



Publications of the Geological Survey of Greenland 1991

Maps in series

- Sheet 5 Thule. Geological map of Greenland, 1:500 000. 1991 compiled by P. R. Dawes.
- Sheet 71 V.1 Nord. Svartenhuk. Geological map of Greenland, 1:100 000. 1991 compiled by J. G. Larsen & J. Grocott.

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

- 160 Sedimentary basins of North Greenland. 1991 edited by J. S. Peel & M. Sønderholm. 164 pp.
- 161 Functional morphology, evolution and systematics of Early Palaeozoic univalved molluscs. 1991 by J. S. Peel. 116 pp.

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

- 149 Reservoir evaluation of Upper Permian buildups in the Jameson Land basin, East Greenland. 1991 by L. Stemmerik. 23 pp.
- 150 Current research. 1991. 43 pp. (5 articles)
- 151 A stratigraphic section through the Silurian turbidite sequence (Peary Land Group) in northern Nyeboe Land, North Greenland. P.-H. Larsen & J. C. Escher. 21 pp.
- 152 Current research including Report of Activities, 1990. 1991 edited by A. K. Higgins & M. Sønderholm. 111 pp. (23 articles)

Open File Series

- 91/1 Magmatic platinum-nickel occurrences in the Tertiary West Greenland Basalt Province: prospecting by Greenex A/S in 1985–1988. 1991 by F. Ulf-Møller. 37 pp.
- 91/2 Occurrences of kimberlite, lamproite and ultramafic lamprophyre in Greenland. 1991 by L. M. Larsen. 36 pp.
- 91/3 The Isua iron ore deposit at Isukasia, West Greenland. 1991 by P. W. U. Appel. 37 pp.
- 91/4 The Ivigtut cryolite deposit in South Greenland. Short note on recent geoscientific developments. 1991 by J. Bondam. 29 pp.
- 91/5 Gold and base metal potential of the Ængia area, central West Greenland. 1991 by B. Thomassen. 115 pp.
- 91/6 A preliminary seismic study of part of the pre-Paleocene section offshore southern West Greenland between 66°N and 68°N. 1991 by T. G. Ottesen. 28 pp., 7 maps in folder.

- 91/7 Oil seep in basement, Germania Land, North-East Greenland. 1991 by F. G. Christiansen, J. Bojesen-Koefoed, S. M. Jensen & L. Stemmerik. 18 pp.
- 91/8 Reconnaissance geochemical exploration of map sheet 67 V 2 (67° to 68°N, 49° 30' to 52°W), West Greenland. 1991 by A. Steenfelt & E. Dam. 10 pp.
- 91/9 Reconnaissance geochemical mapping of southern West Greenland from 62° 30'N to 64° 00'N – 1991 results. 1991 by P. Erfurt, A. Steenfelt & E. Dam. 21 pp.

Scientific articles

- Bevins, R. E., Robinson, D. & Rowbotham, G. 1991: Compositional variations in mafic phyllosilicates from regional low-grade metabasites and application of the chlorite geothermometry. *J. metamorph. Geol.* **9**, 711–721.
- Bevins, R. E., Rowbotham, G. & Robinson, D. 1991: Zeolite to prehnite-pumpellyite facies metamorphism of the late Precambrian Zig-Zag Dal Basalt Formation, eastern North Greenland. *Lithos* **27**, 155–165.
- Brooks, C. K., Larsen, L. M. & Nielsen, T. F. D. 1991: Importance of iron-rich tholeiitic magmas at divergent plate margins: a reappraisal. *Geology* **19**, 269–272.
- Chadwick, B. & Friend, C. R. L. 1991: The high-grade gneisses in the south-west of Dove Bugt: an old gneiss complex in a deep part of the Caledonides of North-East Greenland. *Rapp. Grønlands geol. Unders.* **152**, 103–111.
- Chalmers, J. A. 1991: New evidence on the structure of the Labrador Sea/Greenland continental margin. *J. geol. Soc. Lond.* **148**, 899–908.
- Chalmers, J. A. & Dahl-Jensen, T. 1991: Project SYD VEST SEIS – 3285 km of multichannel seismic data acquired on the southern West Greenland shelf. *Rapp. Grønlands geol. Unders.* **152**, 21–23.
- Christiansen, F. G., Piasecki, S. & Stemmerik, L. 1991 [issued 1992]: Petroleum resources, North Greenland. In Trettin, H. P. (ed.) *Geology of the Innuitian orogen and arctic platform of Canada and Greenland*, 525–529. *Geology of Canada*, no. 3, Chapter 20 (also *Geology of North America*, Vol. E). Calgary: Geological Survey of Canada.
- Christie, R. L. & Dawes, P. R. 1991 [issued 1992]: Geographic and geological exploration. In Trettin, H. P. (ed.) *Geology of the Innuitian orogen and arctic platform of Canada and Greenland*, 7–25. *Geology of Canada*, no. 3, Chapter 2 (also *Geology of North America*, Vol. E). Calgary: Geological Survey of Canada.
- Conradsen, K., Ersbøll, B. K. & Thyrted, T. 1991: Discrimi-

