Regional Assessment of Seabed Geohazard Conditions
Canadian Beaufort Outer Shelf and Upper Slope: Legacy Data Synthesis
Small differences between traced lines of the slump scarps between years are within resolution limits of the imagery and DO NOT indicate slope movements. Thus between 2006 and 2009 the IKIT slump is interpreted to have been stable.
As sea level rose, iceberg scouring on the upper slope ceased at ~12,000 years BP. Sea ice scouring began on the Beaufort Shelf. Stratified glacimarine sedimentation continued on the slope, pinching out near the shelf edge (Unit 2). Downslope meltwater flow eroded Kugmallit Channel which incised the sea floor in water depths >10 m. Transition from stratified glacimarine to marine sedimentation continued on the shelf edge eroded by storm wave/current action during transgression and subsequently by the modern shelf margin jet. Continued transgression of the Beaufort Shelf, with Unit A marine muds deposited.

The LIS has retreated fully from the Mackenzie River catchment and meltwater inputs on the seabed in water depths >10 m. Transition from stratified glacimarine to marine sedimentation continued on the shelf edge eroded by storm wave/current action during transgression and subsequently by the modern shelf margin jet. Continued transgression of the Beaufort Shelf, with Unit A marine muds deposited.

Continued transgression of the Beaufort Shelf, with Unit A marine muds deposited.

Stratified marine sedimentation continued on the slope (Unit 1), pinching/thinning out near the shelf edge.

Stratified glacimarine and marine sediments on the shelf edge eroded by storm wave/current action during transgression and subsequently by the modern shelf margin jet. Continued transgression of the Beaufort Shelf, with Unit A marine muds deposited.

Eventually, continued expansion of the LIS (Murton et al. 2007) likely caused local glacioisostatic depression of the crust, resulting in flooding of the central Beaufort Shelf and deposition of glacimarine muds (Unit D of Hill et al. 1985).