

Guest editorial

Antarctic mapping: a bleak future?

Antarctic cartographers face many challenges. They are required to prepare accurate maps of a remote and dangerous environment in support of science programmes, logistic operations, and search and rescue activities. Yet they have limited resources in terms of manpower, funds and primary source material for this vital work, perhaps because their science discipline is held in low esteem by their peers. They are commonly regarded as service providers rather than scientists in their own right.

Maps provide an essential geographic framework for Antarctic science, and focused research topics require ever-more detailed maps for planning, recording and summarizing scientific activities. Under the auspices of the Working Group on Geodesy and Geographic Information of the Scientific Committee on Antarctic Research (SCAR), there have been several initiatives to raise the quality of geographic information available to Antarctic researchers. The first seamless digital map of Antarctica was published by SCAR in 1993 on CD-ROM as the *Antarctic Digital Database* (ADD). Preparation of this benchmark publication was undertaken by a small dedicated team, working to a strict time-frame. The project was funded, in the greater part, by a commercial sponsor rather than from national science budgets.

The ADD provides a number of baseline maps, at scales of between 1:250 000 and 1:30 000 000, for use in publications and for planning field operations. The ADD is the standard for digital Antarctic maps used within Geographic Information Systems, forming the framework for a number of international scientific projects now in progress. Nevertheless, funds to maintain and improve the ADD which should be available from the international community, are significantly lacking.

Larger-scale maps than those currently available on the ADD are needed for areas of particular scientific interest, to avoid enlargement by the user beyond the limit of linework accuracy and reliability. Since only about 20% of Antarctica has been mapped at 1:250 000 scale and less than 5% is mapped at between 1:1000 and 1:100 000, new maps must be prepared to meet the demand for example for the mandatory management plans now required for all Antarctic Specially Protected Areas. Even now, in the last quarter of this century, the topographic information available for detailed mapping is limited. New topographic maps are prepared, by necessity, from a variety of sources, usually acquired in different months and in different years. Careful research and analysis of the source material is essential if accuracy of the final map is to be maintained. Large-scale maps, being more detailed, take longer to compile and, therefore, need more staff resources. They are also reliant on the timely acquisition of up-to-date source material, including aerial photography and ground-surveyed information in Antarctica, which adds to the manpower requirements of mapping programmes.

Although a number of national mapping agencies are responsible for mapping different parts of Antarctica, most have only a handful of people dedicated to preparing Antarctic maps. Sharing resources, through a number of bilateral and multilateral projects, has enabled production targets to be met in the past. However, there seems to be a world-wide trend towards reducing support for mapping activities in Antarctica and funding other scientific research instead. Unless the erosion of support for fundamental mapping activities is reversed, the quality of geographic information available to scientists will be impaired and scientific activities seriously impeded in both the short and long-term.

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The editors and *Antarctic Science* wish to thank the following specialists who have assisted them by providing referees' reports and advice on papers received throughout the year.

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