

Cross-section A to A' Northeastern Ellesmere Island (northern Nunavut) via Hans Island to Washington Land (Northwest Greenland)

NORTHWESTERN PART OF THE MAP ON NORTHEASTERN ELLESMERE ISLAND (sources: Dewing et al., in press; Harrison et al., 2007; Mayr et al., 2007)

PALEOGENE (SILURIAN AND DEVONIAN)

PEYRA TERRANE
 T₁ - T₂ - T₃
 Cape Lawrence Formation: interbedded conglomerate, sedimentary breccia and sandstone, conglomerate thick-bedded to massive, boulder to granite grade, clasts of limestone, dolomite and minor sandstone; weathers reddish brown; red symbology; offshore.

SILURIAN AND DEVONIAN
 Upper Silurian and Lower Devonian (LUDOV)
 S₁ - S₂ - S₃
 Danian River and Edla Formations (undivided); red symbology; offshore.

LOWER SILURIAN (LANDOVERY AND WENLOCK)
 S₄ - S₅
 Cape Phillips Formation: thin to very thin bedded black mudstone, greenish, interbedded with calcareous dolomite and limestone; part of formation; interbeds of brown siltstone in upper part of formation; map locally certain strata of Upper Ordovician age at the base; red symbology; offshore.

ORDOVICIAN AND SILURIAN
 O₁ - O₂
 Allen Bay Formation: medium-bedded limestone, fossiliferous, argillaceous and nodular; lime mudstone and wackestone, burrow mottles; weathers massive, grey-green often above as a cracker bed; red symbology; offshore.

ORDOVICIAN (ASHGILL)
 O₃ - O₄
 Allen Bay Formation: medium-bedded limestone, fossiliferous, argillaceous and nodular; lime mudstone and wackestone, burrow mottles; weathers massive, grey-green often above as a cracker bed; red symbology; offshore.

MIDDLE AND UPPER ORDOVICIAN (CARADOC AND ASHGILL)
 O₅ - O₆
 Cape City Formation: medium- to thick-bedded limestone, lime mudstone and wackestone with burrow mottles, calcareous and minor fat pebble conglomerate; intervals of thick bedded stromatolite boudinages, and quartz sands at the base; formation weathers very resistant; red symbology; offshore.

LOWER AND MIDDLE ORDOVICIAN (ARENG TO CARADOC)
 O₇ - O₈
 Buller's Lamp Formation: limestone and dolomite, fenestral mudstone, medium to thick bedded, weathers pale grey and relatively resistant; interstratified granitoid and calcareous, thick bedded to massive, weathers pale grey to pale yellowish brown and resistant, dominant in upper part of formation.

LOWER ORDOVICIAN (TREMADOC)
 O₉ - O₁₀
 Nuvua Glacier Formation: interbedded lime mudstone and dolomite, laminated to thin bedded, abundant shallow-water sedimentary structures; interbeds of calcareous and fat pebble conglomerate; age-equivalent northwestern facies of the Christian Bay and Sumner Bay Formations.

EDIACARAN TO SILURIAN
 E₁ - E₂
 Undivided; mostly resistant; weathers off-white to in the hanging wall of thrusts located under Kennedy Channel and close to the Ellesmere coast; red symbology; offshore.

CAMBRIAN AND ORDOVICIAN
 C₁ - C₂
 Case Fjord Formation: middle and upper members; interbedded thin bedded limestone and dolomite; thrombolitic and stromatolitic boudinages and abundant stromatolitic conglomerate; yellow, cross-bedded sandstone in upper part; purple colored intervals in lower part; map unit weathers massive; red symbology; offshore.

MIDDLE CAMBRIAN
 C₃
 Case Fjord Formation, lower member (Franklin Glacier beds): interbedded limestone and dolomite, medium- and thin bedded, burrow mottles, laminated, fat pebble conglomerate; purple colored intervals; unit weathers moderately resistant; red symbology; offshore.

