

The reason for selecting the drilling site GD17, approximately 200 km inland of Porpoise Bay (some two-thirds of the way from Casey to Dumont d'Urville), lies in the interacting influences of ice sheet topography and Southern Ocean atmospheric circulation on the snow accumulation.

The 1980s ice cores from this region show a well-preserved climate signal: a factor that is not universal, depending upon rate of snowfall and re-working of the surface by wind.

Also, the earlier work suggests an intriguing transition eastwards in Wilkes Land, from a regional maritime climate signal that is similar to that recorded at Law Dome, (to the west) to a signal that appears to be related quite strongly to a see-saw in sea level pressure over the Southern Ocean near Macquarie Island and the Ross Sea. This transition may be the result of the influence of persistent high pressure systems south of eastern Australia and their influence on atmospheric circulation over Wilkes Land, producing strong katabatic outflow as cold air sinks down the west side of the ice sheet ridge between Dome C and Dumont d'Urville.

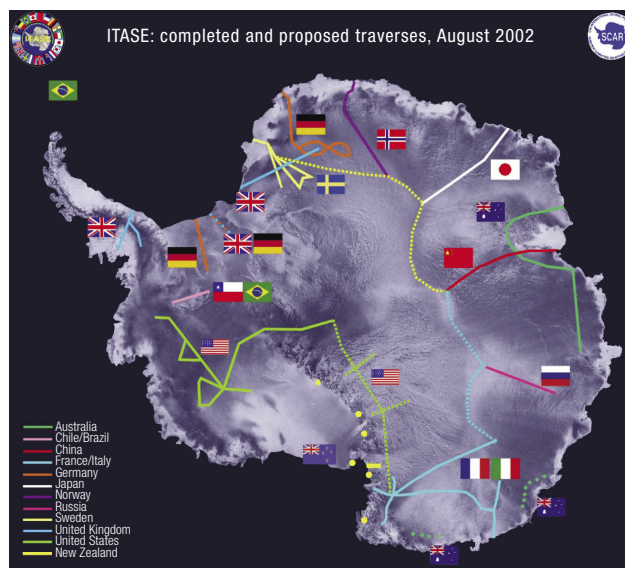
The climate record from this site should provide a valuable comparison with other data from Law Dome, and a useful extension of recent findings, including the ability to track past changes in sea ice and sea level pressure.

The season provided an exciting new insight into the benefits that intra-continental air transport can bring; in this case the ability to retrieve an ice core from such a remote site in just two weeks off-station. It was not without its challenges however, as a late-season window and accompanying poor flying conditions demanded modification to the work-plan. A second long ice core in the region, which was called for in the scientific plan, was not obtained in this season. Nevertheless, the wealth of data from the one long core and several short cores obtained in 2003–04 will undoubtedly provide new and exciting

results, and the aerial reconnaissance undertaken this year will benefit a re-visit of the area for that second core!

The ice cores are currently being analysed in the Glaciology Laboratory in Hobart, by scientists from the two organisations.

TAS VAN OMMEN, GLACIOLOGY PROGRAM, AAD & ACE CRC, IAN GOODWIN, UNIVERSITY OF NEWCASTLE, AND BARBARA SMITH, GLACIOLOGY PROGRAM, AAD & ACE CRC



International sea ice survey success

The Sea Ice Remote Sensing Validation Experiment on Voyage 1 (2003) was a survey of sea ice and snow cover conditions in the region bounded by 64–65°S and 112–119°E. The purpose of this survey was to obtain data to validate and help improve the algorithms used to derive sea ice geophysical products from a variety of new satellite sensors. This program involved considerable international collaboration with groups from institutions in Belgium, China, Germany, Japan and USA, participating in the voyage. This program was completely successful and one of the more gratifying outcomes that arose from it was the strong integration of the efforts of the teams from different institutions, and the extensive opportunities for future scientific collaboration that have resulted from the work.

There were 27 scientists associated with this project; 20 from overseas institutes. The institutes represented were:

Australia – Australian Antarctic Division, Cooperative Research Centre for Antarctic Climate and Ecosystems, University of Tasmania

Japan – Kitami University, Chiba University, Hokkaido University



Voyage 1 scientists undertake a wide range of measurements at a sea ice site accessed from Aurora Australis

Belgium – Université Libre de Bruxelles

USA – The University of Kansas, University of Florida, University of Colorado, New York University, National Aeronautics and Space Administration

China – Polar Research Institute of China

Germany – Alfred Wegener Institute

IAN ALLISON, GLACIOLOGY PROGRAM LEADER, AAD & ACE CRC