

SCAR WG-GGI NATIONAL REPORT

Report of Current Activities of UK for 1998-2000

Prepared by Janet W. THOMSON, British Antarctic Survey,
UK representative to SCAR WG-GGI

The following UK organisations/institutes have developed working programmes to conduct research or operational work in the Antarctic in the field of Geodesy, Photogrammetry, Remote Sensing, Bathymetry, Geographic Information, and Cartography:

British Antarctic Survey
UK Hydrographic Office

1. FIELD ACTIVITIES

1.1 *Geodetic Surveys* (British Antarctic Survey(BAS)/UK Hydrographic Office (UKHO))

a) GPS observations were carried out by BAS in 1998–99 to support local mapping projects in the Marguerite Bay area of the Antarctic Peninsula, and at Sky-Hi Nunataks, eastern Ellsworth Land. Ten stations were occupied; 9 to sub-metre accuracy. UKHO upgraded its GPS equipment to 6 Ashtech Z12 receivers with two choke ring antennas. The equipment was used to extend and establish control at more than 35 points distributed throughout the area of operation of HMS *Endurance*, including Bird Island and other parts of South Georgia, the South Sandwich Islands, Coronation Island (South Orkney Islands), Dion Islands (Marguerite Bay), and the Falkland Islands

b) VLBI observations. No activity.

1.2 *Remote Sensing*

a) BAS acquired aerial photography in 1998–99 in the Marguerite Bay area for routine monitoring of ice status, penguin census work and local mapping and charting projects; over eastern Ellsworth Land for geological mapping projects, and over southern Anvers Island for the US NSF penguin monitoring programme. UKHO acquired aerial photography of parts of the South Shetland Islands in 1999, and of the South Sandwich Islands in 2000.

2. MAPPING ACTIVITIES

2.1 *Topographic Mapping* (British Antarctic Survey (BAS))

a. A number of small maps have been compiled for Management Plans of SPA Nos. 8, 14 and 21, and SSSI No. 6.

b. A new sheet map of the Antarctic Peninsula and Weddell Sea region (BAS (Misc) 8) has been published at 1:3 000 000 scale, based on topographic data published in the ADD Version 2.0.

c. New digital maps of several islands in the Marguerite Bay area (BAS 10P, Sheet 1), and of Bird Island, South Georgia (BAS SCISTAMAP, Sheet 3) have been completed.

d. A new map of Port Lockroy, an Historic Site of a British base, was published in 1998.

2.2 *Thematic Mapping* (BEDMAP Consortium/British Antarctic Survey (BAS))

a. *BEDMAP - bed topography of the Antarctic* (BAS (Misc) 9), at 1:10 000 000 scale, synthesises the work of the BEDMAP Consortium since 1996. The map shows a new topographic model of the bed beneath the Antarctic ice sheet and a seabed elevation model for the area south of 60°S.

2.3 *Hydrographic Charting* (UK Hydrographic Office)

a. Two new charts (No. 3707, Mill Island to Cape Poinsett and No. 4900, Ross Sea) were published in 1999.

b. Six new editions of charts were issued in 1998 and 1999 (Nos. 227, 3462, 3571, 4063, 4212 and 4213).

3. GEOGRAPHIC INFORMATION ACTIVITIES

3.1 Digital Datasets (British Antarctic Survey)

a. Antarctic Digital Database. Work has progressed on ADD Version 3.0 and a new version is to be launched on the ADD web site in July 2000. A generalized version at 1:1 000 000 scale has been submitted to the Global Mapping Project on behalf of SCAR WG-GGI.

b. High resolution datasets are available on request for the new topographic maps itemized in 2.1.

3.2 No new GIS Established.

4. SCIENTIFIC PAPERS PUBLISHED / PRESENTED

a. COOPER, A.P.R. and EVANS, S.D. 1998. GIS and remote sensing in support of Antarctic field operations. (In Profiting from collaboration. Proceedings of the AGI '98 conference, Birmingham, October 1998. London, Association for Geographic Information, 4.8.1-4.8.3.)

b. COOPER, A.P.R., SMELLIE, J.L. and MAYLIN, J. 1998. Evidence for shallowing and uplift from bathymetric records of Deception Island, Antarctica. *Antarctic Science*, **10** (4), 455-461.

c. FOX, A.J. and COOPER, A.P.R. 1998. Climate-change indicators from archival aerial photography of the Antarctic Peninsula. *Annals of Glaciology*, **27**, 636-642.

d. SIEVERS, J. and THOMSON, J.W. 1998. Adopting one name per feature on maps of Antarctica: an experimental application—topographic map (satellite image map) 1:250 000 Trinity Peninsula SP 21-22/13. *Polarforschung*, 1995, **65** (3), 123-131.

5. PLACE NAMES

5.1 Forty-four new place names have been approved by the UK Antarctic Place-names Committee and these, together with a few amended names, have been submitted to the Composite Gazetteer of Antarctica in the past two years.

6. GROUND CONTROL POINT LIBRARY

6.1 The status of Ground Control Point Libraries - No activity.

7. PLANNED ACTIVITIES FOR THE NEXT TWO YEARS

7.1 Geodetic Surveys (British Antarctic Survey/UK Hydrographic Office)

a) GPS observation campaigns will be carried out in the Antarctic Peninsula and Scotia Sea region as required for mapping and charting projects. The UKHO expect to extend and establish 30–60 points over the next two years in this region.

b) No VLBI measurements will be conducted.

7.2 Remote Sensing (British Antarctic Survey/UK Hydrographic Office)

a) Aerial photography will be acquired over localities in the Antarctic Peninsula as required for mapping and charting projects.

7.3 Topographic Mapping (British Antarctic Survey/Bundesamt für Kartographie und Geodäsie)

A new satellite image map of Adelaide Island–Arrowsmith Peninsula, at 1:250 000 scale, will be produced jointly by BAS and the Bundesamt für Kartographie und Geodäsie.