

Climate change nothing new in Oz

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While we grapple with the impact of climate change, archaeologists suggest we spare a thought for Aboriginal Australians who had to cope with the last ice age.

"The period scientists call the Last Glacial Maximum, or LGM for short, is the most significant climatic event ever faced by humans on this continent," Associate Professor Sean Ulm from James Cook University in Cairns said.

Research recently published in the *Journal of Archaeological Science* sheds new light on the ways Aboriginal civilisation met the challenges of extreme climate change during the Last Glacial Maximum, which peaked around 20,000 years ago.

"The magnitude of change was phenomenal," said Professor Ulm, a lead researcher on the project and Deputy Director of JCU's Centre for Tropical Environmental and Sustainability Science.

"Lakes dried up, forests disappeared, deserts expanded, animals went extinct and vast swathes of the Australian land mass would have been simply uninhabitable."

Annual temperatures plummeted by as much as 10 degrees below present-day levels, with massive reductions in rainfall. Glaciers appeared in the Snowy Mountains and Tasmania.

"This was a time of massive change," Professor Ulm said. "Sea levels

fell more than 120 metres during the LGM, exposing much of the continental shelf and connecting mainland Australia to Papua New Guinea and Tasmania."

Australian researchers from James Cook University, the Australian National University and the University of New South Wales teamed up with colleagues from Oxford University in the United Kingdom and Simon Fraser University in Canada to use advanced geospatial techniques to analyse archaeological [radiocarbon dates](#) from across Australia.

"We are trying to understand how people responded to these extreme conditions," Professor Ulm said.

The researchers found that during times of high climatic stress, [human populations](#) contracted into localised environmental 'refuges', in well-watered ranges and along major riverine systems, where water and food supplies were reliable.

Co-leader of the study, Alan Williams from the Fenner School of Environment and Society at The Australian National University, said surviving the last ice age required Aboriginal communities to adapt to massive change.

"As much as 80 per cent of Australia was temporarily abandoned by Aboriginal people at the height of the LGM, when conditions were at their worst," he said.

"Along Australia's east coast, people contracted to refuge areas with good water supplies – most likely the result of increased summer snow melt coming off mountain ranges like the Victorian Alps, or glacier-fed river systems such as those of the central highlands of Tasmania."

Professor Ulm said that while those better-watered areas would have provided more reliable resources, Aboriginal people needed to make significant changes to their way of life in order to survive.

"The archaeological evidence reflects major changes in settlement and subsistence patterns at this time," he said.

"Many previously occupied areas were abandoned.

"There were changes to hunting practices, the types of food people were eating, and the technologies they were using, to deal with new circumstances.

"We expect there would have been huge impacts on social relationships and religious beliefs as well, but these types of changes are much harder to detect in the archaeological record.

"One thing we can say for sure is that extreme [climate change](#) results in the fundamental social and economic reorganisation of society.

"This was certainly true in the past and will be true in the future."

More information: The research is published in the December issue of the *Journal of Archaeological Science*.

Provided by James Cook University

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