

Engineering in Antarctica

Micro and Molecular Laboratories

Containerised science at Rothera

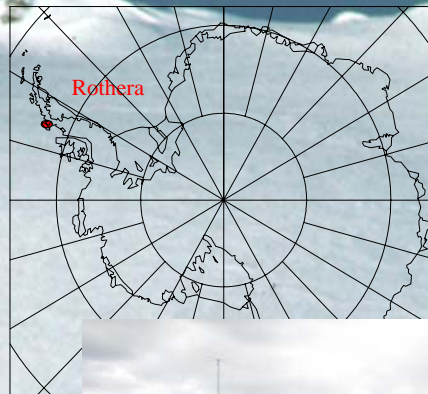
Steve Bremner and Peter Convey

British Antarctic Survey, High Cross, Madingley Road, Cambridge CB3 0ET, UK
(E-mail: s.bremner@bas.ac.uk)

Due to increased demand for laboratory space at Rothera Base, a requirement existed for a self contained facility to be built. This high grade facility, to conduct micro and molecular biology is required to provide BAS scientists with a modern laboratory until the end of the Q3 science programme.

The British Antarctic Survey (BAS) station at Rothera (67E34'S, 68E08'W) has been a centre for deep field Antarctic operations for over 30 years and recently became the focus for many of the biology programmes that were previously conducted on Signy Island. Although Rothera has a first class laboratory facility in the Bonner building, there is a shortage of space for new work. Having established that a new permanent building would be too costly to build, a portable, self contained facility was proposed. Existing containerised laboratories, first commissioned for use on HMS Endurance in 1997, provided a suitable structure. However, considerable modifications were required to the external structure, the internal fit and services, to provide a facility suitable for this application.

The structure is based on two 20' ISO shipping containers, joined by a purpose built section, used for changing and storing outside clothing. Two smaller, but similar structures are connected to each end to provide emergency exits. These have side facing doors to counter the effects of wind tail on the long narrow structure. A platform has been designed to fit on the roof of the laboratory for mounting a suite of instrumentation.



Completed during the Antarctic summer of 2000/01 this facility is fully operational and provides an essential working environment for micro and molecular biology at Rothera.



Using a modular approach it is possible to re-configure all work areas to accommodate a variety of equipment. Both laboratories have a complete range of modern CAT 5 electrical services and communications data network. All services are connected to the main base infrastructure via an underground services tunnel. Heating, air-conditioning and ventilation is all part of the laboratory fit requiring only electrical power supply from the base.

