GGU Open File Series: a review of reports related to Greenland mineral exploration

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In 1989 the Geological Survey of Greenland (GGU) increased its publication range by the introduction of an Open File Series, the aim of which was to speed up the presentation of new information to industry (Ghisler, 1990). This unedited series presents primarily raw data (field and analytical results) allowing exploration companies to use the information in assessment and planning. Although the series was formalised in 1989, a handful of reports of specific relevance to mineral exploration, and released by GGU up to three years previously, were numbered as the first six titles of the series. At the end of 1992, 40 reports made up the series.

A total of 31 reports are of direct interest to the exploration community. The subjects of these reports can be divided into 3 groups:

(1) Geochemistry
(2) Reconnaissance exploration
(3) Review of a specific deposit or type of deposit

Geochemistry

Reports in the Open File Series dealing with geochemistry discuss in general the < 0.1 mm fraction of stream sediments systematically collected in different areas of Greenland, and analysed for *c.* 34 major and trace elements by X-Ray fluorescence and instrumental neutron activation techniques. Conductivity and fluoride content of the water are also generally determined at the sample site (Kalsbeek, 1990). The sample density used in most of the sampling surveys is approximately 1 sample per 25–30 km^2.

Some reports discuss only selected elements, such as gold and its pathfinder elements, while two of the reports present the geochemistry of heavy mineral concentrates (HMC). Sample density in the HMC surveys and elements analysed differ from that of the standard stream sediment surveys. All geochemical data are presented in the reports as so-called 'single element dot plots'.

Seven reports on geochemistry have been published and two more are planned for publication in early 1993. The areas covered by the geochemical reports in the Open File Series are shown in Fig. 1.

Reconnaissance exploration

GGU's reconnaissance exploration activity is carried out in order to outline metallogenic provinces (Schønwandt, 1992). These investigations are generally carried out as part of a regional mapping programme which also includes regional stream sediment geochemical sampling.

Exploration data are presented in the Open File Series in the form of maps and chemical analyses coupled with a brief description of the mineral occurrences. Some Open File reports review released company reports and known mineralisations in relation to newly obtained GGU exploration data, in order to provide a basis for metallogenic interpretation. Fourteen reports of this category have been published. The areas dealt with in these reports are shown in Fig. 1.

Review reports

Topics of review reports range from mines (Ivigtut cryolite deposit) through exploration targets like the Isua iron ore deposit or Fiskenæsset chromite occurrence, to regional accounts on a single commodity, e.g. graphite. Eight reports of this category have been published and two further reports are planned to appear early in 1993 (Fig. 1).

Concluding remarks

Although an original intention of the Open File Series was to speed up presentations to the mining industry, specifically of data collected by GGU, it was soon realised that data from released company reports could also contribute greatly to the interpretation of the metallogeny of the prospected area. Consequently reports in the Open File Series now aim to present all unpub-