LOWER CAMBRIAN
 C₄ - C₅
 Sorensen Bay Formation: thick bedded, calcareous dolomite, medium crystalline, some limestone in lower part; formation weathers yellow-orange and resistant; red symbology; offshore.

ELLESMERE GROUP (E₆ - E₇)
 E₆ - E₇
 Kane Basin Formation: well-sorted sandstone and siltstone; sandstone fine to coarse grained, thin bedded, laminated; minor mudstone in lower part; weathers distinctly dark and massive; red symbology; offshore.

DALES BAY FORMATION
 D₁
 Dales Bay Formation: thin to thick bedded quartz sandstone, medium grained, fine to coarse grained, cross-bedded, scabbled burrows, weathers light grey to pink; intervals of thin bedded siltstone, yellow to rusty weathering; interbeds of dark grey mudstone; red symbology; offshore.

RITTER BAY FORMATION
 R₁
 Ritter Bay Formation: dark grey shale and siltstone, locally silty, laminated; formation weathers dark and massive; red symbology; offshore.

UPPER EDIACARAN
 E₈
 Case Fjord Formation, upper part: dolomite, coarsely crystalline, thick bedded, conchoidal, brecciated, weathers yellowish grey to light grey and resistant; middle part: siltstone, psyllite, weathers massive brown, resistant; lower part: dark grey shale and siltstone, interbeds of calcareous, stromatolitic and thrombolitic; weathers dark grey; massive; red symbology; offshore.

UPPER EDIACARAN
 E₉
 Kennedy Channel Formation: interbedded siltstone and siltstone laminated, black and dark grey, weathers surfaces carry a white sulphate precipitate; minor interbedded sandstone; formation weathers massive.

NORTHEAST ELLESMERE ISLAND, OFFSHORE AND CENTRAL PART OF MAP (sources: Dewing et al., in press; Harrison et al., 2007; Hurst, 1980; Daves, 2004; Mayr et al., 2007)

PALEOGENE (SILURIAN AND DEVONIAN)

PEYRA TERRANE
 T₁
 Cape Lawrence Formation: interbedded conglomerate, sedimentary breccia and sandstone, conglomerate thick-bedded to massive, boulder to granite grade, clasts of limestone, dolomite and minor sandstone; weathers reddish brown; red symbology; offshore.

SILURIAN AND DEVONIAN
 Upper Silurian and Lower Devonian (SIL)
 S₁ - S₂
 Danian River and Edla Formations (undivided); red symbology; offshore.

LOWER SILURIAN TO UPPER SILURIAN
 S₃ - S₄
 Cape Schuchert and Lafayette Bay Formations, undivided; distal carbonate slope facies including black argillaceous shale, lime mudstone, chert, limestone conglomerate and thin granitoid beds (correlative with the Cape Phillips Formation on central Ellesmere Island); red symbology; offshore.

LOWER SILURIAN TO UPPER SILURIAN
 S₅ - S₆
 Palmer Hills, Kap Godthaab Hansen, Basalts Fjord and Offry Island Formations: slope and platform facies carbonates including carbonate boulders; red symbology; offshore.

ORDOVICIAN AND SILURIAN
 O₁ - O₂
 Allen Bay Formation, carbonate bulkup (lower part): includes beds correlative with parts of the Heuge Bjerge, Offry Island and Postema Bjerge Formations of Washington Land; red symbology; offshore.

LOWER SILURIAN TO UPPER SILURIAN
 S₇ - S₈
 Pentamerus Bjerge and Heuge Bjerge Formations: isolated and amalgamated carbonate bulkup deposits; slope facies carbonates; interbedded lime mudstone, granitoid and shale; red symbology; offshore.

ORDOVICIAN AND SILURIAN
 O₃ - O₄
 Attagilt Bay Formation: cliff-forming nodular burrow-mottled limestone, wavy fine grained or fossiliferous, extensively dolomitized, petrofluoritic chert (correlative with the Upper Allen Bay Formation of eastern Ellesmere Island); red symbology; offshore.

