

Map sheets published and in preparation by the Survey.



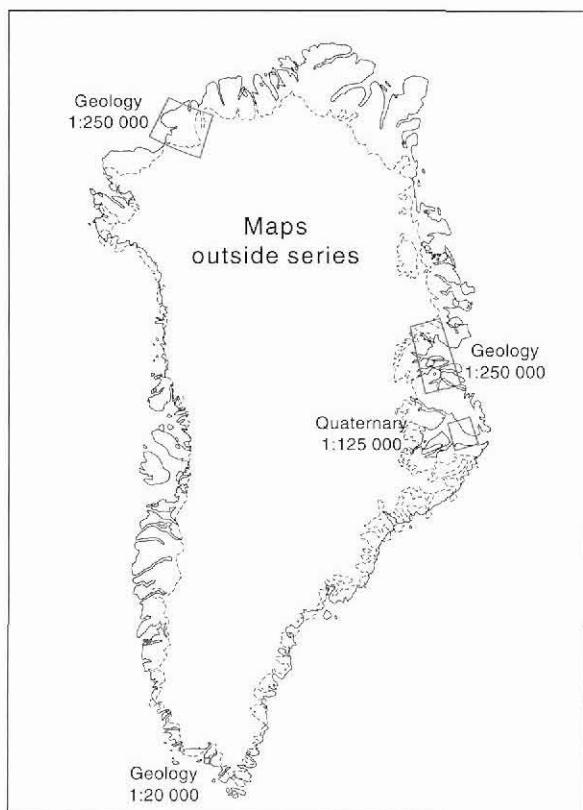
Publications of the Geological Survey of Greenland 1993

Map sheet descriptions

- 64 V.1 S Qôrput. Geological map of Greenland 1:100 000. Descriptive text. The regional geology of part of the Archaean block of southern West Greenland, including a segment of the late Archaean mobile belt through Godthåbsfjord. 1993 by V. R. McGregor. 40 pp.

Bulletins (*Bull. Grønlands geol. Unders.*)

- 164 Acritarchs from the Lower Cambrian Buen Formation in North Greenland. 1993 by G. Vidal & J. S. Peel, 35 pp.
165 Lithostratigraphy of the continental Devonian sediments in North-East Greenland. 1993 by H. Olsen & P.-H. Larsen, 110 pp.



- 166 Dinoflagellate cyst stratigraphy of the Barremian to Albian, Lower Cretaceous, North-East Greenland. 1993 by H. Nøhr-Hansen, 171 pp.
167 Lithostratigraphic framework of the Upper Proterozoic Eleonore Bay Supergroup of East and North-East Greenland. 1993 by M. Sønderholm & H. Tirsgaard, 38 pp.
168 Sedimentary basin analysis of the continental Devonian basin in North-East Greenland. 1993 by H. Olsen, 80 pp.

Reports (*Rapp. Grønlands geol. Unders.*)

- 159 Grønlands Geologiske Underøgelse 1993: Current research *including* Report of activities, 1992. 1993 edited by A. K. Higgins & M. Sønderholm, 126 pp.

Report of activities

Articles in the annual Report of activities of the Survey published as *Rapp. Grønlands geol. Unders.* 159.

- GGU's aktiviteter i 1992. 1993 by M. Ghisler, 6–7.
Review of the Survey's activities in 1992. 1993 by M. Ghisler, 8–9.
An overview of Greenland's mineral exploration potential. 1993 by H. K. Schønwandt & P. R. Dawes, 10–16.
Greenland MINEX News: a new service for the mining industry. 1993 by P. R. Dawes & H. H. Thomsen, 16–18.
Greenland mineral resource information to industry: increased scope in 1992. 1993 by P. R. Dawes, H. K. Schønwandt & B. Thomassen, 18–21.
GGU Open File Series: a review of reports related to Greenland mineral exploration. 1993 by H. K. Schønwandt, 22–24.
Project SUPRASYD 1992: opening season in the Ketilidian of South Greenland. 1993 by T. F. D. Nielsen, B. Chadwick, P. R. Dawes, R. A. Frith & H. K. Schønwandt, 25–31.
Geochemical mapping and geological reconnaissance in the Nagssugtoqidian mobile belt, West Greenland. 1993 by A. Steenfelt, F. Kalsbeek & H. F. Jepsen, 31–37.

