



Quaternary glacial landystems


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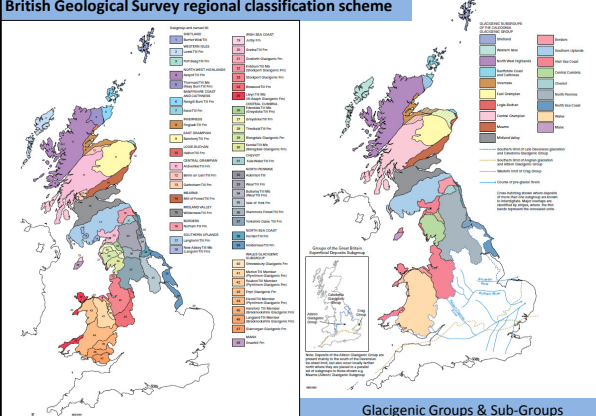


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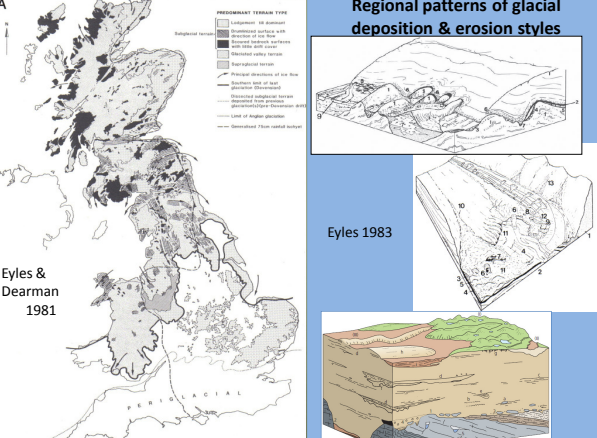
British Geological Survey regional classification scheme



Glacigenic Groups & Sub-Groups

Caledonia Glacigenic Group – till formations

Regional patterns of glacial deposition & erosion styles

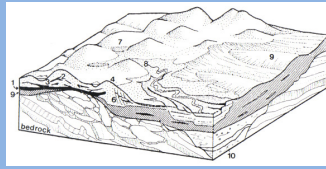


Eyles & Dearman 1981

Eyles 1983

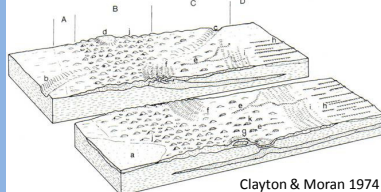
What is a glacial landsystem?

- Landsystem:** - area of common terrain attributes, different from those of adjacent areas, in which recurring patterns of topography, soils & vegetation reflect the underlying geology, past erosional & depositional processes, & climate



Eyles 1983

- Process-form model:** - conceptual model that emphasizes the genetic interrelationships of specific landform-sediment associations at both local & regional scales in terms of known process & form linkages



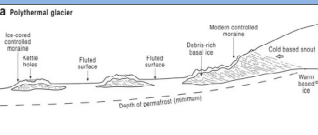
Clayton & Moran 1974

Glacial landsystem – concept development


- 1970s-1980s = styles of glaciation (i.e. *subglacial, supraglacial, glaciated valley landsystem*; e.g. Eyles 1983)
- 1990s to present = continuum of glaciation styles & dynamics (i.e. *surging glacier, ice stream, plateau icefield* etc; e.g. Evans 2003)

⇒ Relative importance of thermal regime & topography

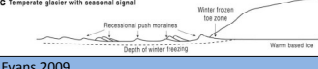
A Polythermal glacier



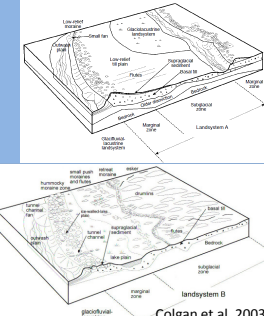
D Polythermal glacier with seasonal-decadal signal



C Temperate glacier with seasonal signal



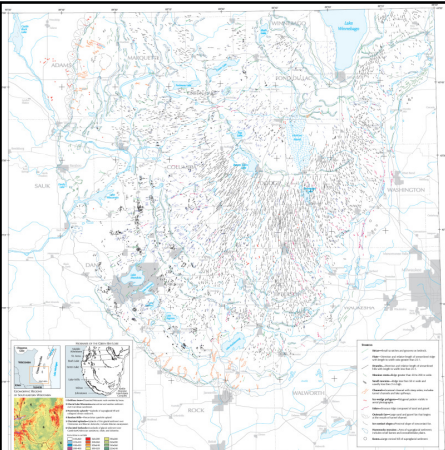
Evans 2009



landsystem A

landsystem B

Colgan et al. 2003



- Colgan et al. 2003
- Green Bay Lobe:** - change from cold based to warm based conditions during ice retreat
- = gradual marginal & sub-marginal permafrost degradation during early deglaciation
- ⇒ increasingly abundant subglacial meltwater & more significant amounts of basal sliding & drumlinization
- ⇒ surging activity