ORDOVICIAN
 O₅ - O₆
 Christen Eiv Formation: interbedded limestone and dolomite; limestone dolomite, lime mudstone with burrow mottles, calcareous and minor fat pebble conglomerate; locally abundant thrombolites; dolomite, finely crystalline, quartz sandstone, white, fine grained and thin bedded; red symbology; offshore.

LOWER ORDOVICIAN
 O₇ - O₈
 Buller's Lamp Formation: limestone and dolomite, fenestral mudstone, medium to thick bedded, weathers pale grey and relatively resistant; interstratified granitoid and calcareous, thick bedded to massive, weathers pale grey to pale yellowish brown and resistant, dominant in upper part of formation.

LOWER ORDOVICIAN (TREMADOC)
 O₉ - O₁₀
 Nuvua Glacier Formation: interbedded lime mudstone and dolomite, laminated to thin bedded, abundant shallow-water sedimentary structures; interbeds of calcareous and fat pebble conglomerate; age-equivalent northwestern facies of the Christian Bay and Sumner Bay Formations.

EDIACARAN TO SILURIAN
 E₁ - E₂
 Undivided; mostly resistant; weathers off-white to in the hanging wall of thrusts located under Kennedy Channel and close to the Ellesmere coast; red symbology; offshore.

CAMBRIAN AND ORDOVICIAN
 C₁ - C₂
 Case Fjord Formation: middle and upper members; interbedded thin bedded limestone and dolomite; thrombolitic and stromatolitic boudinages and abundant stromatolitic conglomerate; yellow, cross-bedded sandstone in upper part; purple colored intervals in lower part; map unit weathers massive; red symbology; offshore.

MIDDLE CAMBRIAN
 C₃
 Case Fjord Formation, lower member (Franklin Glacier beds): interbedded limestone and dolomite, medium- and thin bedded, burrow mottles, laminated, fat pebble conglomerate; purple colored intervals; unit weathers moderately resistant; red symbology; offshore.

LOWER CAMBRIAN
 C₄ - C₅
 Sorensen Bay Formation: thick bedded, calcareous dolomite, medium crystalline, some limestone in lower part; formation weathers yellow-orange and resistant; red symbology; offshore.

ELLESMERE GROUP (E₆ - E₇)
 E₆ - E₇
 Kane Basin Formation: well-sorted sandstone and siltstone; sandstone fine to coarse grained, thin bedded, laminated; minor mudstone in lower part; weathers distinctly dark and massive; red symbology; offshore.

DALES BAY FORMATION
 D₁
 Dales Bay Formation: thin to thick bedded quartz sandstone, medium grained, fine to coarse grained, cross-bedded, scabbled burrows, weathers light grey to pink; intervals of thin bedded siltstone, yellow to rusty weathering; interbeds of dark grey mudstone; red symbology; offshore.

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 Case Fjord Formation, upper part: dolomite, coarsely crystalline, thick bedded, conchoidal, brecciated, weathers yellowish grey to light grey and resistant; middle part: siltstone, psyllite, weathers massive brown, resistant; lower part: dark grey shale and siltstone, interbeds of calcareous, stromatolitic and thrombolitic; weathers dark grey; massive; red symbology; offshore.

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 Kennedy Channel Formation: interbedded siltstone and siltstone laminated, black and dark grey, weathers surfaces carry a white sulphate precipitate; minor interbedded sandstone; formation weathers massive.

WASHINGTON LAND AND EAST CENTRAL PART OF MAP (ages and descriptions from Hurst, 1980 and Daves, 2004)

SILURIAN
 Lower Silurian to Upper Silurian
 S₁ - S₂
 Danian River and Edla Formations (undivided); red symbology; offshore.

LOWER SILURIAN TO UPPER SILURIAN
 S₃ - S₄
 Cape Schuchert and Lafayette Bay Formations, undivided; distal carbonate slope facies including black argillaceous shale, lime mudstone, chert, limestone conglomerate and thin granitoid beds (correlative with the Cape Phillips Formation on central Ellesmere Island); red symbology; offshore.

