



## Integrating a complex late prehistoric settlement system: Neutron activation analysis of pottery use and exchange at Saruq al-Hadid, United Arab Emirates



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### ABSTRACT

Temporary sites were a critical component of the prehistoric Near Eastern economy but, because of their ephemeral nature, are less frequently the focus of research than sedentary settlements. The present article presents the results of neutron activation analysis conducted on pottery from the temporary site of Saruq al-Hadid, United Arab Emirates. The results identified both continuity and change in the pottery consumed at the site in the Bronze and Iron Ages, which suggests that the peoples gathering here were integrated into economic practices observed at sedentary sites throughout southeastern Arabia.

### 1. Introduction

Pottery is ubiquitous at sites in the ancient Near East by the third millennium BCE. Ceramic vessels are used for the preparation, storage, and consumption of food as well as a variety of less well understood ritual practices. As a result, the study of pottery is an essential tool for illuminating past lifeways (Rice, 1987; Sinopoli, 1991). In particular, the geochemical analysis of pottery has proved to be an effective means of gaining insight into patterns of production and exchange (Speakman and Glascock, 2007). In the archaeology of the Near East, there is a tendency for the compositional analysis of ceramics to focus on pottery recovered from sedentary settlements, best typified by the man-made tells of mudbrick and stone that, following generation after generation of construction, collapse, and rebuilding, have come to loom over the surrounding agricultural plains. However, integral segments of ancient Near Eastern society moved between these sedentary settlements and temporary sites (Bernbeck, 2008; Porter, 2012). Much occurred beyond the sedentary villages, towns, and cities that is often not integrated into reconstructions of social and economic practice because of the difficulties associated with identifying temporary occupations and the allure of the mound. Compositional analysis of pottery from a temporary site has the potential to fill-in this gap and tie the groups that gathered

at these locations into the social and economic practices documented at sedentary settlements, creating a more accurate and complete picture of the past.

Saruq al-Hadid (Emirate of Dubai, United Arab Emirates) is such a temporary site located in the northern Rub' al-Khali desert (Fig. 1). Though extensive excavations have unearthed an area of approximately 7000 m<sup>2</sup> there is no evidence for permanent architecture, only traces of what were ephemeral buildings (Fig. 2) (Casana et al., 2009; Herrmann et al., 2012; Weeks et al., 2017; Weeks et al., 2018). What is even more remarkable is the fact that such temporary structures appear to have been erected episodically at Saruq al-Hadid for over a thousand years, with radiocarbon dates and stratigraphic evidence pointing to occupation levels from the late third millennium BCE to the early first millennium BCE and then after a hiatus of several centuries later periods of activity in the first and second millennia CE, leading to its designation as a 'persistent temporary place' (Weeks et al., 2018). The absence of standing architectural remains contrasts sharply with contemporary settlements both inland and along the coast where mudbrick and stone constructions are common and where occupation is regarded as more continuous (Magee, 2014).

This paper presents the results of the compositional analysis of the late third to first millennia BCE pottery from Saruq al-Hadid with the

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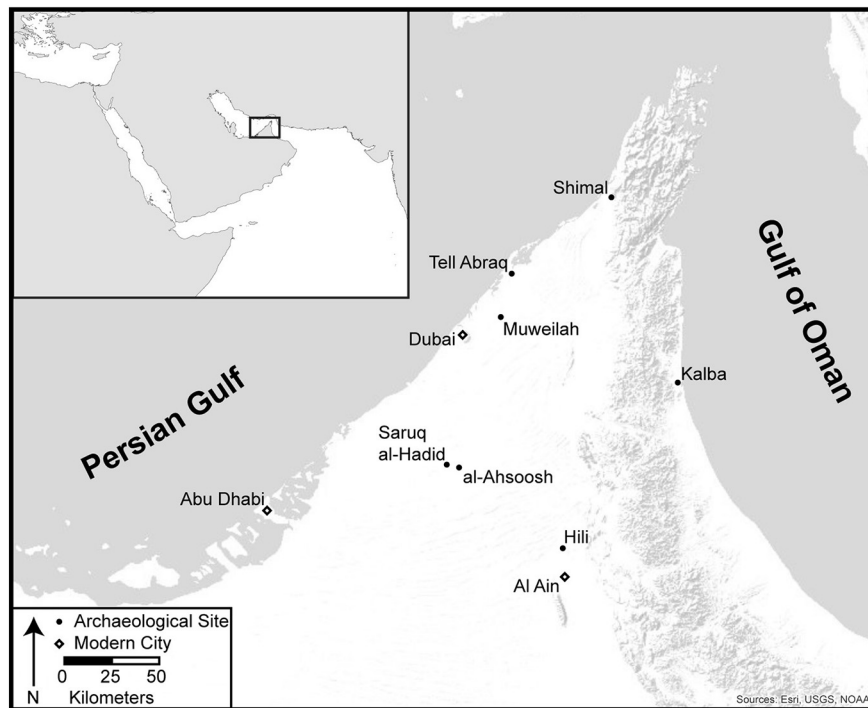


