

OUR HISTORY

On 30 December 1957, two third-year geology students stepped off the HMNZS *Endeavour* equipped with World War II field gear to keep them warm and hitched a helicopter ride to the unexplored McMurdo Dry Valleys. Their detailed mapping and reporting from that season began a tradition of annual Victoria University of Wellington Antarctic Expeditions (VUWAE) that has continued to this day. Since then VUWAE expeditions have taken over 250 staff and students to Antarctica to share the excitement and satisfaction of discovering and understanding this remarkable part of our planet.

The Antarctic Research Centre (ARC) was established in 1972 as part of the Department of Geology at Victoria University of Wellington. We are now an autonomous part of the Faculty of Science, and are recognised as a world leader of research into Antarctica's past climate, its influence in global climate change, and polar scientific drilling technology and operations.

TEACHING AND OUTREACH

Staff teach in a wide variety of Earth Science courses from first year through to postgraduate level, including courses on Antarctica and Climate Change.

We place strong emphasis on communicating scientific discoveries and their implications regarding Earth's climate and future changes to schools, the public, policymakers and Antarctic and climate change stakeholders.

HOW YOU CAN SUPPORT THE ARC

The Antarctic Research Centre is supported by funds donated to the Victoria University Foundation, including an Endowed Development Fund to support student research. Donations can be made through the Victoria University Foundation, a registered charity.

www.victoria.ac.nz/foundation

FIND OUT MORE

The Antarctic Research Centre and its work

www.victoria.ac.nz/antarctic

Studying science at Victoria

www.victoria.ac.nz/science

Climate change research at Victoria

www.victoria.ac.nz/climate-change

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ANTARCTIC RESEARCH CENTRE

VICTORIA UNIVERSITY OF WELLINGTON



OUR MISSION

The Antarctic Research Centre's (ARC) mission is to improve understanding of Antarctic climate history and processes and their influence on the global climate system, especially on New Zealand and the southwest Pacific region. This is needed to provide a sound basis for national and international debate and policy development on global change issues. The field also provides exciting opportunities and challenges for young researchers.

OUR RESEARCH APPROACH

Earth's present human-induced global warming trend and the changes projected for the polar regions, oceans, glaciers and our climate have parallels in ice core and geological records of the past. Our research is motivated by a need to understand past climate processes (palaeoclimate), particularly the role of Antarctic ice sheets in the global climate system during 'warmer-than-present' times, as a basis for more accurate assessment of future climate and sea-level change.

Our research involves acquiring data from the climatically-sensitive regions of Antarctica and the Southern Ocean through innovative geological and ice drilling programmes, so that we can understand the link between polar climate drivers and climatic consequences.

CLIMATE FROM ANTARCTIC AND OCEAN FLOOR SEDIMENT CORES

Sediment cores provide the physical evidence of past Antarctic ice sheet fluctuations that resulted in changes to sea levels, ocean circulation and global climate over many millions of years. Our researchers participate in large international drilling projects such as ANDRILL and the Integrated Ocean Drilling Program.

CLIMATE FROM ANTARCTIC ICE CORES

Coastal glaciers in Antarctica are highly sensitive to changes in atmospheric circulation that control Antarctic climate. Cyclonic weather systems that circle the Antarctic have as much influence on our climate as the tropical systems which bring El Niño and La Niña climatic patterns to New Zealand. Cores from these glaciers provide high resolution data from the last few thousand years of Antarctic climate. Ice cores are analysed and stored at the New Zealand Ice Core Research Laboratory, located at GNS Science.

SCIENCE DRILLING OFFICE

World-leading expertise in sea ice operations and innovative polar drilling technology has been integral to the success of our research over three decades. The Science Drilling Office is part of the ARC and supports collaborative international research for both ice and sediment drilling projects.

GLACIOLOGY, GLACIER AND CLIMATE MODELLING

Our research looks at the way Southern Hemisphere mid-latitude and Antarctic glaciers respond to past, present and future climatic changes. We aim to identify these changes by quantifying estimates of past temperature and precipitation.

Palaeoclimate data from all our projects feed into the latest ice sheet and climate models, which are tested against the past climate conditions in order to better predict the future response of Antarctic ice sheets and New Zealand's climate to global warming.

JOINT ANTARCTIC RESEARCH INSTITUTE

Victoria University of Wellington and GNS Science formalised their longstanding collaboration on Antarctic and Southern Ocean research with the formation of the Joint Antarctic Research Institute (JARI) in 2006. NIWA joined JARI in 2009.

SUPPORT

Our main research programmes are funded by the Foundation for Research Science & Technology, the Royal Society of New Zealand Marsden Fund, and Victoria University Foundation Endowments.