- nant analysis of an integrated data base applied in uranium exploration. *Econ. Geol.* **86**, 377–386.
- Dawes, P. R. 1991: Lauge Koch: Pioneer geo-explorer of Greenland's far north. *Earth Sci. Hist.* **10**, 130–153.
- Dawes, P. R. & Christie, R. L. 1991 [issued 1992]: Geomorphic regions. In Trettin, H. P. (ed.) *Geology of the Innuitian orogen and arctic platform of Canada and Greenland*, 29–56. *Geology of Canada*, no. **3**, Chapter 3 (also *Geology of North America*, Vol. E). Calgary: Geological Survey of Canada.
- Ellitsgaard-Rasmussen, K. 1991: Arne Noe-Nygaard, 30/7/1908 – 3/6/1991. *Rapp. Grønlands geol. Unders.* **152**, 9–10.
- Escher, J. C. 1991: The Skjoldungen map sheet: completion of the 1:500 000 geological mapping of South-East Greenland. *Rapp. Grønlands geol. Unders.* **152**, 30–31.
- Friderichsen, J. D., Gilotti, J. A., Henriksen, N., Higgins, A. K., Hull, J. M., Jepsen, H. F. & Kalsbeek, F. 1991: The crystalline rocks of Germania Land, Nordmarken and adjacent areas, North-East Greenland. *Rapp. Grønlands geol. Unders.* **152**, 85–94.
- Funder, S. & Weidick, A. 1991: Holocene boreal molluscs in Greenland – palaeoceanographic implications. *Palaeogeogr. Palaeoclimat. Palaeoecol.* **85**, 123–135.
- Garde, A. A. 1991: Post-kinematic diorite intrusions in Archaean basement rocks around outer Fiskefjord, southern West Greenland. *Bull. geol. Soc. Denmark* **39**, 167–177.
- Garde, A. A., Bugnon, C. & Gothenborg, J. 1991: Ornamental stones in West and South Greenland. *Rapp. Grønlands geol. Unders.* **152**, 50–55.
- Ghisler, M. 1991: Review of the Survey's activities in 1990. *Rapp. Grønlands geol. Unders.* **152**, 7–8.
- Håkansson, E., Heinberg, C. & Stemmerik, L. 1991: Mesozoic and Cenozoic history of the Wandel Sea Basin area, North Greenland. *Bull. Grønlands geol. Unders.* **160**, 153–164.
- Henriksen, N. 1991: The North-East Greenland project 1988–1990. *Rapp. Grønlands geol. Unders.* **152**, 24–29.
- Henriksen, N. & Higgins, A. K. 1991: The North Greenland Project. *Bull. Grønlands geol. Unders.* **160**, 9–24.
- Higgins, A. K. & Soper, N. J. 1991 [issued 1992]: Metamorphism. In Devonian – Early Carboniferous deformation and metamorphism, North Greenland. In Trettin, H. P. (ed.) *Geology of the Innuitian orogen and arctic platform of Canada and Greenland*, 289–290. *Geology of Canada*, no. **3**, Chapter 11 (also *Geology of North America*, Vol. E). Calgary: Geological Survey of Canada.
- Higgins, A. K., Ineson, J. R., Peel, J. S., Surlyk, F. & Sønderholm, M. 1991 [issued 1992]: Cambrian to Silurian basin development and sedimentation, North Greenland. In Trettin, H. P. (ed.) *Geology of the Innuitian orogen and arctic platform of Canada and Greenland*, 111–161. *Geology of Canada*, no. **3**, Chapter 7 (also *Geology of North America*, Vol. E). Calgary: Geological Survey of Canada.
- Higgins, A. K. 1991: North Greenland glacier velocities and calf ice production. *Polarforschung* **60** [for 1990], 1–23, 15 figs.
