




EDITORIAL

Preface: Proceedings of the 3rd Radiocarbon and Diet Conference

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The first Radiocarbon and Diet conferences were held in 2014 (Kiel) and 2017 (Aarhus). They aimed to foster interdisciplinary connections, between those working within radiocarbon facilities and those within the stable isotope community across archaeological, geoscience and ecological fields. These conferences focused on radiocarbon reservoir effects which can introduce errors in radiocarbon-based chronologies. However, these effects also offer valuable insights into the consumption of freshwater and marine resources, which may be difficult to detect using traditional archaeological and stable isotope methods. Over the past decade, there have been significant advancements in methodologies that enhance our understanding of past diets, broadening the scope of this conference. The analysis of stable isotopes in single amino acids has enabled more precise identification of aquatic resources, improving our ability to predict and understand reservoir effects. Additionally, lipid analysis within ceramic matrices now allows us to identify, and even directly radiocarbon date, dietary resources that were previously overlooked in the archaeological record.

With researchers active in dietary analysis and radiocarbon fields, the School of Archaeology in the University of Oxford bid to host the 3rd conference. The conference was scheduled for 2020, and we thank Thomas Higham and a local organising committee for investing a substantial amount of effort to organise a conference that was cancelled because of the COVID pandemic. The 3rd Radiocarbon and Diet conference was held 20th–23rd June 2023. 82 participants attended from 22 countries, with 32 oral and 10 poster presentations. Eight papers are included in this conference proceedings. We aimed to reduce our carbon footprint in this conference by providing vegetarian food during the day and avoiding printed material and conference goodie bags. The conference was also held in a hybrid format enabling widely dispersed participants to attend, and we are particularly thankful for the patience of the online participants with microphone teething problems and the inevitable time zone discrepancies.

Emmanuel Casanova opened the conference with a plenary presentation which provided an update on the radiocarbon dating of lipid residues in archaeological ceramics. Two invited presentations explored key connections between radiocarbon and diet. Klervia Jaouen spoke on *Assessing freshwater and marine fish consumption around prehistoric populations using CSIA-AA and Zn Isotope Ratios*, and Bente Philippsen spoke on *The freshwater reservoir effect, a tool to reconstruct diet and environment*. Fiona Petchey explored the temporal variability in the marine reservoir effect and how this

may be harnessed to improve archaeological chronologies in the Pacific in the final invited talk entitled *Temporal changes in the South Pacific marine ¹⁴C reservoir – potential markers for refining chronologies*.

Presentations were divided into 6 sessions, which showcased the diversity connections between radiocarbon and diet. The first session on “Reservoir Effects: current challenges” focused on the current challenges in quantifying and understanding the size and variability of marine and freshwater reservoir effects. The second session developed this further, and considered how past diets can be reconstructed, and how this understanding can be used to inform radiocarbon chronologies, and vice versa. The third session was devoted to the isotopic analysis of specific lipid compounds and amino acids, and submissions and covered methodological issues, as well as presenting new applications. The fourth session explored how we can assess diachronic change in subsistence practices using radiocarbon and isotopic methods by studying tissues that turn over at different rates or preserve incremental growth structures. The fifth session examined how dietary practices changed or were maintained over time, whilst the final session examined how radiocarbon and an understanding of diet is critical when studying the recent past in ecology and forensic science.

The proceedings reflect the diversity of methods, challenges and case studies that were discussed during these sessions. Casanova et al. (<https://doi.org/10.1017/RDC.2024.61>) provide a series of guidelines when dating lipids in ceramics, aiming to expand the use of what until now has been an experimental method. Radiocarbon reservoir effects continued to form the core of this conference with, for example, Schulting et al. (<https://doi.org/10.1017/RDC.2024.125>) evaluating whether a reservoir effect or misplaced mandible was responsible for an apparent discrepancy in radiocarbon dates in a grave in Shamanka II in Siberia. Complementing this, several papers sought to examine methods to better characterise aquatic resource consumption, as Agurauja-Lätti et al. (<https://doi.org/10.1017/rdc.2025.10104>) have described in Historic Period Estonia. A large number of abstracts were submitted which aimed to examine the chronology of dietary change. For example, Barberena et al. (<https://doi.org/10.1017/RDC.2024.50>) assess the temporal dynamics of human migration and diversity of life histories in interacting groups in the Andes, whilst González Carvajal et al. (<https://doi.org/10.1017/RDC.2025.22>) examine dietary change through time in north-central Chile. Kufnerová et al. (<https://doi.org/10.1017/RDC.2024.62>) argue for the need for radiocarbon dating when assessing whether ivory is antique or whether it contravenes international trade bans using an example from Hong Kong. Strimenopoulos and Lozano explore the correlation between dental microwear analysis and dietary habits of Neanderthal populations that lived in the Iberian Peninsula (<https://doi.org/10.1017/RDC.2024.53>). Finally, Trubac et al. (<https://doi.org/10.1017/RDC.2025.10119>) present a forensic method combining strontium isotope ratios and trace element analysis in shed skins to distinguish wild-caught from captive-bred green tree pythons, which could help combat the illegal trading of these popular snakes.

The 4th Radiocarbon and Diet conference will be combined with the 3rd Latin American Radiocarbon Conference (CLARa3) and held in Santiago, Chile, in July 2026. The organizers of this eagerly anticipated meeting are Kita Macario and Francisca Santana Sagredo.

Prize winners

Student Travel Grant winner (sponsored by IonPlus): Victor Morcillo, University of Bordeaux

Student Best Presentation winners (sponsored by IonPlus and the Meyerstein Fund): Corrie Hyland, University of Oxford, and Emilie Green, University of Aberdeen



Conference photo

Conference participants. Photo by Ian Cartwright.

Scientific committee

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