Reconstructing seasonal patterns

High-resolution analysis of limpet shells from Oronsay

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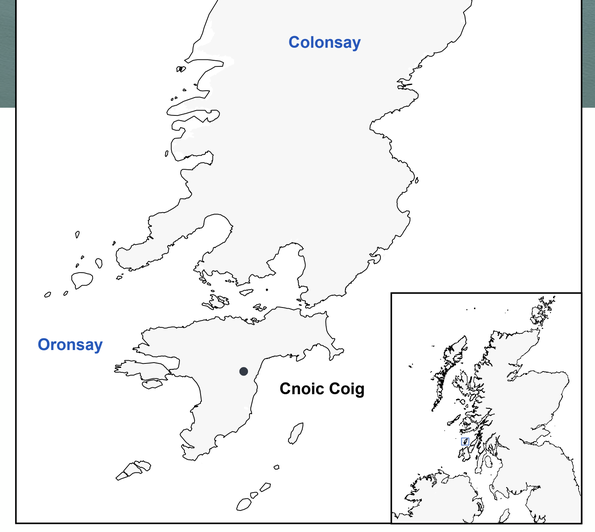


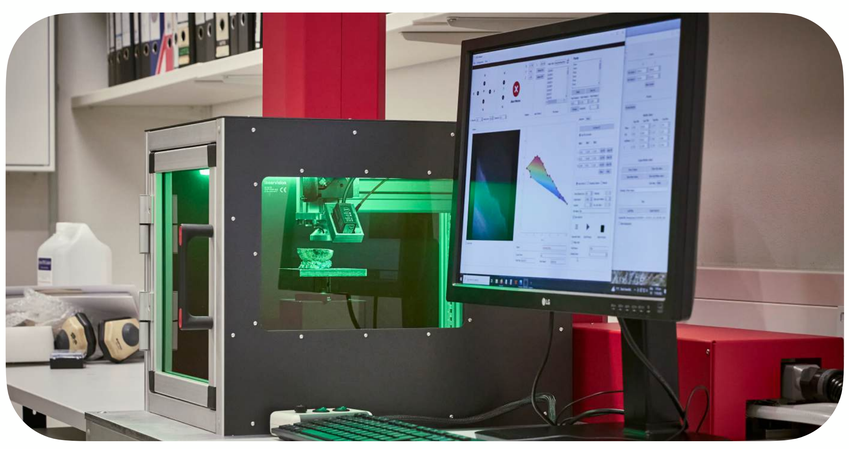
Mesolithic Oronsay

Evidence for the permanent occupation of Oronsay in the inner Hebrides of Scotland was unclear and debated for many decades.
Here we present season of death data from limpet shells excavated at the **Cnoc Coig** shell midden this July.

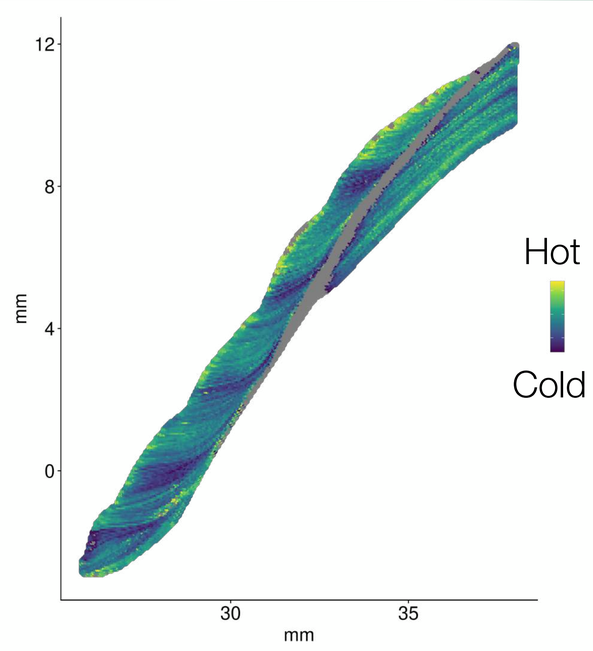
Methodology

Using Laser-Induced-Breakdown-Spectroscopy (LIBS) provides us with a high-resolution (<50 µm) dataset in a short amount of time with no running costs*. This way we were able to study 85 shell specimens in only one week.

1. Limpet shells collected in situ**.



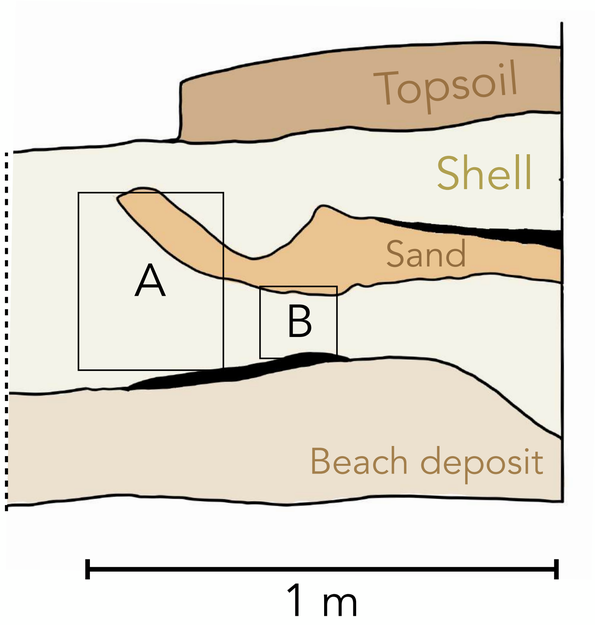
2. Shells were sectioned and studied using elemental imaging via LIBS.

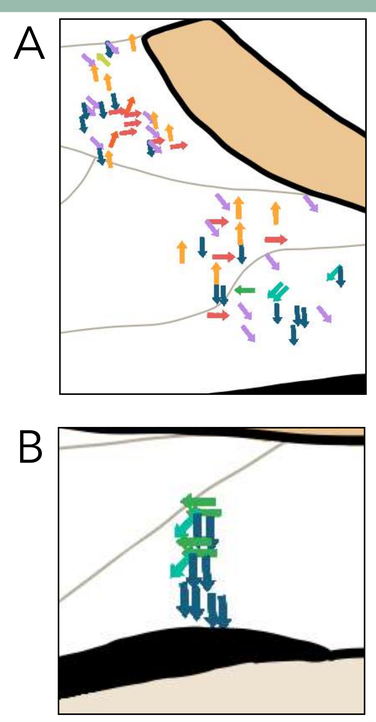


3. Mg/Ca distributions reveal seasonally changing temperature patterns***.

Results

Cnoc Coig Section H11





Main Outcomes:

1. Limpet shells show that the site was **occupied in each season**.
2. **Autumn to Winter** dominate.
3. Stratigraphic distribution of the shells was in parts clustered, suggesting **multi-season periods of shell accumulation**.

, **,*: see QR-Code above for references*

Summary

Our study Cnoc Coig reveals complex multi-seasonal deposits that are in line with year-round occupations rather than only short-term occupations in specific seasons by resolving the methodological issues of previous seasonality studies For a better understanding, further seasonality analyses will be carried out in tandem with ^{14}C measurements.