- Higgins, A. K., Ineson, J. R., Peel, J. S., Surlyk, F. & Sønderholm, M. 1991: Lower Palaeozoic Franklinian Basin of North Greenland. *Bull. Grønlands geol. Unders.* **160**, 71–139.
- Holdsworth, R. E. & Strachan, R. A. 1991: Interlinked system of ductile strike slip and thrusting formed by Caledonian sinistral transpression in northeastern Greenland. *Geology* **19**, 510–513.
- Hougaard, G., Jepsen, H. F. & Neve, J. K. 1991: GGU's photogeological laboratory – a valuable geological mapping tool in Greenland. *Rapp. Grønlands geol. Unders.* **152**, 32–35.
- Kalsbeek, F. 1991: Metasomatic alteration of dolerite in the Proterozoic sediments of north-eastern Disko Bugt. *Rapp. Grønlands geol. Unders.* **150**, 33–35.
- Knudsen, C. 1991: Petrology, geochemistry and economic geology of the Qaqarssuk carbonatite complex, southern West Greenland. *Monogr. Ser. Miner. Deposits* **29**, 110 pp.
- Knudsen, C. & Bucharadt, B. 1991: Carbon and oxygen isotope composition of carbonates from the Qaqarssuk Carbonatite Complex, southern West Greenland. *Chem. Geol. (Isotope Geosci. Sect.)* **86**, 263–274.
- Lane, P. D. & Siveter, D. J. 1991: A Silurian trilobite fauna dominated by Calymene from Kap Tyson, western North Greenland. *Rapp. Grønlands geol. Unders.* **150**, 5–14.
- Larsen, H. C., Sawyer, D. S. & NARM-DPG 1991: North Atlantic Rifted Margins Detailed Planning Group Report (Executive summary). *JOIDES J.* **17**(2), 24–26.
- Larsen, L. M. 1991: Registration of kimberlites and other potentially diamond-bearing rocks in Greenland. *Rapp. Grønlands geol. Unders.* **152**, 61–65.
- Larsen, P.-H. & Bengaard, H.-J. 1991: Devonian basin initiation in East Greenland: a result of sinistral wrench faulting and Caledonian extensional collapse. *J. geol. Soc. Lond.* **148**, 355–368.
- Larsen, P.-H. & Olsen, H. 1991: The Devonian basin project, North-East Greenland – a summary. *Rapp. Grønlands geol. Unders.* **152**, 17–20.
- Nielsen, T. F. D. & Brooks, C. K. 1991: Generation of nordmarkitic melts by melting of basement gneisses: the Astrophyllite Bay complex, Kangerdlugssuaq. *Bull. geol. Soc. Denmark* **38**, 161–164.
- Nilsson, I., Håkansson, E., Madsen, L., Pedersen, S. A. S. & Stemmerik, L. 1991: Stratigraphic significance of new fusulinid samples from the Upper Palaeozoic Mallemuk Mountain Group, North Greenland. *Rapp. Grønlands geol. Unders.* **150**, 29–32.
- Olsen, T. & Pedersen, G. K. 1991: The occurrence of marine fossils in the Upper Cretaceous deltaic sediments at Pautût, central East Greenland. *Bull. geol. Soc. Denmark* **39**, 111–122.
- Peel, J. S. 1991: Functional morphology of the Class Helcionelloida nov., and the early evolution of the Mollusca. In Simonetta, A. & Conway Morris, S. (ed.) *The early evolution of Metazoa and the significance of problematic taxa*, 157–177. Cambridge University Press & University of Camerino (Italy).

