

**Problems of vitrinite reflectance in Scotian Basin and its relation to overpressuring and hydrocarbon generation**

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Vitrinite reflectance, one of the most useful paleogeothermometers, is often oversimplified resulting in confusion in the solution of important geological problems. The fundamental problem lies in the selection of vitrinite grains and lack of knowledge about the kinetics of vitrinite reflectance related to heat flow and thermal conductivity. In the Scotian Basin, composite profiles of vitrinite reflectance were compiled from thirty boreholes chosen from various locations. These data suggest that the "oil window" as considered from the vitrinite reflectance, is

related to sedimentary facies, organic facies, erosional unconformity, and overpressuring. The base of the 'oil window' varies between 4400 to 5700 m. A 'kink' in the vitrinite reflectance profile possibly relates to the initial depth to the top of overpressure. In the overpressured zone, where organic matter is overmature or at the base of the 'oil window', fluorescence of phytoclasts and groundmass bitumen indicates the presence of 'liver oil'. This concept may indicate the presence of more 'deep condensate' in the Scotian Shelf.