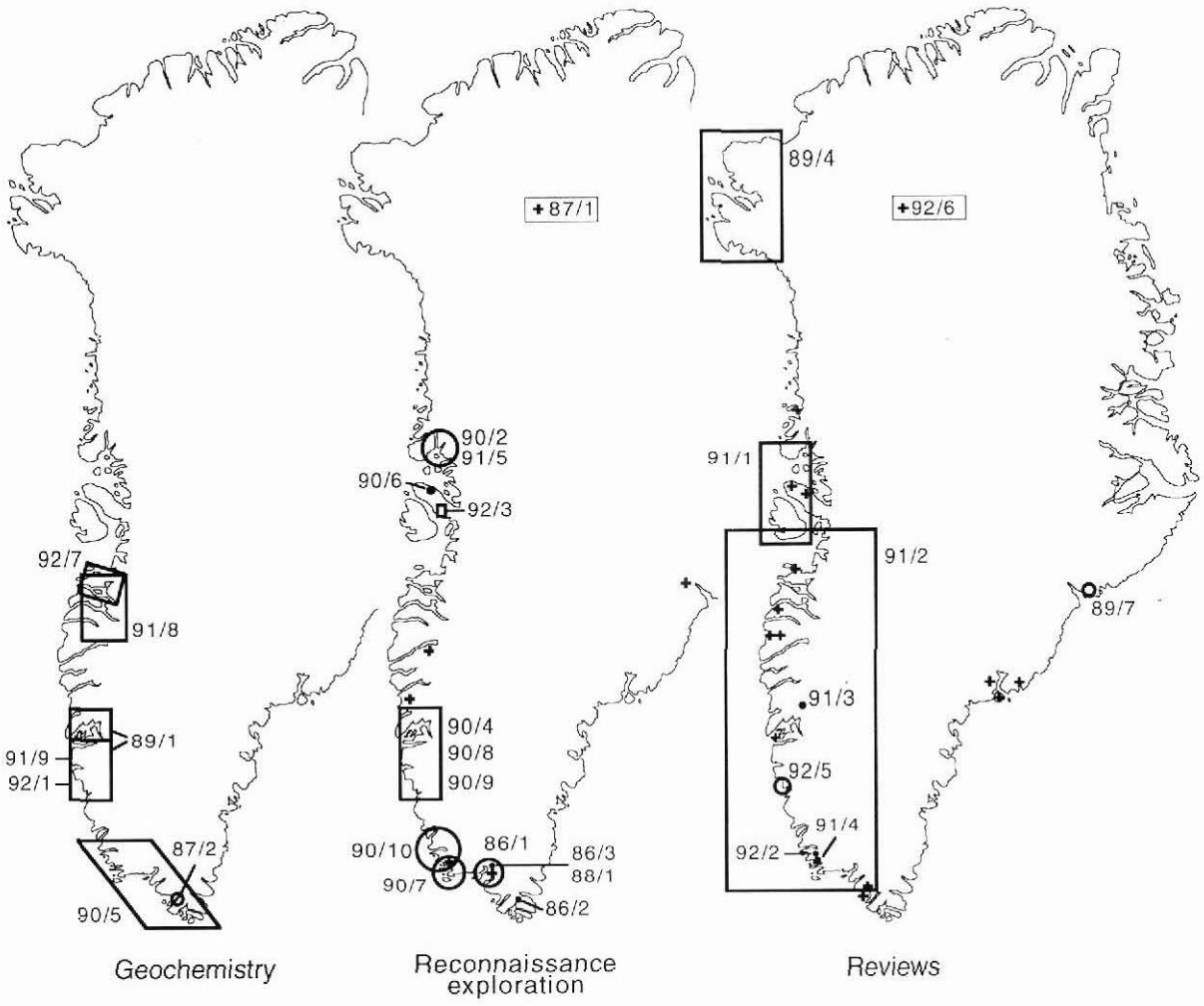

Fig. 1. Areas covered by reports in the Open File Series, divided into three groups by subject.

lished available data in a preliminarily treated form. Open File reports generally include brief descriptions of regional geology with references to key papers. Thus the Open File Series provides a practical introduction to the geology of specific regions of Greenland.

List of Open File Series reports after subject

Geochemistry

Steenfelt, A. 1987: Gold in the fine fraction of stream sediments from supracrustal sequences in West Greenland. *Open File Ser. Grønlands geol. Unders.* **87/2**, 10 pp.

Appel, P. W. U. 1989: Investigations of heavy mineral concentrates from stream sediment samples collected during the period 1982 to 1986 in the Nuuk area, West Greenland. *Open File Ser. Grønlands geol. Unders.* **89/1**, 17 pp., 10 tables, 35 plates.

Steenfelt, A. 1990: Gold content of regional stream sediment samples from South Greenland. *Open File Ser. Grønlands geol. Unders.* **90/5**, 12 pp., 3 maps.

Steenfelt, A. & Dam, E. 1991: Reconnaissance geochemical exploration of map sheet 67 V.2 (67° to 68°N, 49° 30′ to 52°W), West Greenland. *Open File Ser. Grønlands geol. Unders.* **91/8**, 13 pp., 42 figs.

Erfurt, P., Steenfelt, A. & Dam, E. 1991: Reconnaissance geochemical mapping of southern West Greenland from 62° 30′N to 64° 00′N – 1991 results. *Open File Ser. Grønlands geol. Unders.* **91/9**, 21 pp., 30 figs.

Erfurt, P., Appel, P. W. U. & Lind, M. 1992: Geochemical investigation of heavy mineral concentrates from stream sediments in southern West Greenland, 62° 30′N to 64° 00′N – 1991 results. *Open File Ser. Grønlands geol. Unders.* **92/1**, 39 pp. incl. 13 figs and 3 tables.

Steenfelt, A., Dam, E. & Nielsen, J. P. 1992: Reconnaissance geochemical exploration of map sheet 68 V.2 (67° 55′ to 68° 45′N, 50° 15′ to 52° 45′W), West Greenland. *Open File Ser. Grønlands geol. Unders.* **92/7**, 20 pp., 6 tables, 42 figs.

Reconnaissance exploration

Nyegaard, P. & Armour-Brown, A. 1986: Uranium occurrences in the Granite Zone. Structural setting – genesis – exploration methods. The South Greenland Exploration programme 1984–1986. Report no. 1. *Open File Ser. Grønlands geol. Unders.* **86/1**, 138 pp. incl. app. & 2 maps.

Armour-Brown, A. 1986: Geology and evaluation of the uranium mineral occurrence at Igdlorssuit South Greenland. The South Greenland Exploration Programme 1984–1986. Report no. 2. *Open File Ser. Grønlands geol. Unders.* **86/2**, 60 pp. incl. app. & 3 maps.

Tukiainen, T. 1986: Pyrochlore in the Motzfeldt Centre of the Igaliko nepheline syenite complex, South Greenland. Final Report. *Open File Ser. Grønlands geol. Unders.* **86/3**. 2 vols., 98 pp., 3 maps; app. vol. 50 pp.

