Contextualizing Bronze Age Obsidian Use at the 'Ritual Spring' of Mitza Pidighi (Sardinia)

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Introduction

This study focuses on obsidian consumption at the 'ritual spring' of Mitza Pidighi in west-central Sardinia (**Figure 1**), Italy. The site dates to late Nuragic I to Nuragic III phases of the Bronze Age (ca. 1350-850 B.C.) and is found just east of a contemporaneous residential village. Mitza Pidighi consists of a natural spring surrounded by an oval-shaped construction of basalt blocks approximately 15 x 6 meters in size (**Figure 1**), a common construction type found throughout the island hypothesized to be related to a range of ritual activities. While recent years have seen a surge of archaeological literature on the subject of obsidian exchange networks and lithic reduction sequences at contemporaneous residential sites throughout the island, there has been no consideration of obsidian use in other archaeological contexts, a research bias that this presentation aims in part to redress.

Methods

In total, 801 chipped stone artifacts were recovered from Mitza Pidighi, of which approximately 78% was obsidian and the remaining material black/gray rhyolites. For this study, 142 obsidian artifacts from the site were analyzed non-destructively at the McMaster Archaeological XRF Laboratory (MAX Lab) using a Thermo Scientific ARL Quant'X EDXRF spectrometer to determine their geological origin (**Figure 2**). Following the analytical protocols devised by Shackley (2005: appendix), the samples were run under two analytical conditions to generate data (in ppm) for the elements iron (Fe), zinc (Zn), rubidium (Rb), strontium (Sr), yttrium (Y), zirconium (Zr), niobium (Nb), and barium (Ba), elements already shown to be successful in distinguishing between the various West Mediterranean sources and subsources (Freund 2014; Tykot et al. 2013). The quantitative results were ultimately compared with data generated from geo-referenced in situ geological samples of obsidian using the same instrumentation. The USGS standard RGM-2 was analyzed during each sample run to check machine calibration and accuracy. In addition, each artifact was analyzed techno-typologically to allow for the reconstruction of the entire chain of events leading up to an artifact's discard.