- Petroleum-geological activities in 1992: preparation and support for licensing rounds offshore West Greenland. 1993 by F. G. Christiansen, C. Marcussen & T. C. R. Pulvertaft, 38–42.
- Ice conditions offshore West Greenland. 1993 by H. H. Thomsen, 43–47.
- Disko Bugt Project 1992, West Greenland. 1993 by F. G. Christiansen, 47–52.
- Sedimentological and stratigraphical analysis of the Upper Triassic – Lower Jurassic succession in Jameson Land, East Greenland – a summary. 1993 by G. Dam, 53–58.
- Evaluation of hydropower potential for possible future industrial use, Nuuk area, West Greenland. 1993 by H. H. Thomsen, R. J. Braithwaite, A. Weidick & O. B. Olesen, 59–62.
- Measurements of firn density in the lower accumulation area of the Greenland ice sheet: EPOCH 1992. 1993 by R. J. Braithwaite & M. Laternser, 62–65.
- Palaeo-environmental studies on the Greenland ice sheet margin. 1993 by N. Reeh, H. H. Thomsen & C. E. Bøggild, 66–68.
- Ocean Drilling Program (ODP) off South-East Greenland: formation of a volcanic rifted margin. 1993 by H. C. Larsen, 69–73.

Open File Series

- 93/1 Reconnaissance geochemical mapping of map sheets 67 V.1 and 68 V.1 (66° to 68° N, $51^{\circ}40'$ to 54° W), West Greenland. 1993 by A. Steenfelt, E. Dam & J. P. Nielsen, 16 pp.
- 93/2 Project AEROMAG-92: a new high resolution aeromagnetic survey of the Lersletten area, central West Greenland ($68^{\circ}15'$ to $68^{\circ}55'$ N, $50^{\circ}25'$ to $53^{\circ}35'$ W). 1993 by L. Thorning, 36 pp.
- 93/3 Gold exploration on the 'Nanortalik peninsula', South Greenland. 1993 by P. W. U. Appel, M. Lind & J. P. Nielsen, 66 pp.
- 93/4 Stream sediment geochemical evidence for gold mineralisation in Hudson Land ($73^{\circ}10'$ to $74^{\circ}25'$ N, $21^{\circ}30'$ to $24^{\circ}45'$ W), North-East Greenland. 1993 by A. Steenfelt, 25 pp.
- 93/5 Mass balance and related topics of the Greenland ice sheet. 1993 edited by N. Reeh & H. Oerter, 92pp.
- 93/6 Gold and platinum-group element anomalies in the Fiskenæsset stratiform anorthosite complex, West Greenland. 1993 by P. W. U. Appel, 24 pp.
- 93/7 Update on the gold and base metal potential of the Íngia area, central West Greenland. 1993 by B. Thomassen, 66 pp.
- 93/8 Project to assess the application of Spot and Landsat TM imageries to geological reconnaissance, South-

East Greenland. Final report. 1993 by T. Tukiainen, P. Erfurt & L. Thorning, 32pp.

Geological profiles

Geological section along the south coast of Nuussuaq, central West Greenland. 1:20 000. Coloured geological sheet. 1993 by A. K. Pedersen, L. M. Larsen & K. S. Dueholm. Copenhagen: Geological Survey of Greenland.

Scientific articles

Refereed works published by GGU or externally. Articles written by non-GGU staff but arising from work partly funded by GGU or from co-operative projects are also included.

- Bailey, J. C., Bohse, H., Gwozdz, R. & Rose-Hansen, J. 1993: Li in minerals from the Ilímaussaq alkaline intrusion, South Greenland. *Bull. geol. Soc. Denm.* **40**, 288–299.
- Bennett, V. C., Nutman, A. P. & McCulloch, M. T. 1993: Nd isotopic evidence for transient, highly depleted mantle reservoirs in the early history of the Earth. *Earth planet. Sci. Lett.* **119**, 299–317.
- Braithwaite, R. J. 1993: Firn temperature and meltwater refreezing in the lower accumulation area of the Greenland ice sheet, Pâkitsoq, West Greenland. *Rapp. Grønlands geol. Unders.* **159**, 109–114.
- Braithwaite, R. J. 1993: Is the Greenland ice sheet getting thicker? *Climatic Change* **23**, 379–381.
- Braithwaite, R. J. & Olesen, O. B. 1993: Seasonal variation of ice ablation at the margin of the Greenland ice sheet and its sensitivity to climatic change, Qamanárssup sermia, West Greenland. *J. Glaciol.* **39**, 267–274.
- Chalmers, J. A. & Pulvertaft, T. C. R. 1993: The southern Greenland continental shelf – was petroleum exploration abandoned prematurely? In Vorren, T. O., Bergsager, E., Dahl-Stamnes, Ø. A., Holter, E., Johansen, B., Lie, E. & Lund, T. B. (ed.) Arctic geology and petroleum potential. *Norweg. Petrol. Soc. Spec. Publ.* **2**, 55–66.
- Chadwick, B., Friend, C. R. L., George, M. C. & Perkins, W. T. 1993: A new occurrence of musgravite, a rare beryllium oxide, in the Caledonides of North-East Greenland. *Mineralog. Mag.* **57**, 121–129.
- Chalmers, J. A., Pulvertaft, T. C. R., Christiansen, F. G., Larsen, H. C., Laursen, K. H. & Ottesen, T. G. 1993: The southern West Greenland continental margin: rifting history, basin development, and petroleum potential. In Parker, J. R. (ed.) *Petroleum geology of Northwest Europe: Proceedings of the 4th Conference*, 915–931. London: The Geological Society.
- Christiansen, F. G., Piasecki, S., Stemmerik, L. & Telnæs,

