

Introduction

This issue contains a group of papers selected from those presented at the 1st workshop of the SCAR-GLOCHANT and IGBP-PAGES cosponsored programme on the Late Quaternary Sedimentary Record of the Antarctic Ice Margin Evolution (ANTIME), held in Hobart, 6-11 July 1997. ANTIME is focused on the circumAntarctic reconstruction of palaeoclimate, palaeoenvironment, and ice sheet palaeogeography throughout the last glacial cycle. There were 65 participants from Australia, USA, UK, Italy, Spain, Japan, Sweden, Germany and Russia at the workshop. The participants included representatives of PAGES, IMAGES, and INQUA. The workshop included three scientific sessions on:

- *Extent, timing and regional differences during Glacial Stage 2 (10–30 kyr BP) in Antarctica, from the terrestrial and marine records;
- *Climatic, environmental and glacial events during the Holocene;
- *Late Quaternary geochronological problems in Antarctica.

Several papers by Pudsey & Camerlenghi, Harris *et al.*, Domack *et al.* and Barcena *et al.*, detail the advancements in our knowledge of the sedimentary stratigraphy and sediment facies distribution on the continental shelf, and the interpretation of late glacial palaeogeography of the ice sheets, shelves and glaciers. Recent marine geophysical surveys have enabled the discovery of sedimentary sequences located in inner shelf troughs, where sedimentation rates are high enough to record sub-centennial environmental variability over the Holocene. High resolution time series from these shelf sediments together, with those from the multitude of saline and freshwater lake basins, are beginning to produce a circum-Antarctic palaeoenvironmental record for comparison and correlation with those developed from ice cores. The paper by Bentley & Anderson combines the marine and terrestrial glacial geological evidence for former ice expansion during the late glacial in the little known Weddell Sea and western Antarctic Peninsula region. The papers by Ingolfsson *et al.* and Berkman *et al.* provide a status review of the Holocene circumAntarctic glacial and environmental history from the terrestrial and coastal records. An innovative approach to glacial and lacustrine history of the Dry Valley lakes applying isotope geochemistry is presented in the paper by Lyons *et al.* Similarly, the paper by Emslie *et al.* highlights the novel use of abandoned penguin rookeries as indicators of environmental change.

The workshop participants recognised that there was an immediate need to depict the present status of knowledge on the maximum extent of the Antarctic Ice Sheet during the last glacial cycle and the nature of the retreat to the present ice sheet margins. It was agreed that this should be completed for priority regions which characterised the range of ice morphologies and climatologies that exist in the circumAntarctic. These priority regions will also be used to plan future fieldwork and data correlation, and involve the linking of onshore glacial and coastal projects with marine projects on the continental shelf and slope, together with deep ocean coring projects administered through the IMAGES programme. Twelve regional transects were selected as a priority for ANTIME research (Fig. 1). Extensive data sets have already been collected in many of these regions and future research is planned with national and/or international logistic support for each of these regions over the period 1998 to 2003. Research in these regions will include:

- *the delineation of glacial extent and volume;
- *the stratigraphy of glacial retreat;
- *the development of a chronological control between continental shelf and onshore records;
- *the determination of palaeo ice sheet and ice stream morphology, the relationship between ice sheets and continental shelf banks, and similarly between ice streams and shelf troughs;
- *the interpretation of high resolution event stratigraphy for the Holocene, from sedimentary investigations in lake, coastal, fjord, and shelf sequences, together with the high resolution ice core records from coastal ice domes, and the inland plateau.

The framework for an ANTIME Science and Implementation Plan was developed at the workshop. The plan will be completed by the end of 1998 and contributions are invited.

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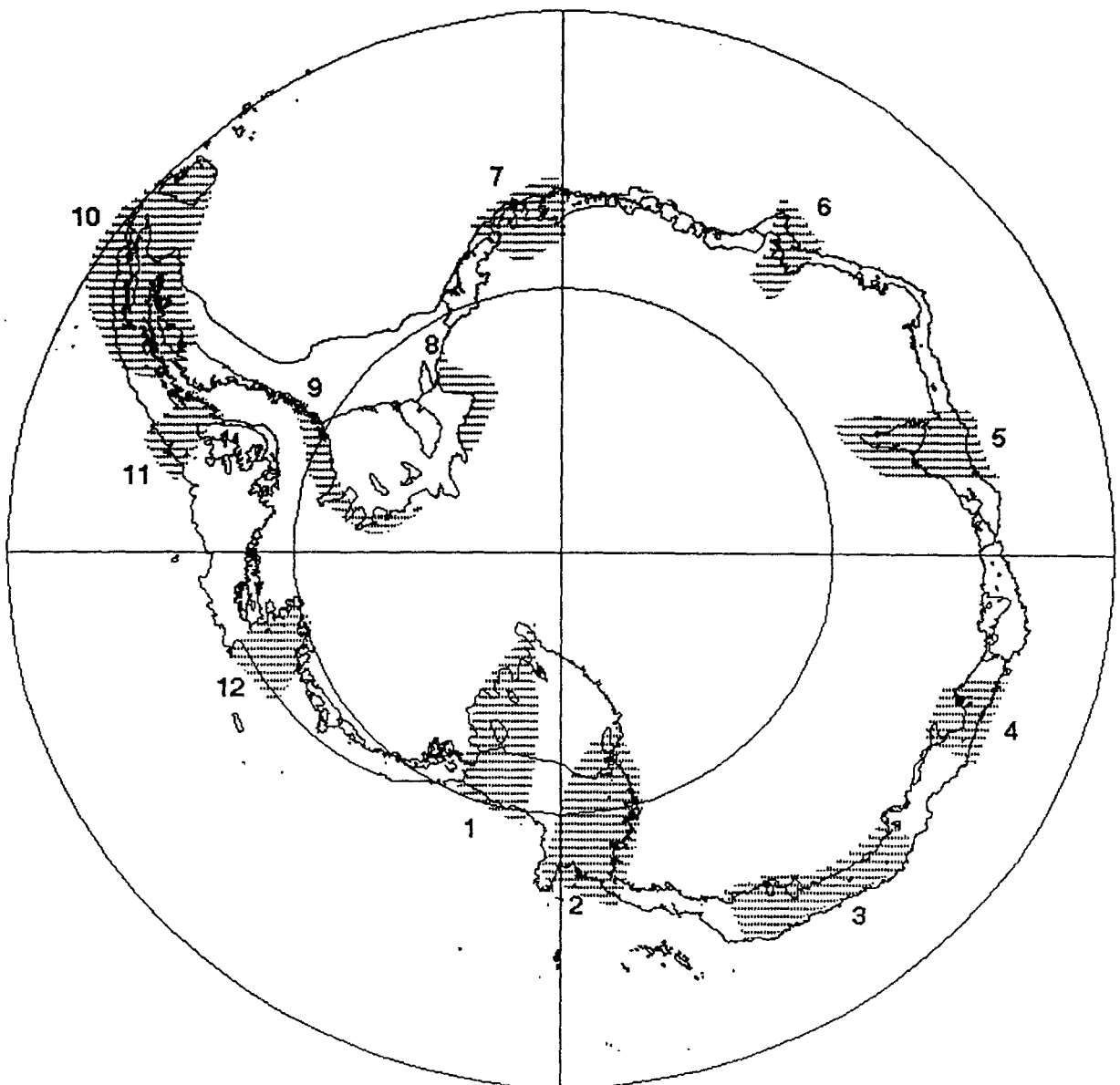


Fig. 1. Regional transects selected as priority for ANTIME research.