Glaciated continental margins, continental margins where a grounded ice sheet repeatedly has been at or near the shelf break, are found at both northern and southern high-latitudes. Their evolution are in several aspects different from their low-latitude counterparts where eustatic sea-level variations possess a fundamental control on their evolution 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) Pre-glacial relief controlling the accommodation space, 2) Ice sheet glaciology including the location of fast-flowing ice streams where source area morphology exerts a fundamental control, 3) Composition of the glacigenic sediments where the clay content in previous studies have been found to be important, and 4) Sea-level controlled both by eustacy and isostacy. From three case studies, 1) the western Barents Sea, 2) part of the North Norwegian (Troms), and 3) the Mid-Norwegian margin, the influence on these factors for the sea-floor morphology, sedimentary processes of the continental slope – deep sea and continental margin architecture are discussed. The pre-glacial relief of the mid-Norwegian and Troms margins relates to the onset of rifting and plate break-up from the early Cenozoic while for the SW Barents Sea, plate shear was followed by rifting. A wide zone of extended continental crust occurs offshore mid-Norway while this zone is much narrower offshore Troms leading to a more pronounced pre-glacial relief. Regarding sediment delivery and ice sheet glaciology the western Barents Sea exemplifies very high sediment input corresponding to an estimated average erosion of the source area of \( \sim 0.4 \text{ mm/yr} \) (SW Barents Sea), much of which is related to subglacial erosion of Mesozoic – Cenozoic sedimentary rocks from large paleo-ice streams. The mid-Norwegian margin has experienced a high sediment input from paleo-ice streams equal to an average erosion of 0.16 mm/yr in a source area dominated by crystalline rocks while the Troms margin experienced markedly lower input, \( \sim 0.03 \text{ mm/yr} \) of erosion of crystalline rocks in an low-ice-flow sector of the Fennoscanian Ice Sheet. The slope gradient of the areas of high sediment input, the SW Barents Sea slope and the mid-Norwegian margin is mostly \( \sim 1 \) degree or less and dominated by large glacigenic debris flow deposits, outside Troms the slope is much steeper, up to 15 degrees. Here the relief includes gully-channel systems formed by turbidity currents. Off the western Barents Sea the development of large trough-mouth-fans is related to the spatial stability of paleo-ice streams over repeated peak glacials, offshore Troms smaller trough-mouth-fans implies spatially stable paleo-ice streams also here while more unstable paleo-ice streams was one of the main factors that led to the development of a prograding wedge offshore of mid-Norway. All areas have been affected by small- and large-scale submarine landslides. From a detailed study of the NW Barents Sea margin the deposits from these processes were found to represent up to one quarter of the total volume of sediments.