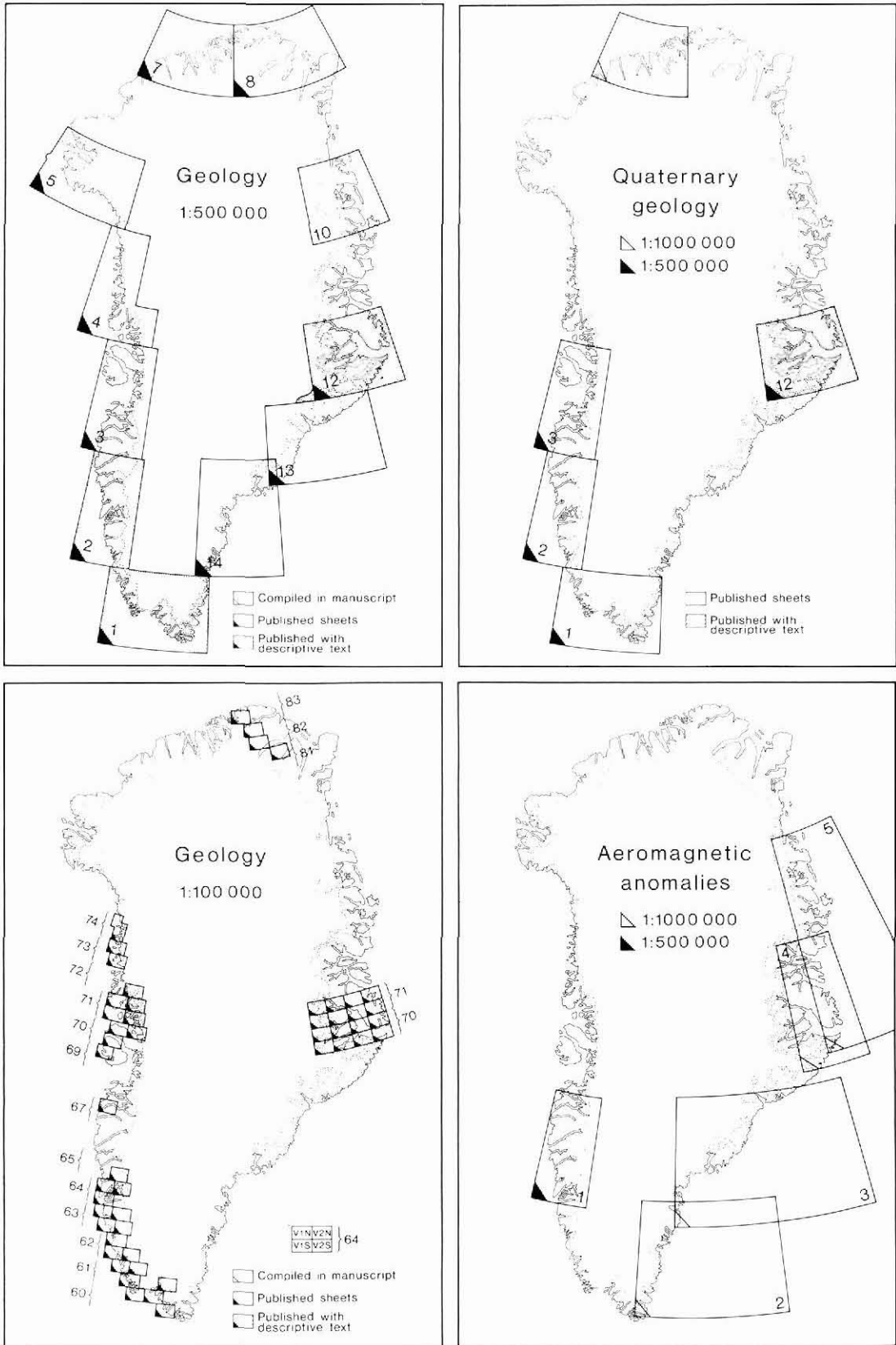


Fig. 1. Map sheets published and in preparation by the Survey.

