Cambridge team reach bedrock to complete Antarctic ice core[1]

A team of scientists and engineers from the University of Cambridge and the British Antarctic Survey has successfully drilled over 650 metres in to an Antarctic ice cap to obtain an ice core that will show how the West Antarctic Ice Sheet responds to warming.

The team, now consisting of six people, has been at Skytrain Ice Rise for the last seven weeks. This remote ice cap bordering the West Antarctic Ice Sheet (WAIS) is ideally placed to assess whether the WAIS retreated during warm periods in the past. The ice cap there is just over 600m thick, and chemicals and gases trapped in the ice contain a record of past climate. Because of its location, it is an ideal place to assess how large the neighbouring ice sheet and ice shelf were in the past.

The scientists are particularly interested in a period known as the last interglacial, around 125,000 years ago. At this time, Antarctica was warmer than today, at temperatures comparable to those expected in the next century, and sea level was higher. The core will show whether the warmth led to loss of part of the WAIS, giving solid evidence to assess what will happen in the future.

The drillers have retrieved around 15-20m of ice each day, working in shifts 16 hours per day. The ice core, 651.04m long and 10cm in diameter, has been cut into 80cm lengths, and packed in insulated boxes. It will be transported in a freezer at -20°C to the UK where it will be analysed starting next summer. The drill site consists of several small and large tents. The team have had to contend with strong winds and blowing snow but have been able to drill throughout.

Speaking from the field site after bedrock was reached on Tuesday, Professor Eric Wolff said "It's been nerve wracking waiting to reach the bottom. Now we have ice that will really tell us how the ice sheet responds to warmth".

Dr Robert Mulvaney from the British Antarctic Survey, who led the drilling, said "We are really pleased that we have drilled over 600m in a single season. Seeing how the ice sheet contributed to sea level in the past is crucial for predicting its change in the future".

Find out more and follow the progress of the project on our website, blog, and by following @WACSWAIN on Twitter.

Professor Eric Wolff, who is also supported by a Royal Society Professorship, leads the WACSWAIN project which is being carried out by scientists, engineers and field specialists from the University of Cambridge's Department of Earth Sciences and the British Antarctic Survey.

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[1] Published January 2019 © Department of Earth Sciences