Gary Wilson

University of Otago and NZARI, New Zealand

DISCOVERY100: Implementing a multi-disciplinary observing array for Subantarctic science on South Georgia

Dr Gary Wilson, Dr Judith Brown, Mike Pinnock, Dr Paul Brickle

University of Otago, Dunedin, New Zealand; South Atlantic Research Institute, Stanley, Falkland Islands; British Antarctic Survey, Cambridge, UK; South Atlantic Research Institute, Stanley, Falkland Islands

Only in recent years have we recognised the importance of Subantarctic earth-system processes in regulating atmospheric CO2, global climate and ocean circulation. With much attention directed on change within the true polar region, the boundary zone where processes are both sensitive and highly responsive to changing climate have been relatively overlooked. Situated in the direct path of the Southern Westerly Winds and the Antarctic Circumpolar Current, coupled with glaciers eroding the island and a rich biodiversity the Island of South Georgia is a microcosm within which key elements of the Earth's system can be observed.

To mark the scientific legacy of the Discovery Investigations, stimulated in response to South Georgia's whaling industry 100 years ago, the DISCOVERY100 project will utilise advances in new technology to pioneer multidisciplinary Subantarctic science for the benefit of the international community. Data collection will advance knowledge of the interactions between the atmosphere, ocean, land, ice and the abundant and diverse ecosystems on and around South Georgia and will be vital for elucidating the impact of climate change on critical Subantarctic processes and species. Ensuring integration with other Southern Ocean initiatives DISCOVERY100 will establish a state-of-the-art observation array, including fixed and autonomous instruments (including an ANTOS Tier 3 system), providing real-time monitoring of key environmental parameters and thereby contributing to global earth system science. Open access data and 'free at the point of use' facilities will assist grant applications from international scientists to ensure future sustainability of the programme. Critically information will also help to inform decisions on the management of the environment, heritage and commercial assets of South Georgia. Here we set out the scientific case for DISCOVERY100, the technologies to deliver it, the role of international collaboration in making it a success and the long-term vision for ensuring the legacy lasts another 100 years.