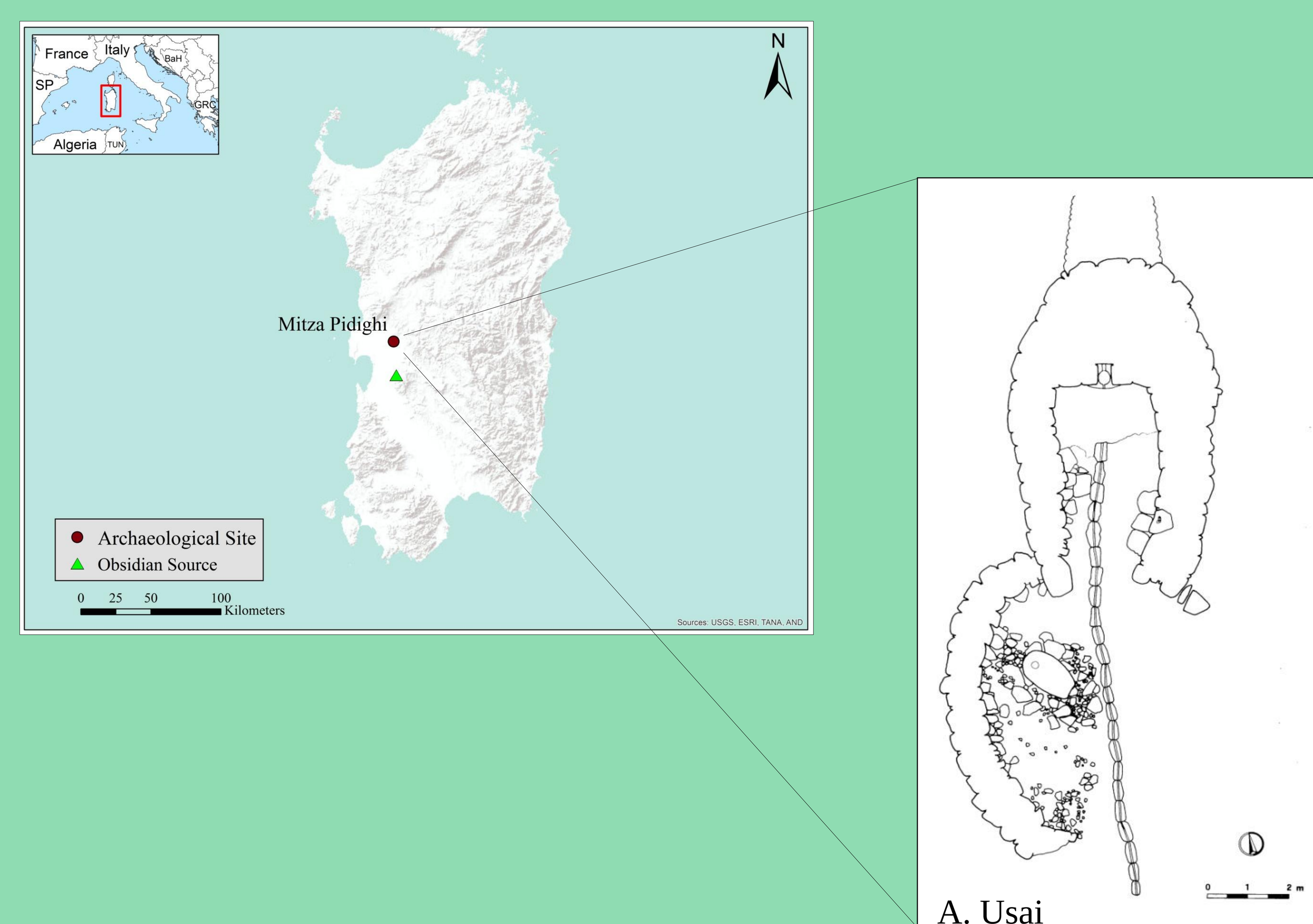

Figure 1. Map and plan of Mitza Pidighi.

Figure 2. Examples of cores (left) and bladelets (right) from Mitza Pidighi.

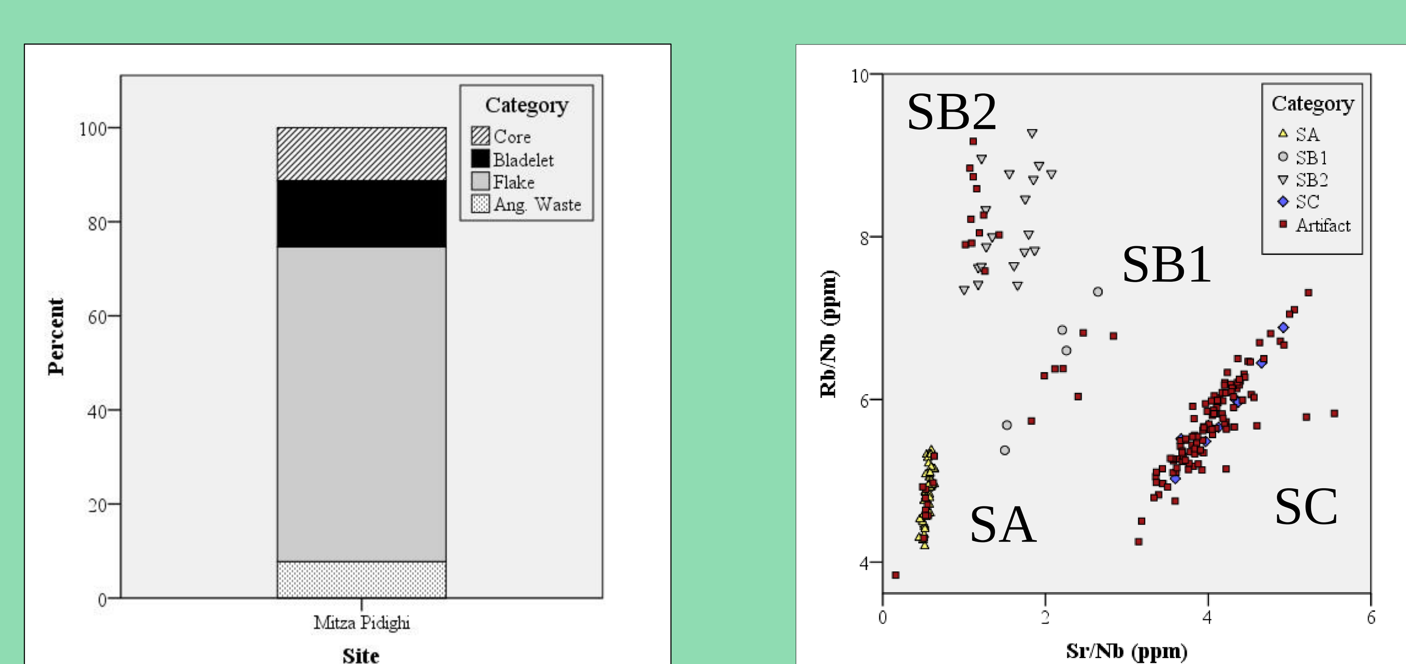

Figure 3. Techno-typological breakdown (left) and elemental sourcing results (right) from Mitza Pidighi.