- Peel, J. S. 1991: Introduction [to Functional morphology, evolution and systematics of Early Palaeozoic univalved molluscs]. *Bull. Grønlands geol. Unders.* **161**, 5–10.
- Peel, J. S. 1991: The Classes Tergomya and Helcionelloida, and early molluscan evolution. *Bull. Grønlands geol. Unders.* **161**, 11–65.
- Peel, J. S. 1991: Salpingostomatiform and related bellerophon-tacean gastropods from Greenland and the Baltic region. *Bull. Grønlands geol. Unders.* **161**, 67–116.
- Peel, J. S. & Sønderholm, M. 1991: Introduction [to Sedimentary basins of North Greenland]. *Bull. Grønlands geol. Unders.* **160**, 5–7.
- Piasecki, S. & Stemmerik, L. 1991: Late Permian anoxia in central East Greenland. In Tyson, R. V. & Pearson, T. H. (ed.) Modern and ancient continental shelf anoxia. *Spec. Publ. geol. Soc. Lond.* **58**, 275–290.
- Pickerrill, R. K. & Peel, J. S. 1991: *Gordia nodosa* isp. nov. and other trace fossils from the Cass Fjord Formation (Cambrian) of North Greenland. *Rapp. Grønlands geol. Unders.* **150**, 15–28.
- Pulvertaft, T. C. R. 1991: 1990 – a year of change in hydrocarbon-geological activities at the Geological Survey of Greenland. *Rapp. Grønlands geol. Unders.* **152**, 11–13.
- Roberts, D., Coffin, M. F., Crane, K., Eldholm, O., Harry, D., Larsen, H. C., McNutt, M., Okay, N., Pedersen, T., Skogseid, J. & Tucholke, B. 1991: Conjugate volcanic passive margin and oceanic plateau development. In Coffin, M. F. & Eldholm, O. (ed.) Large igneous provinces: JOI/US-SAC Workshop Report. *The University of Texas at Austin Institute for Geophysics, Technical Report* **114**, 29–46.
- Scholle, P. A., Stemmerik, L. & Ulmer, D. S. 1991: Diagenetic history and reservoir potential of Upper Permian carbonate buildups, Wegener Halvø area, Jameson Land basin, East Greenland. *Bull. Amer. Ass. Petrol. Geol.* **75**, 701–725.
- Schönwandt, H. K. 1991: Economic mineral resources: activities in 1990. *Rapp. Grønlands geol. Unders.* **152**, 41–46.
- Smith, M. P. 1991: Early Ordovician conodonts of East and North Greenland. *Meddr Grønland, Geosci.* **26**, 81 pp.
- Soper, N. J. & Higgins, A. K. 1991 [issued 1992]: Deformation. In Devonian – Early Carboniferous deformation and metamorphism, North Greenland. In Trettin, H. P. (ed.) Geology of the Innuitian orogen and arctic platform of Canada and Greenland, 283–288. *Geology of Canada*, no. **3**, Chapter 11 (also *Geology of North America*, Vol. **E**). Calgary: Geological Survey of Canada.
- Soper, N. J. & Higgins, A. K. 1991 [issued 1992]: Late Cretaceous – Early Tertiary deformation, North Greenland. In Trettin, H. P. (ed.) Geology of the Innuitian orogen and arctic platform of Canada and Greenland, 461–465. *Geology of Canada*, no. **3**, Chapter 16 (also *Geology of North America*, Vol. **E**). Calgary: Geological Survey of Canada.
- Canada, no. **3**, Chapter 16 (also *Geology of North America*, Vol. **E**). Calgary: Geological Survey of Canada. *Geology of Canada*, no. **3**, Chapter 16 (also *Geology of North America*, Vol. **E**). Calgary: Geological Survey of Canada.
