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The Antarctic Marine Geology Research Facility 1991-1992

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The 1991-1992 project year (1 June to 31 May 1992) was a time of change for the National Science Foundation's Antarctic Marine Geology Research Facility at Florida State University (FSU). Dennis S. Cassidy, curator of the facility for 28 years, retired at the end of September 1991, and a new curator was hired by the FSU Department of Geology. Cassidy's outstanding leadership and organization of the facility made for a smooth transition. The mission and activities of the facility continued with little interruption and are summarized below.

From the extensive collection of cored, dredged, trawled, and grabbed sediments at the facility, a total of 1,129 samples were distributed to 21 geoscientists representing 17 institutions and 4 countries. The curator received requests for samples taken from the following cruises and drilling projects:

- USNS *Eltanin*: 879 samples from over 200 piston cores and 85 trigger cores;
- ARA *Islas Orcadas*: 16 samples from 2 piston cores;
- USCGC *Glacier*: 74 samples from 10 piston cores;
- Cenozoic Investigations of the Ross Sea (CIROS) 1 and 2: 96 samples; and
- R/V *Polar Duke*: 64 samples from 3 piston cores.

Two shipments of cores were received. These include 2 piston cores from the February - March 1990 cruise of the R/V *Polar Duke* to the Ross Sea/McMurdo Sound area (Anderson and Bartek

1990) and 8 piston cores, 8 trigger cores, and 4 gravity cores from the January 1991 cruise of the same vessel around the northern Antarctic Peninsula (Anderson 1991).

Over 250 paleomagnetic samples from various *Eltanin* and *Islas Orcadas* piston cores were returned by Michael T. Ledbetter (California State University). Numerous cores are on loan to Rice University for X-ray analysis. These include 43 piston cores (15 *Eltanin*, 19 *Glacier*, 9 *Polar Duke*), 19 trigger cores (15 *Eltanin*, 4 *Glacier*), 2 Phleger cores (*Eltanin*), 2 trawled samples (*Eltanin*), and 3 cores from the Ross Ice Shelf Project.

The facility hosted several visiting scientists during the project year. Most of the investigators were obtaining samples; others were inspecting the collections for their prospective research. The following 15 geoscientists visited the facility on the following dates: 9-11 July 1991: Scott E. Ishman (Byrd Polar Research Center, Ohio State University) and Andrew Stein (Hamilton College); 14-17 August 1991: David M. Harwood (University of Nebraska), Xin Ke Jiang (University of Nebraska), and Gary S. Wilson (Antarctic Research Centre, Victoria University of Wellington, New Zealand); 28 February 1992: Valesca Maria Portilla Eilert (Universidade Federal do Rio Grande do Sul, Brazil); 9 March 1992: Rusty Lotti (Lamont-Doherty Geological Observatory); 26-31 May 1992: John B. Anderson (Rice University), Laura Branfield (Rice University), Stephanie Shipp (Rice University), Phil Bart (Rice University), Fernando Siringan (Rice University), John Andrews (University of Colorado, Boulder), Anne Jennings (University of Colorado, Boulder), and Kerstin Williams (University of Colorado, Boulder).

Complete sediment descriptions for the 1985, 1986, and 1987 austral summer cruises of the USCGS *Glacier* (Anderson 1985; Anderson et al. 1986; Jeffers and Anderson 1986; Anderson et al. 1987) and the 1986 cruise of the NSF-chartered research vessel *Polar Duke* (Jeffers 1987) were near completion at the time of Cassidy's retirement. The first order of business for the new curator was the publication of this material. The facility is currently entering all core and other sediment descriptions, including gra-

phic logs, into a computer data base in an effort to expedite the production of core description volumes. The Deep Freeze 1985 volume was recently completed (Bryan et al. 1992) and is available to all interested geoscientists, prospective users of the facility, and libraries upon request to the curator. Additional volumes for the remaining cruises will be forthcoming. Initial descriptive work on material from the 1988, 1989, 1990, and 1991 R/V *Polar Duke* cruises (Anderson 1988; Domack 1988; Lawver and Villinger 1989; Anderson and Bartek 1990; Anderson 1991) is in progress.

In addition to descriptive work for publication, a new initiative at the facility is the entry of all core data into the National Geophysical Data Center (NGDC) data bank. It is hoped that the inclusion of the facility's cores in that data base will promote wider recognition of, access to, and of the outstanding collection utilization.

Prior to his departure, Cassidy completed a unique bibliographic data base consisting of all published articles making reference to materials curated at the facility (Cassidy 1990). The data base is regularly updated and is available to all interested parties by request to the curator. Researchers who have used or are using samples from the facility are reminded to please send reprints to the curator as soon their work is completed and published.

As a service-oriented institution, the facility participates in a number of activities as a courtesy to the general antarctic community and to the local community in Tallahassee, Florida. Inquiries about materials published by the facility are frequently received from researchers and libraries. Requests for maps and other references are fulfilled from the facility's outstanding library. Recently, several publications and photographs were sent to the new International Antarctic Centre in Christchurch, New Zealand, for an educational visitor display case. The antarctic facility is also regularly visited by local schools and geology classes, and members of its staff are producing an educational exhibit on antarctic geology that will be displayed in the FSU Geology Department.

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Surveying and mapping in Antarctica

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The U.S. Geological Survey's (USGS) Antarctic Surveying and Mapping Program focused its activities during the 1991-1992 season on the acquisition of global positioning system (GPS) geodetic mapping control, Doppler satellite surveying, seismology, Doppler satellite tracking, and an international GPS campaign.

During 1991-1992 field season the USGS's geodetic control crews employed GPS positioning as the means of establishing geodetic mapping control in Antarctica. As part of the international GPS campaign, the USGS team of Gordon H. Shupe, Jon C.

Campbell, and Frank J. Kenney established GPS base stations at McMurdo, South Pole, and Byrd stations.

Additionally, supported by the USC *Polar Sea*, the team established new mapping control stations along the Marie Byrd Land coast, Mount Siple, and Pine Island Bay areas. In the Mount Siple area, new stations were established on Maher Island (Station Campbell), Burtis Island (Station Tootie), and Lovill Bluff (Station Zimmerman).

In the Pine Island Bay area eight new control stations were established and five existing stations reoccupied. The stations reoccupied were part of USGS's 1960s land traverse which covered much of the area adjacent to Pine Island Bay. The new positions acquired for these old stations will allow them to be used for mapping in the current satellite datum.

The USGS participated in the third phase of the antarctic GPS observing campaign. The objectives of the international GPS campaigns are to determine the relative motion between the antarctic tectonic plates and the adjoining plates and to establish