GRIFFITH UNIVERSITY
QUEENSLAND AUSTRALIA

# ARCHE Seminar Series 2024

*Australian Research Centre for Human Evolution Seminar Series*

## "Reconstructing Pleistocene food webs: the potential of non-traditional isotopes"

Presented by Dr Dafne Koutamanis

Food webs play important roles in Pleistocene vertebrate evolution. Yet, food web reconstructions of Australasian Pleistocene fauna have been hindered by the lack of suitable trophic level proxies when collagen is not well-preserved. Non-traditional stable isotopes, in particular calcium (Ca) isotopes, have the potential to fill this gap, as they can be measured from dental enamel and can indicate an animal's trophic position. In this seminar, I will introduce non-traditional isotopes and their applications to archaeology and palaeontology. I will focus on my PhD project, which explored food webs of Pleistocene Australian megafauna and island fauna from Flores (Indonesia) through Ca isotopes, combined with radiogenic strontium (Sr) isotopes.

First, I will discuss Ca and Sr isotope data from modern Tasmanian bare-nosed wombats and from Pleistocene marsupial mega herbivores from Wellington Caves and Bingara. With the modern data as a reference, the Pleistocene data revealed Ca isotope signatures distinct herbivore diets, indicating future potential research avenues for Ca isotopes in Australian megafauna. Next, I will present a preliminary food web reconstruction of Early- to Middle Pleistocene fauna from the So'a Basin, Flores. In addition to a small-bodied hominin, the So'a Basin was home to multiple reptile predators (Komodo dragons and crocodiles) and mammalian herbivores (giant rats, pygmy-, and medium-sized elephants). So far, the data show how such food web reconstructions can shed light on processes of island evolution in Wallacea.

**Bio:** Dafne Koutamanis is an archaeologist and isotope geochemist who recently joined Griffith University as a postdoctoral research fellow at ARCHE. With a background in archaeology, specialised in human evolution at Leiden University (Netherlands), Dafne's interest in the role of ecology in hominin dispersal and biodiversity led her to isotope geochemistry. During her PhD at the University of Wollongong, Dafne explored calcium and strontium isotopes in reconstructing dietary behaviour of Pleistocene fauna from Australia and Indonesia. This interdisciplinary trajectory expanded Dafne's research interests and opportunities into modern ecology, environmental contamination, conservation, geology, and biomedicine, leading to a postdoc position in earth sciences at James Cook University, before joining ARCHE and returning to her main passion of research human evolution and biogeography. Dafne is committed to contributing to advancement of equity, diversity, inclusion, and wellbeing at work in academia.

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| **Date/Time:** | **Thursday 14th November @ 1.30pm** |
| **Room:** | **N29_0.03 (Nathan Campus)** |



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