- Sønderholm, M. 1991: The evolution of the Franklinian carbonate platform (Late Proterozoic? – Silurian), North Greenland. In Bosselini, A. et al. (ed.) *Dolomieu Conference on Carbonate Platforms and Dolomitization – Abstracts*, 251–253.
- Sønderholm, M. & Jepsen, H. F. 1991: Proterozoic basins of North Greenland. *Bull. Grønlands geol. Unders.* **160**, 49–69.
- Steenfelt, A. 1991 [issued 1992]: Economic mineral resources, North Greenland. In Trettin, H. P. (ed.) Geology of the Innuitian orogen and arctic platform of Canada and Greenland, 539–541. *Geology of Canada*, no. **3**, Chapter 20 (also *Geology of North America*, Vol. **E**). Calgary: Geological Survey of Canada.
- Steenfelt, A. 1991: High-technology metals in alkaline and carbonatitic rocks in Greenland: recognition and exploration. *J. geochem. Explor.* **40**, 263–279.
- Steenfelt, A. & Tukiainen, T. 1991: Geochemical mapping: distribution of gold, arsenic, antimony and tantalum in South Greenland. *Rapp. Grønlands geol. Unders.* **152**, 55–61.
- Stemmerik, L. & Håkansson, E. 1991: Carboniferous and Permian history of the Wandel Sea Basin, North Greenland. *Bull. Grønlands geol. Unders.* **160**, 141–151.
- Stemmerik, L. & Piasecki, S. 1991: The Upper Permian of East Greenland – a review. *Zbl. Geol. Paläont. Teil 1*, 825–837.
- Stemmerik, L., Christiansen, F. G. & Piasecki, S. 1991: Evaluation of the hydrocarbon potential onshore North-East Greenland (72°–75°N). *Rapp. Grønlands geol. Unders.* **152**, 13–16.
- Stemmerik, L., Christiansen, F. G. & Piasecki, S. 1990: Carboniferous lacustrine shale in East Greenland – additional source rock on northern North Atlantic? In Katz, B. J. (ed.) Lacustrine basin exploration – case studies and modern analogs. *Mem. Amer. Ass. Petrol. Geol.* **50**, 277–286.
- Stemmerik, L., Vigran, J. O. & Piasecki, S. 1991: Dating of late Paleozoic rifting events in the North Atlantic: New biostratigraphic data from the uppermost Devonian and Carboniferous of East Greenland. *Geology* **19**, 218–221.
- Strachan, R. A., Jepsen, H. F. & Kalsbeek, F. 1991: Regional Caledonian structure of Hertugen af Orléans Land, North-East Greenland. *Rapp. Grønlands geol. Unders.* **152**, 95–102.
- Surlyk, F. 1991: Tectonostratigraphy of North Greenland. *Bull. Grønlands geol. Unders.* **160**, 25–47.
- Thomassen, B. 1991: The Black Angel lead-zinc mine 1973–90. *Rapp. Grønlands geol. Unders.* **152**, 46–50.
- Thomsen, H. H. & Olesen, O. B. 1991: Hydraulics and hydrology on the Inland Ice. *Rapp. Grønlands geol. Unders.* **152**, 36–38.
- Thomsen, H. H., Olesen, O. B., Braithwaite, R. J. & Bøggild, C. E. 1991: Ice drilling and mass balance at Pákitsoq, Jakobshavn, central West Greenland. *Rapp. Grønlands geol. Unders.* **152**, 80–84.
- Upton, B. G. J. 1991: Gardar mantle xenoliths: Igdlutalik, South Greenland. *Rapp. Grønlands geol. Unders.* **150**, 37–43.
- Weidick, A. 1991: A change in the status of the Greenland Inland Ice. *Rapp. Grønlands geol. Unders.* **152**, 39–41.
- Weidick, A. 1991: Present-day expansion of the southern part of the Inland Ice. *Rapp. Grønlands geol. Unders.* **152**, 73–79.