

On the evolution of glaciated continental margins

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Glaciated continental margins at both northern and southern high-latitudes are areas of repeated shelf-wide glaciations. Their evolution are in several aspects different from their low-latitude counterparts where eustatic sea-level variations possess a fundamental control and where fluvial systems provide the main sediment input. From studies of the Norwegian – Barents Sea – Svalbard and NE Greenland continental margins we propose the following factors as the main control on the evolution of glaciated continental margins: 1) Continental margin morphology including both pre-glacial and glacial relief controlling accommodation space and influencing sediment routing on long timescales, 2) Ice sheet glaciology including the location of fast-flowing ice streams where source area morphology exerts a fundamental control, 3) Composition of the glacial sediments, e.g. the importance of clay content, and 4) Sea-level controlled both by eustasy and isostasy. From three case studies (western Barents Sea, north and mid-Norwegian margin) the influence on these factors on the sea-floor morphology, sedimentary processes (continental slope to deep sea) and continental margin architecture will be discussed.