KING GEORGE ISLAND GLACIAL HISTORY (KNIGHT)

Ongoing global heating is melting glaciers and ice sheets all around the World. As approximately 10% of the Earth's land surface is covered by glacier ice, the effect of this melting on human activity is profound. One of the most striking consequences of global heating is sea level rise, especially as approximately 50% of the World's population live in coastal areas. It is therefore important to understand how glaciers are melting and how they are contributing to rising sea levels, in order to predict future global impacts. Nowhere is this more important than in Antarctica, which contains enough ice to raise sea levels by about 60 metres should it all melt. However, understanding how the Antarctic Ice Sheet will behave in the future is a complex problem. One way to do so is to look at how the ice sheet has behaved in the past, which can provide useful information for understanding how it may behave in the future.

The deglaciation of areas in the Antarctic Peninsula since the Last Glacial Maximum (LGM), about 18 000 years ago, uncovered rocks that can be dated using Terrestrial Cosmogenic Nuclide (TCN) dating. This exposure dating technique allows us to understand when the ice receded in different locations, which can be used to understand the patterns by which the ice sheet changed. By also mapping the glacial landforms that remain, as well as investigating the sediments deposed by the glaciers, we can reconstruct how the glaciers in the past behaved.

This project aims to use TCN dating, geomorphological mapping, and sedimentological investigations to reconstruct the recession and behaviour of the ice sheet around the Admiralty Bay area, King George Island, South Shetland Islands, Antarctica, since the LGM. By doing so, the changes in ice sheet size and behaviour over time can provide us with insights about how the ice sheet reacted to past climate change. Furthermore, reconstructing the glacial history of this area will also provide an important analogue for understanding how modern-day sectors of the Antarctic Ice Sheet may respond to a warming climate.