- N. 1993: Depositional environment and organic geochemistry of the Upper Permian Ravnefjeld Formation source rock in East Greenland. *Bull. Amer. Assoc. Petrol. Geol.* **77**, 1519–1537.
- Christiansen, F. G., Larsen, H. C., Marcussen, C., Piasecki, S. & Stemmerik, L. 1993: Late Paleozoic plays in East Greenland. In Parker, J. R. (ed.) *Petroleum geology of Northwest Europe: Proceedings of the 4th Conference*, 657–666, London: Geological Society.
- Clemmensen, L. B. & Dam, G. 1993: Aeolian sand-sheet deposits in the Lower Cambrian Neksø Sandstone Formation, Bornholm, Denmark: sedimentary architecture and genesis. *Sediment. Geol.* **83**, 71–85.
- Dam, G. & Surlyk, F. 1993: Cyclic sedimentation in a large wave and storm-dominated anoxic lake: Kap Stewart Formation (Rhaetian–Sinemurian), Jameson Land, East Greenland. In Posamentier, H. W., Summerhayes, C. P., Haq, B. U. & Allen, G. P. (ed.) Sequence stratigraphy and facies associations. *Spec. Publs int. Ass. Sediment.* **18**, 419–448.
- Dueholm, K. S. & Olsen, T. 1993: Reservoir analog studies using multimodel photogrammetry: a new tool for the petroleum industry. *Bull. Amer. Ass. Petrol. Geol.* **77**, 2023–2031.
- Dueholm, K. S., Garde, A. A. & Pedersen, A. K. 1993: Preparation of accurate geological and structural maps, cross-sections or block diagrams from colour slides, using multi-model photogrammetry. *J. struct. Geol.* **15**, 933–937.
- Gillotti, J. 1993: Discovery of a medium-temperature eclogite province in the Caledonides of North-East Greenland. *Geology* **21**, 523–526.
- Holm, P. M., Gill, R. C. O., Pedersen, A. K., Larsen, J. G., Hald, N., Nielsen, T. F. D. & Thirlwall, M. F. 1993: The Tertiary picrites of West Greenland: contributions from ‘Icelandic’ and other sources. *Earth planet. Sci. Lett.* **115**, 227–244.
- Jensen, S. M. 1993: Lead isotope studies on mineral showings and ore deposits in East Greenland. *Rapp. Grønlands geol. Unders.* **159**, 101–108.
- Jensen, S. M. 1993: Lead isotope composition of stratabound Cu-Pb-Zn-Ba occurrences in Upper Palaeozoic – Mesozoic sediments in East Greenland. In Fenoll Hach-Alí, P., Torres-Ruiz, J. & Gervilla, F. (ed.) *Current research in geology applied to ore deposits*, 327–330. Granada: Universidad de Granada.
- Kalsbeek, F. 1993: Use of Rb-Sr isotope data to constrain the time of deposition of Precambrian metasediments: an example from Hamborgerland, West Greenland. *Rapp. Grønlands geol. Unders.* **159**, 95–100.
- Kalsbeek, F. & Taylor, P. N. 1993: Sm-Nd isotope age data from the Archaean Skjoldungen area, South-East Greenland. *Rapp. Grønlands geol. Unders.* **159**, 89–93.
