

Scientific geo-ethnoarchaeology and its archaeological application to investigate farming, settlements and agriculture in the past

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Research Questions and Aims

How can we use **microscopic** and non-visual proxies instead of macroscopic proxies to examine **anthropogenic** and **animal signatures** from archaeological sites?

Can we use **ethnoarchaeological** sites to test a scientific archaeological techniques and new methodological approaches?

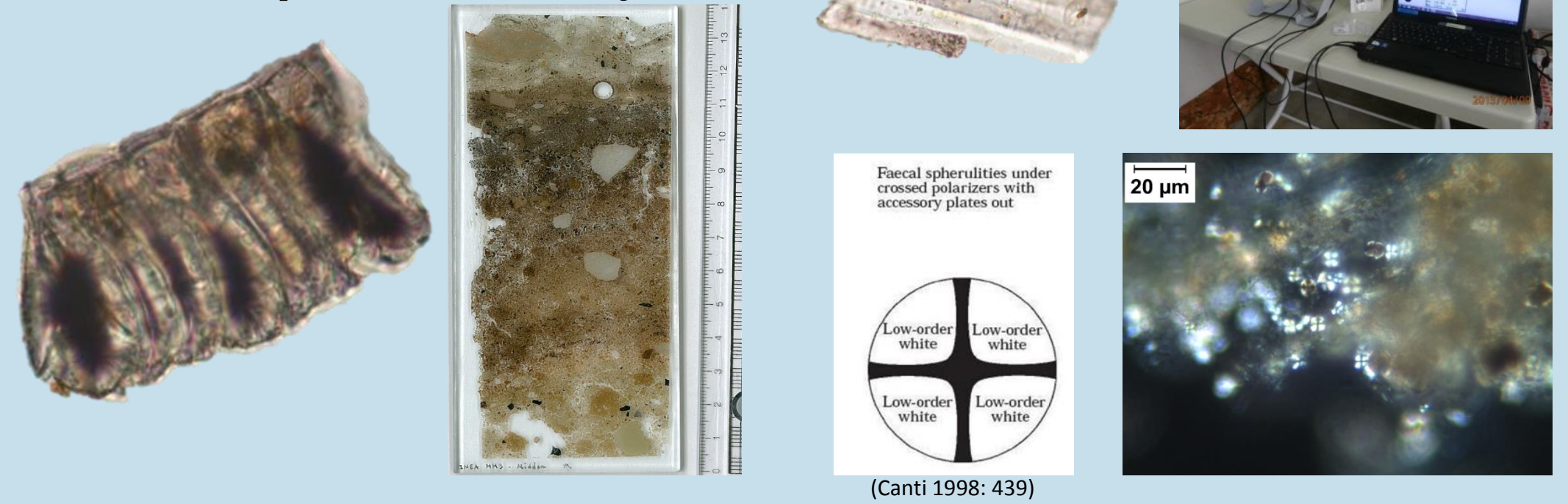
The aim of this research is to develop a inter-disciplinary research framework to better interpret the ephemeral archaeological signatures of the **Near East**, and further our understanding of the beginnings of **farming, agriculture** and **sedenterisation**.

This research combines the analysis of **archaeological** evidence with comparative **ethnoarchaeological** datasets. The aim is to implement and test this developing approach in the field on wide ranging case studies in an area where farming and settled villages first occurred, **Jordan**.

Methods

This integrated approach involves the analysis of multiple anthropogenic signatures in sediments and microanalysis of animal dung:

Portable X-ray Florescence (**pXRF**) of chemical elements
Silica **Phytolith** Analysis
Micromorphology
Faecal **Spherulite** Analysis



Ethnoarchaeological Data



Archaeological parallels in modern villages (e.g. Al Ma'tan, Jordan)