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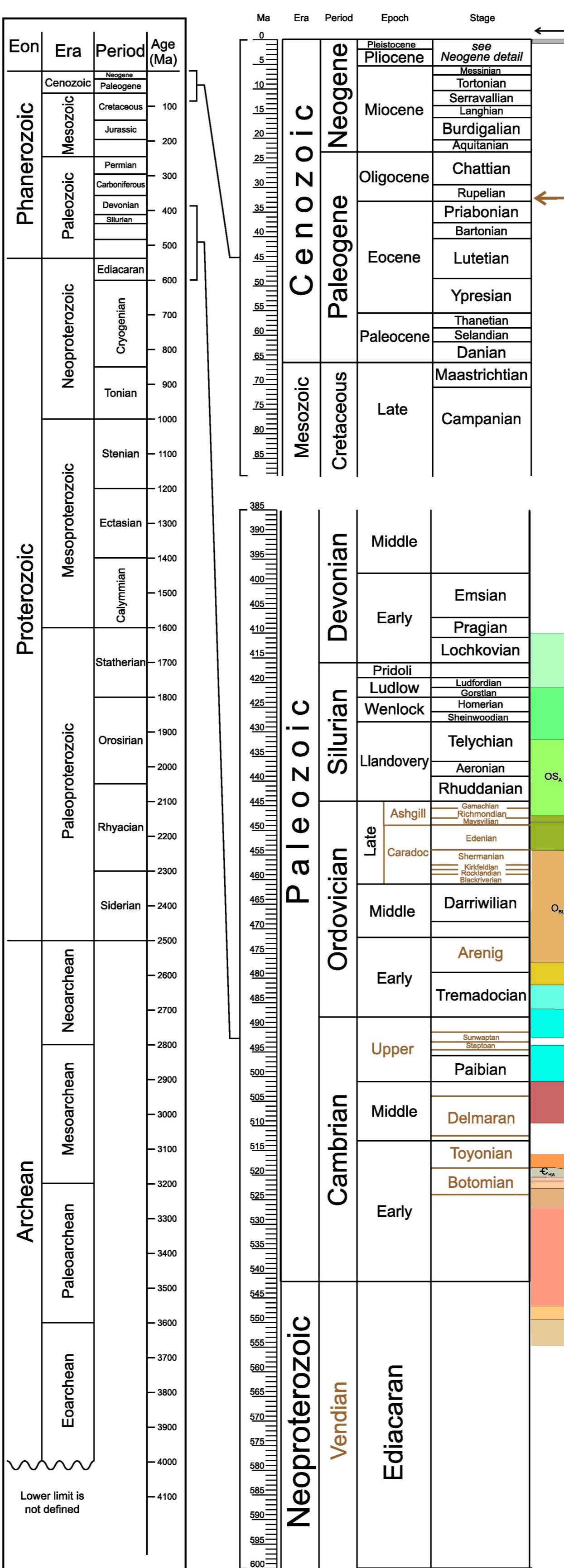
