# Seismic Imaging of Major Unconformities and Disconformities in the Beaufort-Mackenzie Basin of the Canadian Arctic

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The Beaufort-Mackenzie sedimentary Basin has experienced a long-term geodynamic history beginning in the Proterozoic and continuing into the Present. This evolution has included multi-stage rifting, transtension, compression and transpression that resulted in times of rapid subsidence and proximal-margin peneplaning.

The structural deformation of the sedimentary prism within the Beaufort Mackenzie Basin increases north and westward due to mid-Tertiary extensional and compressional events. Several major tectono-stratigraphic cycles have been identified using multiple techniques including: field outcrop mapping, industry drilling and regional seismic data.

Advances in seismic data acquisition and processing over the past two decades provides better imaging of the major unconformities and disconformities within the Beaufort-Mackenzie Basin, both onshore and offshore. This new data, in turn, allows for an improved definition of the major tectono-stratigraphic cycles, the recognition of new unconformities/disconformities and the fine tuning of seismic-stratigraphic sequences.

Increased understanding of these unconformities and disconformities will allow for better calibration of exploration play types, burial histories and petroleum systems modelling as exploration in the Beaufort-Mackenzie Basin continues further offshore and deeper in the sedimentary column.