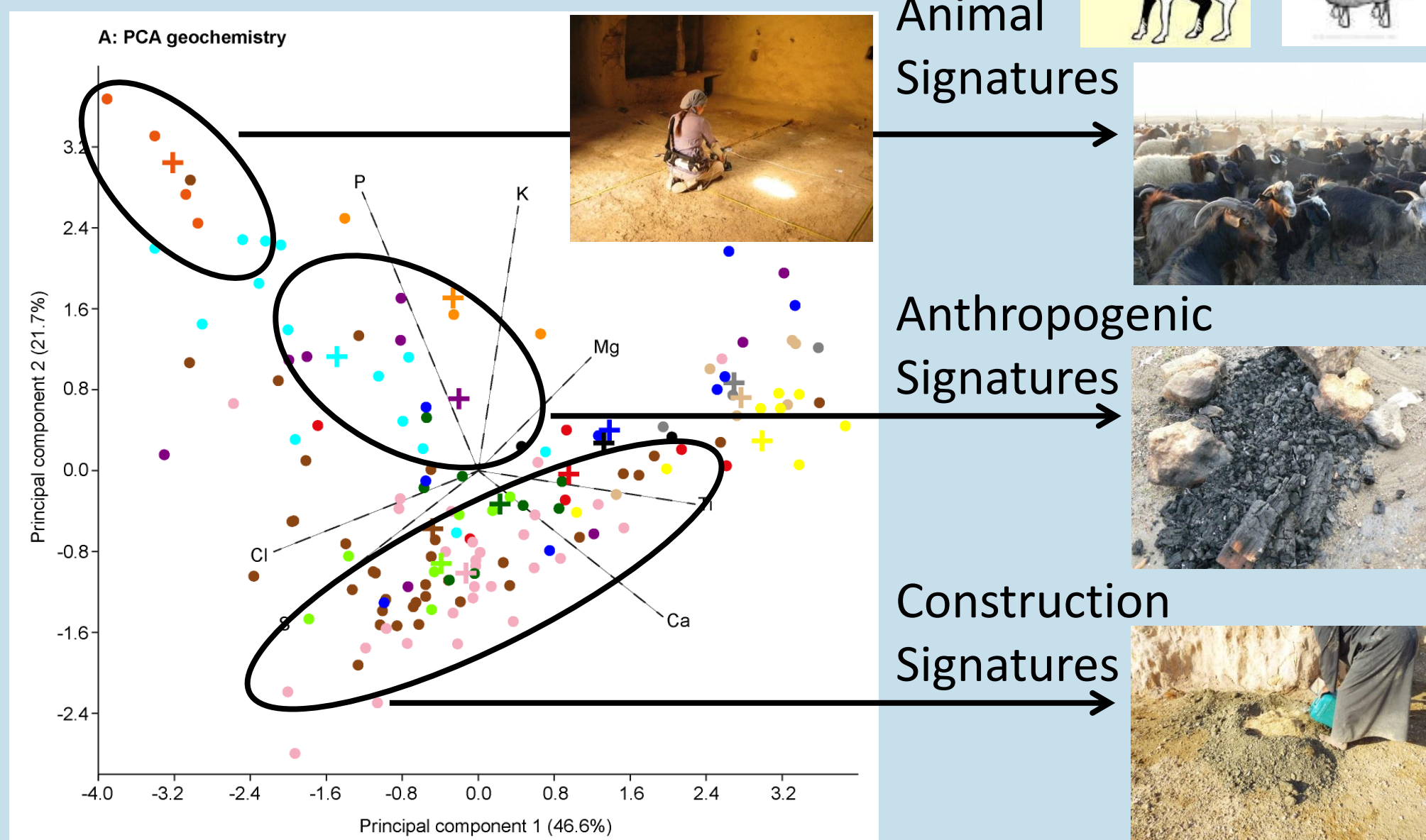
Modern Dung reference material with known diet and species analyses

Archaeological Data

Sediments from a range of Pre-Pottery Neolithic A and Pre-Pottery Neolithic B contexts in Jordan



