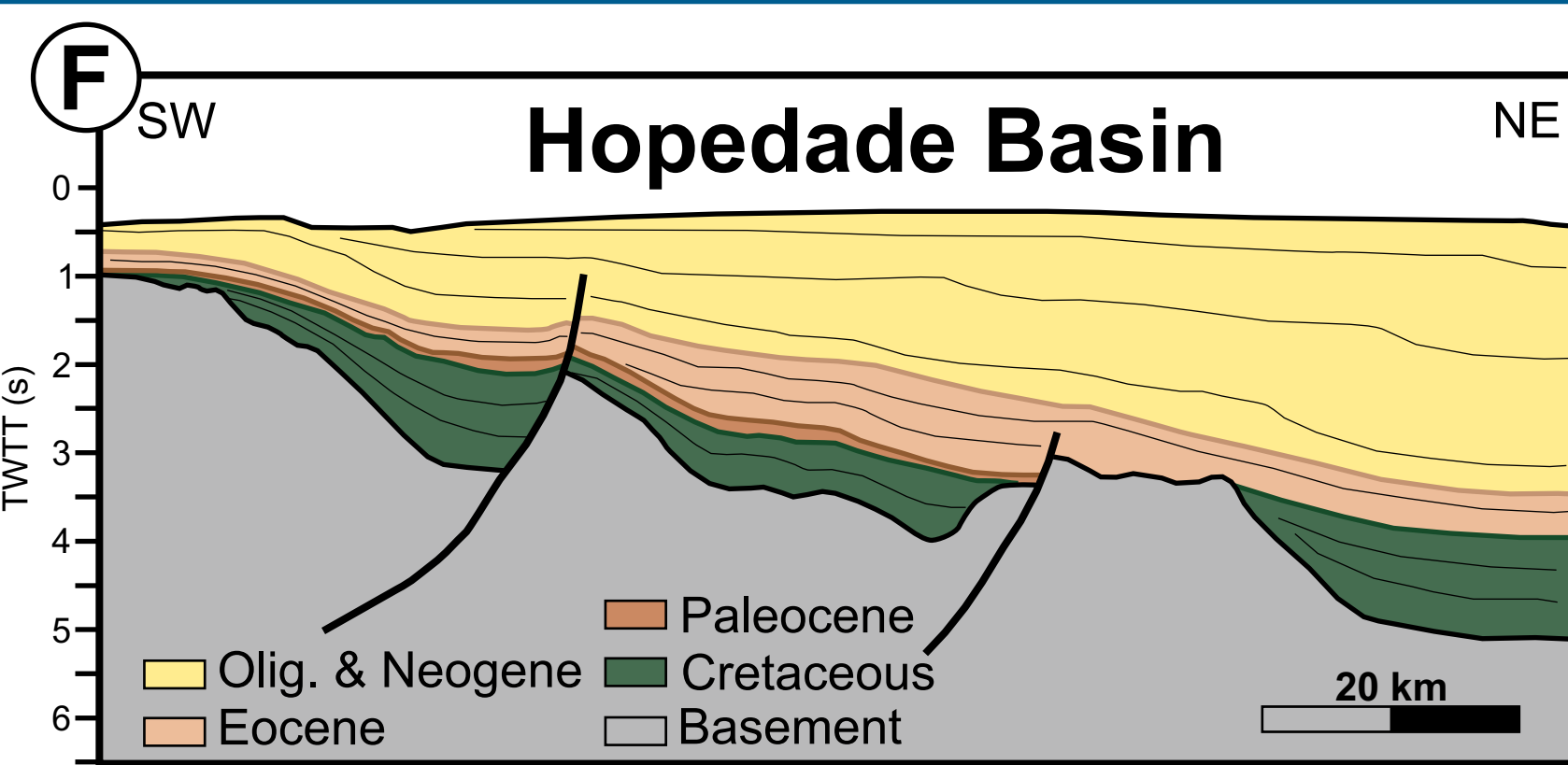
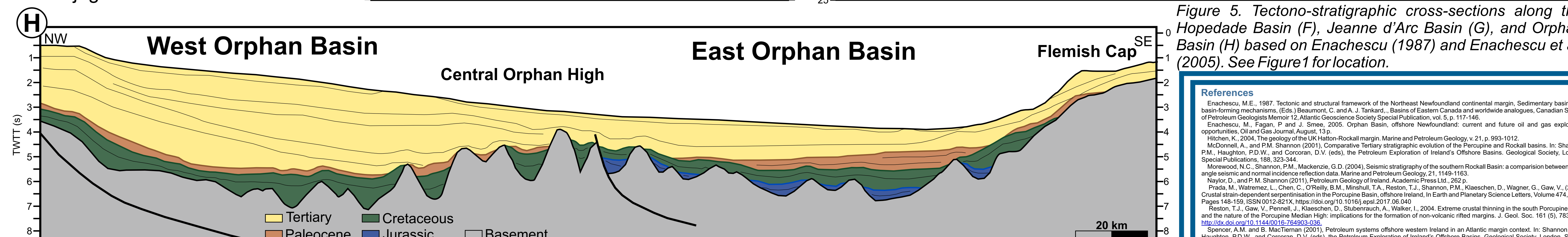


Figure 5. Tectono-stratigraphic cross-sections along the Hopedale Basin (F), Jeanne d'Arc Basin (G), and Orphan Basin (H) based on Enachescu (1987) and Enachescu et al. (2005). See Figure 1 for location.



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