Knudsen, C. 1986: Apatite mineralisation in carbonatite and ultramafic intrusions in Greenland. Final report. (2nd edition 1987.) Raw materials R & D programme. *Open File Ser. Grønlands geol. Unders.* **87/1**. 2 vols., 176 pp., 2 maps; app. vol. 45 pp., 1 map.

Thomassen, B. 1988: The Motzfeldt 87 project. Final report. *Open File Ser. Grønlands geol. Unders.* **88/1**, 81 pp., app. 42 maps, 8 overlays.

Thomassen, B. 1990: Prospecting for base and noble metals in the Íngia area, West Greenland: analytical results. *Open File Ser. Grønlands geol. Unders.* **90/2**, 61 pp. incl. 5 tables, 15 maps.

Appel, P. W. U. 1990: Tungsten mineralization in the Nuuk region, West Greenland. *Open File Ser. Grønlands geol. Unders.* **90/4**, 51 pp.

Garde, A. A. & Thomassen, B. 1990: Structural and economic aspects of the Proterozoic marble on Nûgssuaq, West Greenland. *Open File Ser. Grønlands geol. Unders.* **90/6**, 14 pp.

Erfurt, P. & Lind, M. 1990: Reconnaissance for noble and base metals in the Ivigtut–Kobberminebugt area, South Greenland: analytical results. *Open File Ser. Grønlands geol. Unders.* **90/7**, 14 pp., 1 table, 13 maps.

Appel, P. W. U. 1990: Gold occurrences in supracrustal rocks of the Nuuk region, West Greenland. *Open File Ser. Grønlands geol. Unders.* **90/8**, 21 pp.

Appel, P. W. U. 1990: Copper, zinc and nickel occurrences in the Nuuk region, West Greenland. *Open File Ser. Grønlands geol. Unders.* **90/9**, 28 pp.

Erfurt, P. 1990: Reconnaissance and exploration for gold and base metals in the area between Arsuk and Neria Fjords, South-West Greenland. Work performed 1971 to 1985: results and discussion. *Open File Ser. Grønlands geol. Unders.* **90/10**, 30 pp., app. 60 pp., 1 map.

Thomassen, B. 1991: Gold and base metal potential of the Íngia area, central West Greenland. *Open File Ser. Grønlands geol. Unders.* **91/5**, 115 pp. incl. 33 figs & 12 tables.

Thomassen, B. & Tukiainen, T. 1992: Gold mineralisation in Precambrian supracrustal rocks on southern Nuussuaq, central West Greenland: 1991 results. *Open File Ser. Grønlands geol. Unders.* **92/3**, 31 pp. incl. 4 figs & 5 tables.

Review of a specific deposit or type of deposit

Dawes, P. R. 1989: The Thule black sand province, North-West Greenland: investigation status and potential. *Open File Ser. Grønlands geol. Unders.* **89/4**, 17 pp.

Nielsen, T. F. D. 1989: Gold mineralisation in the Skaergaard intrusion. *Open File Ser. Grønlands geol. Unders.* **89/7**, 14 pp. incl. app.

Ulff-Møller, F. 1991: Magmatic platinum-nickel occurrences in the Tertiary West Greenland Basalt Province: prospecting by Greenex A/S in 1985–1988. *Open File Ser. Grønlands geol. Unders.* **91/1**, 37 pp.

Larsen, L. M. 1991: Occurrences of kimberlite, lamproite and ultramafic lamprophyre in Greenland. *Open File Ser. Grønlands geol. Unders.* **91/2**, 36 pp., app. 9 pp., 5 maps.

Appel, P. W. U. 1991: The Isua iron ore deposit at Isukasia, West Greenland. *Open File Ser. Grønlands geol. Unders.* **91/3**, 31 pp.

Bondam, J. 1991: The Ivigtut cryolite deposit in South Greenland. Short note on recent geoscientific developments. *Open File Ser. Grønlands geol. Unders.* **91/4**, 29 pp., 1 map.

Bondam, J. 1992: The Grønnedal–Ika alkaline complex in South Greenland. Review of geoscientific data relevant to exploration. *Open File Ser. Grønlands geol. Unders.* **92/2**, 28 pp., 2 maps.

Bondam, J. 1992: Graphite occurrences in Greenland. A review. *Open File Ser. Grønlands geol. Unders.* **92/6**, 32 pp.

References

Ghisler, M. 1990: Towards a new decade in Greenland geology. Review of the Survey's activities in 1989. *Rapp. Grønlands geol. Unders.* **148**, 7 only.

Kalsbeek, F. 1990: Geochemistry in GGU. *Rapp. Grønlands geol. Unders.* **148**, 43–45.

Schønwandt, H. K. 1992: GGU's mineral resource activities and their role for the mineral industry. *Rapp. Grønlands geol. Unders.* **155**, 17–19.

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