

UK scientists to unearth Ice Age secrets from preserved tree rings

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New Zealand's Kauri trees can measure up to four metres wide and live for up to 2,000 years. Credit: Chris Turney.

(PhysOrg.com) -- Oxford University is involved in a research project to unearth 30,000 year old climate records, before they are lost forever. The rings of preserved kauri trees, hidden in New Zealand's peat bogs, hold the secret to climate fluctuations spanning back to the end of the last Ice Age.

The team, led by Exeter University, has been awarded a grant from the Natural Environment Research Council to carry out carbon dating and

other analyses of the kauri tree rings. The trees store an immense amount of information about rapid and extreme [climate change](#) in the past. For instance, wide ring widths are associated with cool dry summer conditions. The scientists believe their findings will help us understand what future climate change may bring.

Tree rings are now known to be an excellent resource for extracting very precise and detailed data on [atmospheric carbon](#) from a particular time period. Therefore this study could help plug a large gap in our knowledge of climate change by extending historical weather records that only date back to the mid-nineteenth century.

There is nowhere else in the world with such a rich resource of ancient wood that spans such a large period of time. The ancient kauri logs are of enormous dimensions, up to several metres across, and have the potential to provide new detailed information about rapid, extreme and abrupt climate changes at a time when there was significant human migration throughout the globe.

While various records exist for historic climate change, such as those derived from ice cores, there is no easy way of correlating these records. The research will focus on the last 30,000 years, but some trees date back 130,000 years. The period towards the end of the last Ice Age is particularly difficult to understand.

This unique archive of kauri trees is likely to be lost within the next ten years because the timber is so highly-prized for furniture, arts and crafts. Kauri (*Agathis australis*) are conifer trees buried in peat bogs across northern New Zealand. Trees can measure up to four metres wide and live for up to 2,000 years. As well as containing information on past climates, they could also shed light on environmental and archaeological change.

Samples from a network of sites with buried trees will be collected in New Zealand and taken back to the UK laboratories for preparation and analysis at Exeter and then radiocarbon measurement at Oxford.

Professor Christopher Ramsey, from the School of Archaeology at the University of Oxford, said: ‘This gives us a unique opportunity to increase our knowledge of the earth’s climate and human responses to it at the end of the last [Ice Age](#). The radiocarbon measurements should give us important new data that will help us to understand interactions between the atmosphere and the oceans during this period when there was rapid and dynamic change. Equally exciting is the prospect it will give us of more precise dating of archaeological sites from this period - illuminating the only window we have onto how humans responded to these major changes in the environment.’

Lead researcher Professor Chris Turney of the University of Exeter said: ‘We are facing a race against the clock to gather the information locked inside these preserved [trees](#). It is fantastic to have this funding so we are able to gather this information before it is lost forever. While it will be fascinating to find out more about the earth 30,000 years ago perhaps more importantly we will have a better appreciation of the challenges of future climate change.’

Provided by Oxford University

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