Fig. 1. Map of southeastern Arabia with sites mentioned in the text.

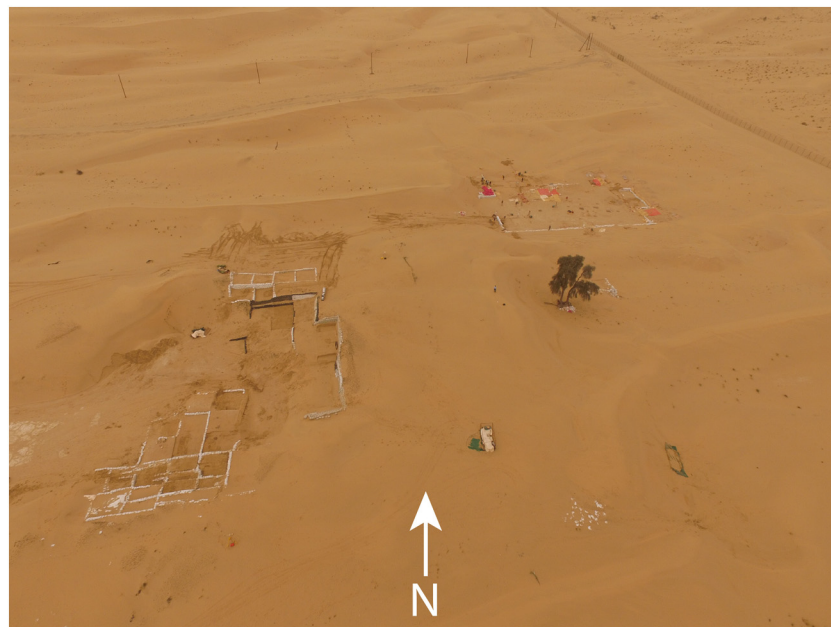


Fig. 2. Aerial photograph of excavations at Saruq al-Hadid. Note that the white linear features are walls of sandbags constructed to support the profiles.

specific aim of gaining insight into how a temporary site was integrated into the regional economy. This span of time is particularly critical in the history of southeastern Arabia, here defined as the modern states of the United Arab Emirates and northern Sultanate of Oman, because the archaeological record indicates a significant reduction in sedentary settlements during the early second millennium BCE before a flourish of new settlements at the start of the first millennium BCE. Explanations for the changes observed in the settlement record have been tied to subsistence strategies: the reduction of settlements in the second millennium has been interpreted as evidence for increased mobility (Cleuziou, 1979, 1989a; Al-Jahwari and Kennet, 2008, 210; Magee, 2014, 187–189), and the sudden increase of settlements in the early

first millennium has been linked to the development of *falaj* irrigation and the domestication of the dromedary camel (Magee, 2007). Of the sites in the region excavated to date, only two sedentary sites – Tell Abraq and Kalba – have continuous stratified deposits that span the second and first millennia (Carter, 1997; Magee et al., 2017; Magee and Carter, 1999), and exclusively focusing on these sites risks perpetuating the error of not looking beyond the sedentary settlement. A better understanding of the economic changes that occurred at Saruq al-Hadid, a persistent temporary place in the desert, sheds light not only on activities beyond these sedentary settlements but also this critical period of transition for southeastern Arabia.

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