- Kalsbeek, F., Austrheim, H., Bridgwater, D., Hansen, B. T., Pedersen, S. & Taylor, P. N. 1993: Geochronology of Archaean and Proterozoic events in the Ammassalik area, South-East Greenland, and comparisons with the Lewisian of Scotland and the Nagssugtoqidian of West Greenland. *Precambrian Res.* **62**, 239–270.
- Kalsbeek, F., Nutman, A. P. & Taylor, P. N. 1993: Palaeoproterozoic basement province in the Caledonian fold belt of North-East Greenland. *Precambrian Res.* **63**, 163–178.
- Kelly, S. B. & Olsen, H. 1993: Terminal fans – a review with reference to Devonian examples. *Sedim. Geol.* **85**, 339–374.
- Koch, C. B. & Christiansen, F. G. 1993: Maturation of Lower Palaeozoic kerogens from North Greenland. *Org. Geochem.* **20**, 405–413.
- Koppelhus, E. B. & Pedersen, G. K. 1993: A palynological and sedimentological study of Cretaceous floodplain deposits of the Atane Formation at Skansen and Igdlungaqaq Disko, West Greenland. *Cretaceous Res.* **14**, 707–734.
- Larsen, L. M. & Rønsbo, J. 1993: Conditions of origin of kimberlites in West Greenland: new evidence from the Sarfartoq and Sukkertoppen regions. *Rapp. Grønlands geol. Unders.* **159**, 115–120.
- Myers, J. S., Gill, R. C. O., Rex, D. C. & Charnley, N. R. 1993: The Kap Gustav Holm Tertiary plutonic centre, East Greenland. *J. geol. Soc., Lond.* **150**, 259–276.
- Nilsen, T. [Nielsen, T. F. D.] 1993: [Swarms of alkaline dikes of the Gardiner complex and formation of ultrabasite-alkaline complexes.] *Geokhimiya* **1993**, 1112–1131. (In Russian).
- Nielsen, T. F. D. & Holm, P. M. 1993: Nd and Sr isotope compositions from the Gardiner Complex, East Greenland Tertiary igneous province. *Bull. geol. Soc. Denm.* **40**, 280–287.
- Nøhr-Hansen, H. 1993: Dinoflagellate cyst stratigraphy of the Barremian to Albian, Lower Cretaceous, North-East Greenland. *Bull. Grønlands geol. Unders.* **166**, 171 pp.
- Nøhr-Hansen, H. 1993: Upper Maastrichtian? – lower Paleocene dinoflagellate cysts and pollen from turbidites in the Itilli region, Nuussuaq, central West Greenland – first dating of the sediments. *Rapp. Grønlands geol. Unders.* **159**, 81–87.
- Nutman, A. P., Friend, C. R. L., Kinny, P. D. & McGregor, V. R. 1993: Anatomy of an Early Archean gneiss complex: 3900 to 3600 Ma crustal evolution in southern West Greenland. *Geology* **21**, 415–518.
- Olsen, H. 1993: Sedimentary basin analysis of the continental Devonian basin in North-East Greenland. *Bull. Grønlands geol. Unders.* **168**, 80 pp.
- Olsen, H. & Larsen, P.-H. 1993: Lithostratigraphy of the continental Devonian sediments in North-East Greenland. *Bull. Grønlands geol. Unders.* **165**, 110 pp.