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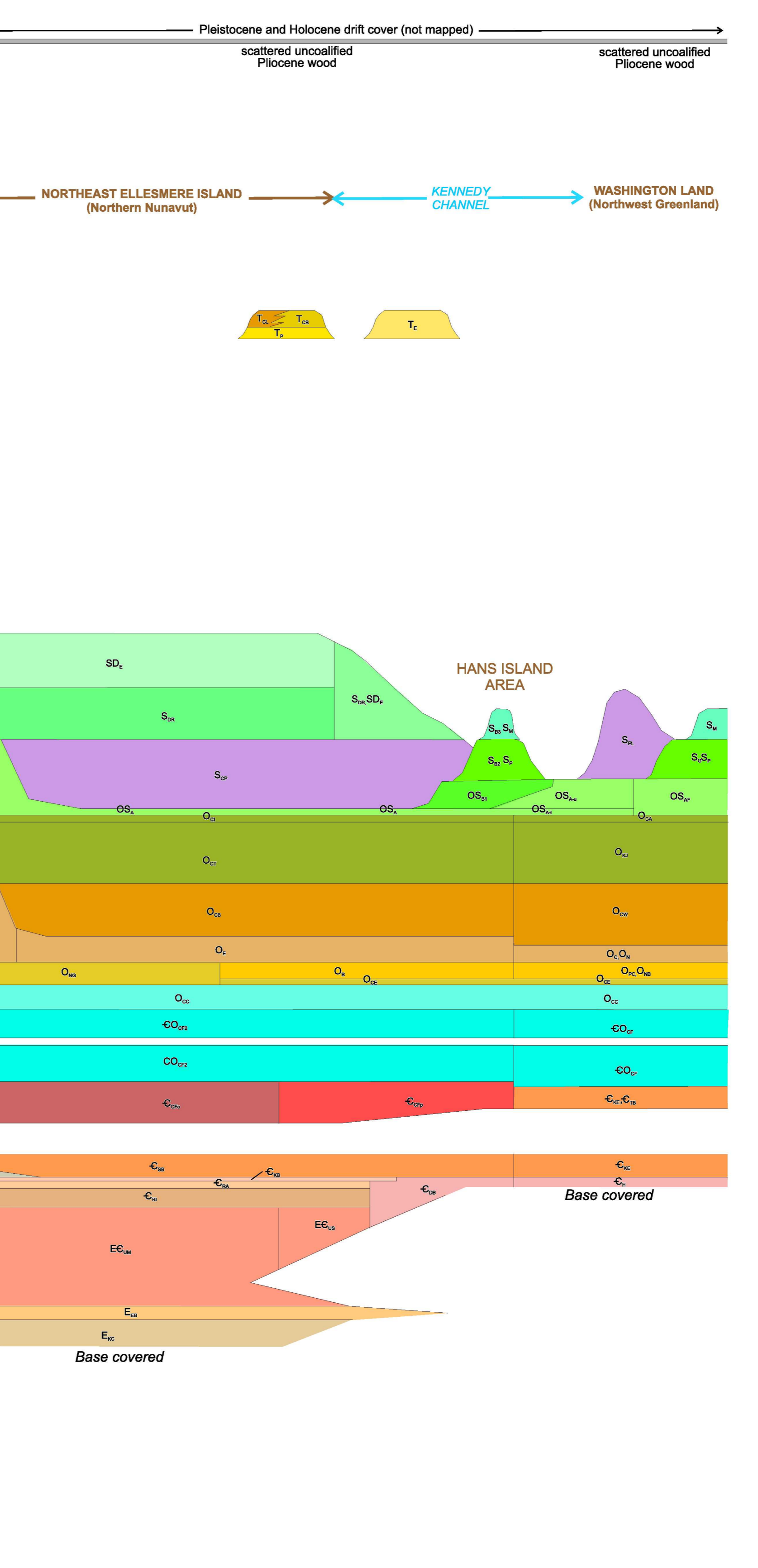