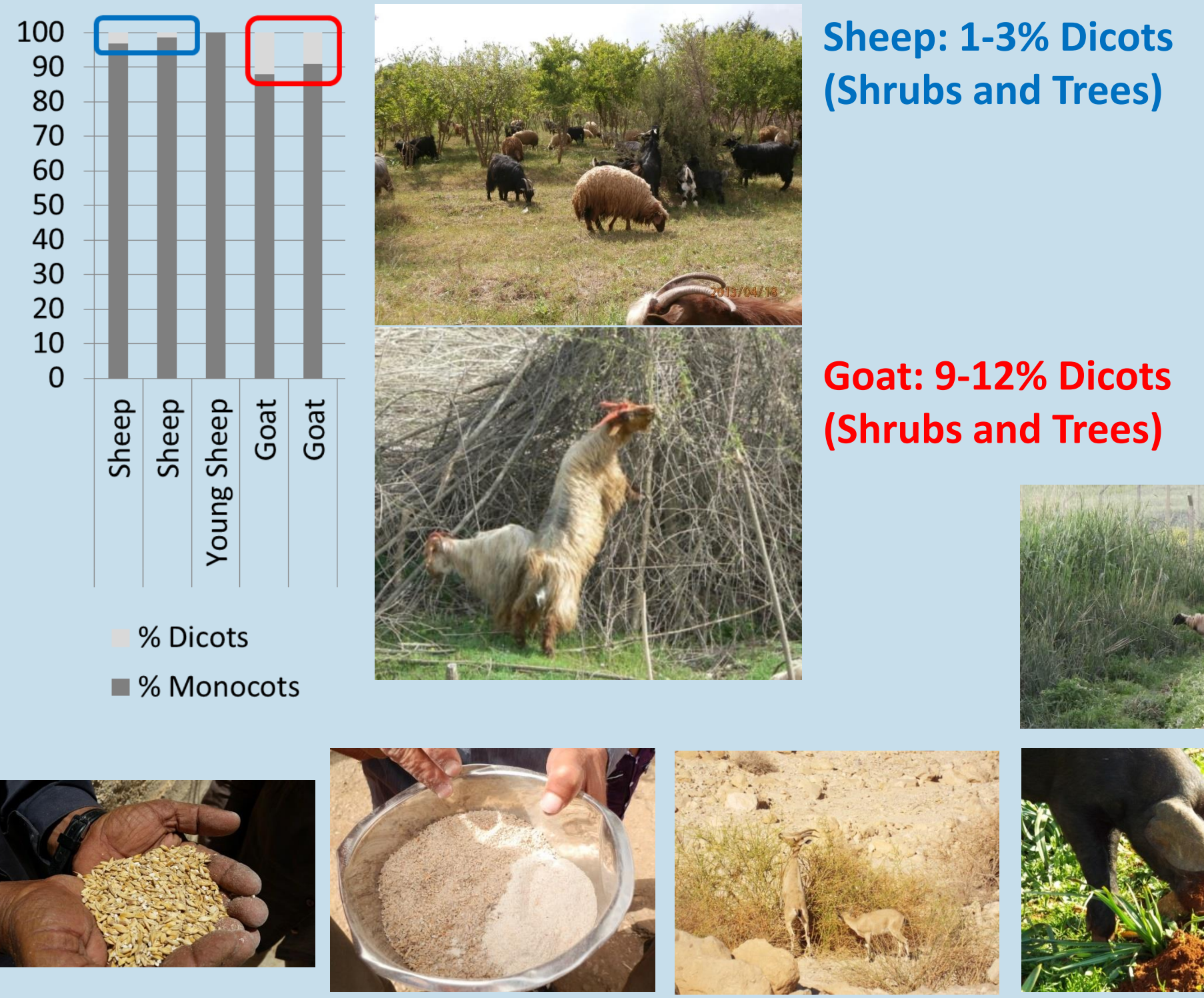
Settlements, People and Animals



Key:

- Animal Occupation: Sheep (orange), Goat (yellow)
- Control type 1: Blue
- Control type 2: Green
- External/Courtyard: Red
- External fire installations and ashy deposits: Orange
- Floors and surfaces: Yellow
- Hearth make-up: Green
- Internal fire installations and ashy deposits: Purple
- Midden: Blue
- Mortars: Yellow
- Plasters and clay features: Green
- Platforms and benches: Cyan
- Roofs and roofing materials: Orange
- Storage features: Yellow

Farming: Grazing, Browsing, Foddering



Conclusions

Preliminary **geo-ethnoarchaeological data** and **archaeological data** from **Al Ma'tan**, **WF16** and **'Ain Ghazal** have produced promising results using combined **geochemistry**, silica **phytolith** analysis, **micromorphological** analysis and faecal **spherulite** analysis (AHRC funded **INEA Project**, BU/CBRL). This current stage of funded research is expanding case studies to include more ethnoarchaeological sites and archaeological sites.

Acknowledgements

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