- Olsen, H. & Larsen, P.-H. 1993: Structural and climatic controls on fluvial depositional systems – Devonian, North-East Greenland. In Marzo, M. & Puigdefabregas, C. (ed.) Alluvial sedimentation. *Spec. Publs int. Ass. Sediment.* **17**, 401–423.
- Olsen, T. 1993: Large fluvial systems: the Atane Formation, a fluvio-deltaic example from the Upper Cretaceous of central West Greenland. *Sediment. Geol.* **85**, 457–473.
- Reeh, N. & Thomsen, H. H. 1993: Using stable isotopes as natural tracers to delineate hydrological drainage basins on the Greenland ice-sheet margin. *Chem. Geol. (Isotope Geosci. Sect.)* **109**, 281–291.
- Robinson, D., Bevins, R. E. & Rowbotham, G. 1993: The characterization of mafic phyllosilicates in low-grade metabasalts from eastern North Greenland. *Amer. Miner.* **78**, 377–390.
- Scholle, P. A., Stemmerik, L., Ulmer-Scholle, D., Di Liegro, G. & Henk, F. H. 1993: Palaeokarst-influenced depositional and diagenetic patterns in Upper Permian carbonates and evaporites, Karstryggen area, central East Greenland. *Sedimentology* **40**, 895–918.
- Sønderholm, M. & Tirsgaard, H. 1993: Lithostratigraphic framework of the Upper Proterozoic Eleonore Bay Supergroup of East and North-East Greenland. *Bull. Grønlands geol. Unders.* **167**, 38 pp.
- Soper, N. J. & Higgins, A. K. 1993: Basement-cover relationships in the East Greenland Caledonides: evidence from the Eleonore Bay Supergroup at Ardencaple Fjord. *Trans. roy. Soc. Edinb., Earth Sci.* **84**, 103–115.
- Steenfelt, A. 1993: Geochemical mapping – progress in Greenland. *J. geochem. Explor.* **49**, 5–13.
- Steenfelt, A. 1993: Comparisons of geochemical patterns obtained from stream sediment, stream organics and till in the Nordkalott project in Fennoscandia. *J. geochem. Explor.* **49**, 145–159.
- Steiger, R. H., Bickel, R. A. & Meier, M. 1993: Conventional U-Pb dating of single fragments of zircon for petrogenetic studies of Phanerozoic granitoids. *Earth planet. Sci. Lett.* **115**, 197–209.
- Stemmerik, L. 1993: Moscovian bryozoan-dominated build-ups, northern Amdrup Land, eastern North Greenland. In Vorren, T. O., Bergsager, E., Dahl-Stamnes, Ø. A., Holter, E., Johansen, B., Lie, E. & Lund, T. B. (ed.) Arctic geology and petroleum potential. *Norweg. Petrol. Soc. Spec. Publ.* **2**, 99–106.
- Stemmerik, L. & Larssen, G. B. 1993: Diagenesis and porosity evolution of Lower Permian *Palaeoaplysina* build-ups, Bjørnøya: an example of diagenetic response to high frequency sea level fluctuations in an arid climate. In Horbury, A. D. & Robinson, A. G. (ed.) Diagenesis and basin development. *Amer. Ass. Petrol. Geol., Studies in Geol.* **36**, 199–211.
- Stemmerik, L., Christiansen, F. G., Piasecki, S., Jordt, B., Marcussen, C. & Nøhr-Hansen, H. 1993: Depositional history and petroleum geology of the Carboniferous to Cretaceous sediments in the northern part of East Greenland. In Vorren, T. O., Bergsager, E., Dahl-Stamnes, Ø. A., Holter, E., Johansen, B., Lie, E. & Lund, T. B. (ed.) Arctic geology and petroleum potential. *Norweg. Petrol. Soc. Spec. Publ.* **2**, 67–87.
- Stemmerik, L., Scholle, P. A., Henk, F. H., DiLiegro, G. & Ulmer, D. S. 1993: Sedimentology and diagenesis of the Upper Permian Wegener Halvø Formation carbonates along the margins of the Jameson Land Basin, East Greenland. In Vorren, T. O., Bergsager, E., Dahl-Stamnes, Ø. A., Holter, E., Johansen, B., Lie, E. & Lund, T. B. (ed.) Arctic geology and petroleum potential. *Norweg. Petrol. Soc. Spec. Publ.* **2**, 107–119.
- Surlyk, F., Noe-Nygaard, N. & Dam, G. 1993: High and low resolution sequence stratigraphy in lithological prediction – examples from the Mesozoic around the northern North Atlantic. In Parker, J. R. (ed.) *Petroleum geology of Northwest Europe: Proceedings of the 4th Conference*, 199–214. London: The Geological Society.
- Taylor, P. N. & Upton, B. G. J. 1993: Contrasting Pb isotopic compositions in two intrusive complexes of the Gardar Magmatic Province of South Greenland. *Chem. Geol. (Isotope Geosci. Sect.)* **104**, 261–268.
- Thomsen, T. & Weidick, A. 1993: Climate change impacts on northern water resources in Greenland. In Prowse, T. D., Ommanney, C. S. L. & Ulmer, K. (ed.) *Proceedings Ninth International Northern Research Basins. Nat. Hydrol. Res. Inst. Symp.* **10**(2), 749–781.
- Tirsgaard, H. 1993: The architecture of Precambrian high energy tidal channel deposits: an example from the Lyell Land Group (Eleonore Bay Supergroup), north-east Greenland. *Sedim. Geol.* **88**, 137–152.
- Tucker, R. D., Dallmeyer, R. D. & Strachan, R. A. 1993: Age and tectonothermal record of Laurentian basement, Caledonides of NE Greenland. *J. geol. Soc., Lond.* **150**, 371–379.
- Vidal, G. & Peel, J. S. 1993: Acritarchs from the Lower Cambrian Buen Formation in North Greenland. *Bull. Grønlands geol. Unders.* **164**, 35 pp.
- Weidick, A. 1993: Neoglacial change of ice cover and the related response of the Earth's crust in West Greenland. *Rapp. Grønlands geol. Unders.* **159**, 121–126.