Sources: time scale of Gradstein et al., 2004 with absolute age range of non-standard terms provided by the Geowhen website (<http://www.stratigraphy.org/geowhen/geolist.html>). Age range of Hans Island region map units is compiled from de Freitas et al., 1997; Dewing et al., (2004); Dewing et al., (in press, a); Dewing and Nowlan (2004); Hurst, (1980), and Palmer and Pee (1981).

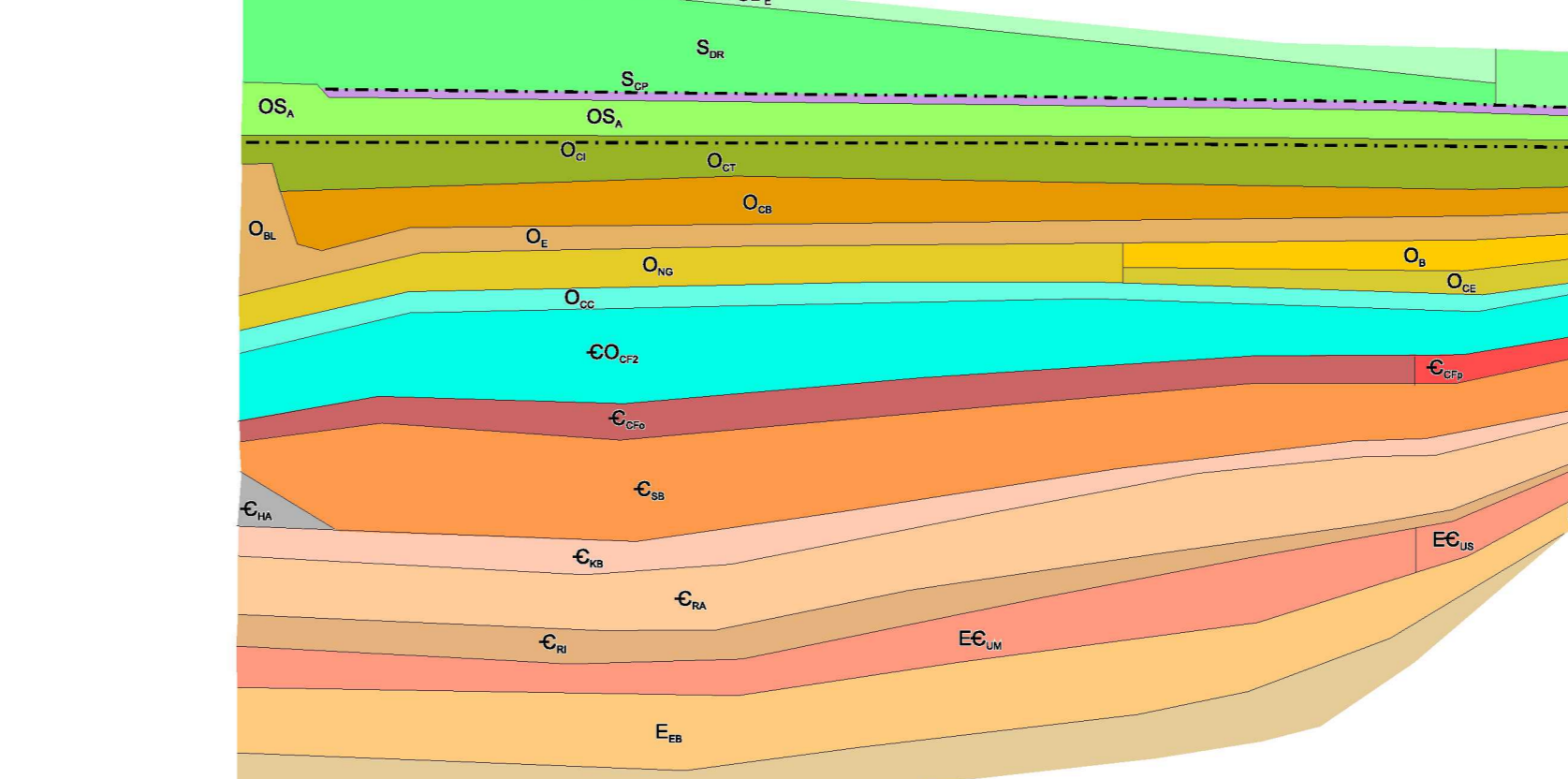
Age range of non-standard time scale terms

Term	Min age (Ma)	Max age (Ma)
Ashgill	443.7	448
Caradoc	449	460.9
Richmondian	445.6	449
Maysvillian	447.5	453
Edenian	449	454
Sherranian	454	457
Kirkfieldian	457	458
Rocklandian	458	459
Blackriverian	459	460.9
Armitg	471.8	478.6
Upper Cambrian	488.3	501
Sunwaptan	491	493
Staptian	493	494.5
Delmaran	504	512
Toyonian	513	518.5
Botomian	518.5	524
Vendian	542	650

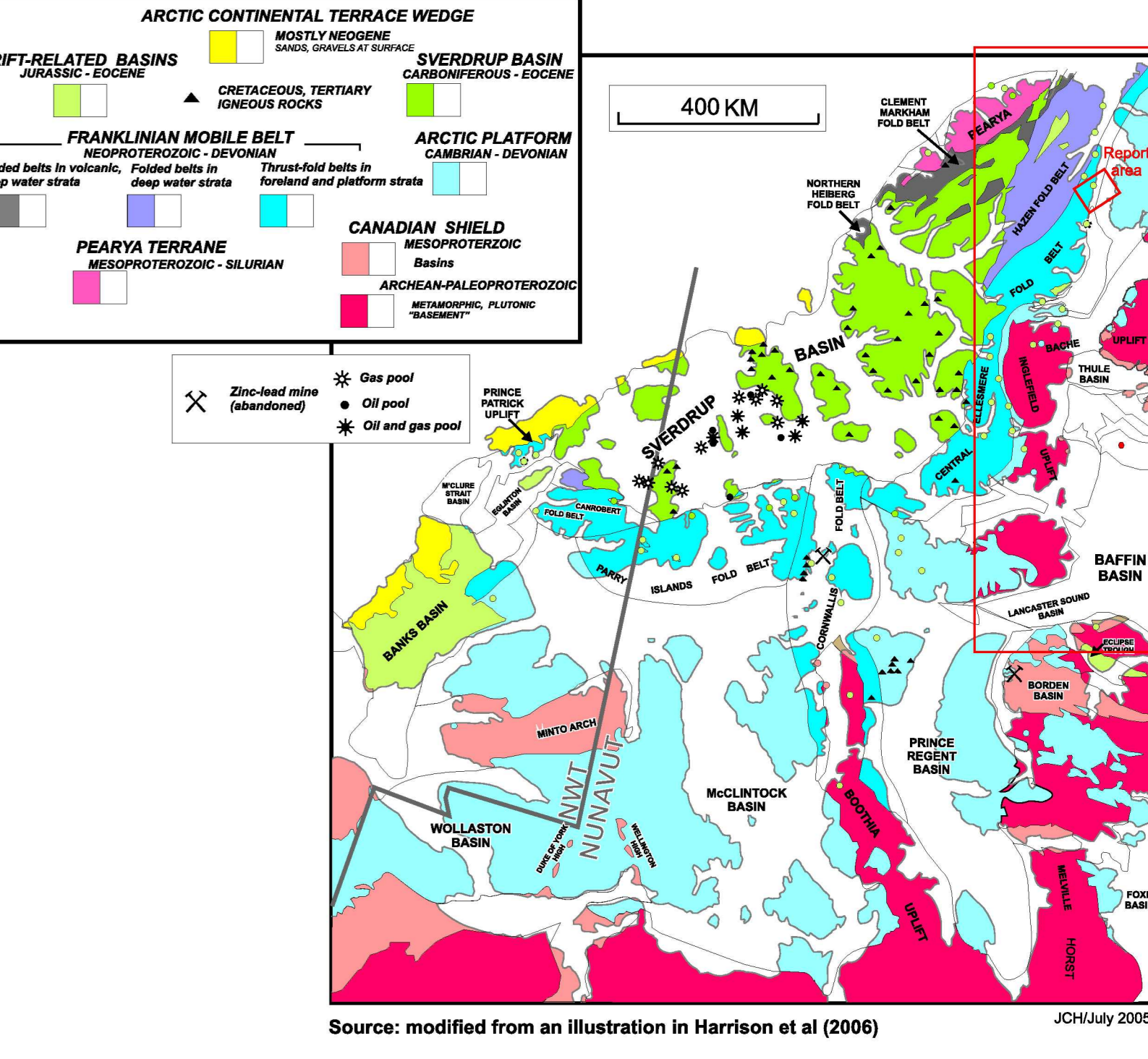
Source: <http://www.stratigraphy.org/geowhen/geolist.html>



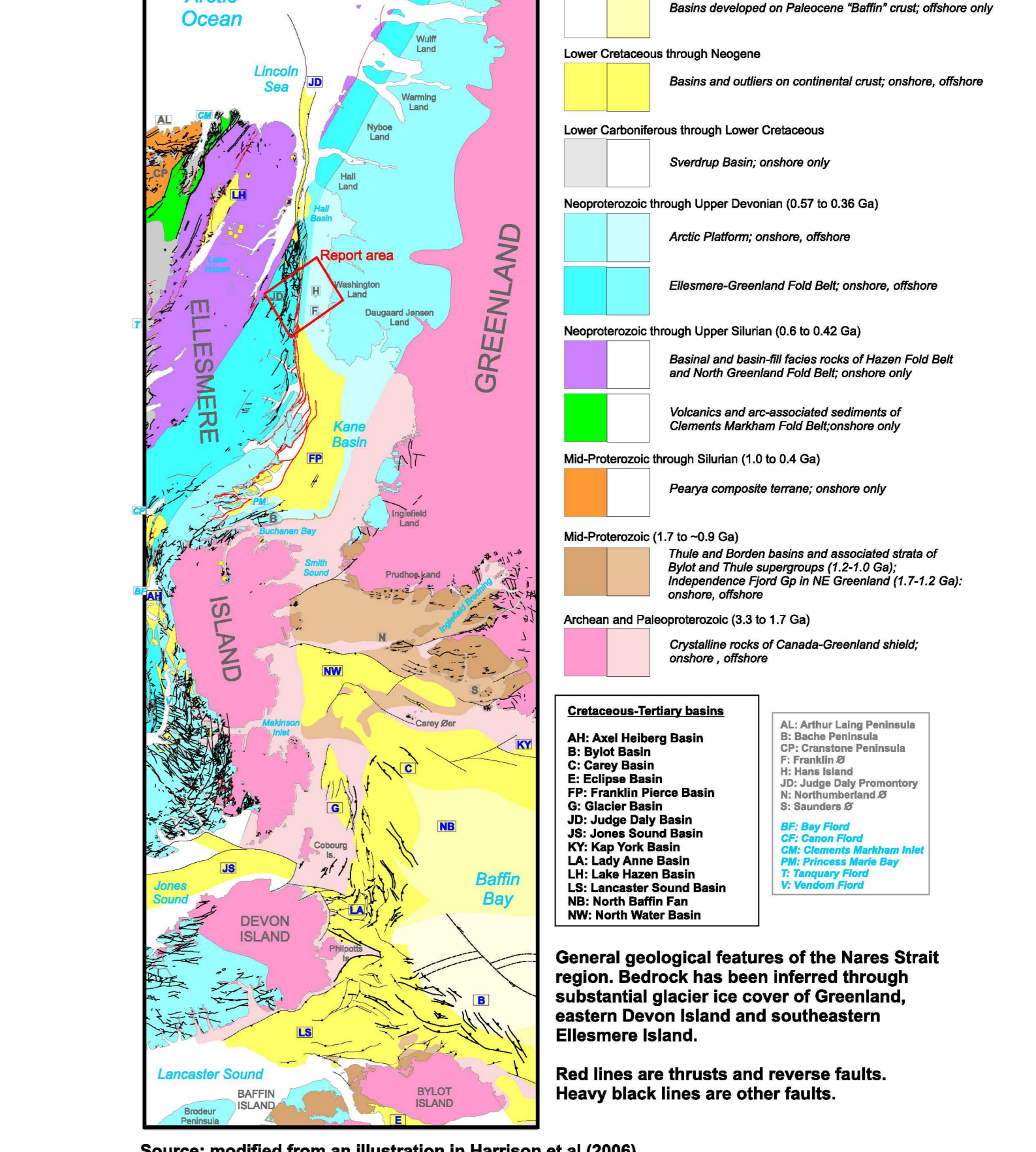
Sources: developed from a palinspastic restoration of structural cross-section A-A' (see above).



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Source: modified from an illustration in Harrison et al. (2006)



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