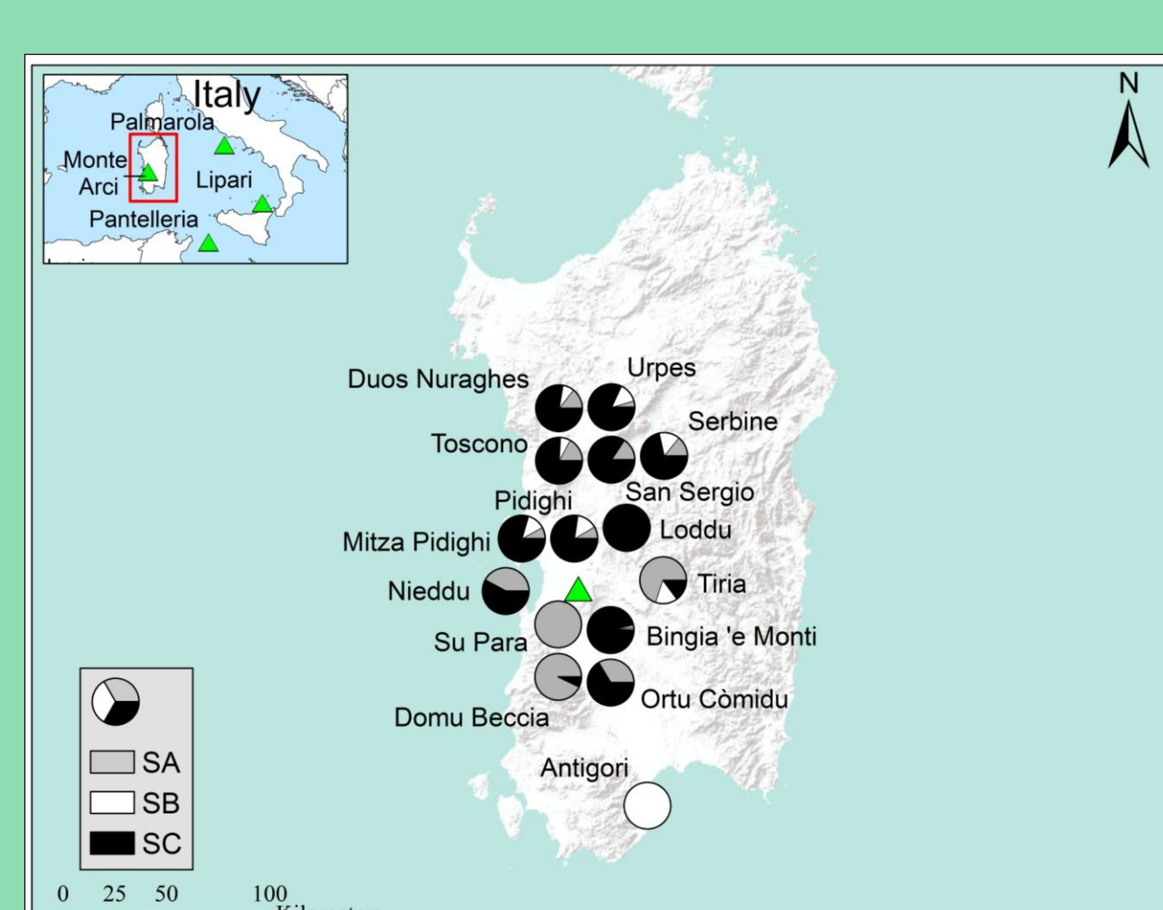

Figure 4. Map of the spatial distribution of the various subsources in Nuragic archaeological assemblages with eight or more analyzed artifacts.

Results

There is clear evidence for the primary reduction of obsidian at Mitza Pidighi, where the entire reduction sequence is represented by the presence of cores as well as flakes, bladelets, and angular waste (**Figure 3**). Bladelets comprise about 15% of the assemblage while they are virtually absent from most known Nuragic sites, although they are also found at the nearby village of Nurghe Pidighi.

Based on an examination of the bi-variate plot of the elemental ratios of rubidium (Rb) and strontium (Sr) to niobium (Nb), it is clear that Sardinian SC obsidian was the predominant subsource utilized at the site, comprising approximately 80% of the assemblage (**Figure 3**). Nevertheless, 11 SA artifacts were also found as well as seven SB1 and 11 SB2 artifacts.

Conclusions

While the presence of bladelets at Mitza Pidighi is relatively unusual, general patterns of obsidian exploitation at the site are in keeping with other Nuragic sites (**Figure 4**; see Freund and Tykot 2011). The results of this analysis indicate that the people at Mitza Pidighi were physically knapping obsidian near the well to create expedient flake tools and non-prismatic blades. While this may be expected at contemporary residential villages, it is of particular interest at a 'ritual spring'. Because of the broad similarities in both the sources represented and in the artifacts found at Mitza Pidighi (most notable bladelets), it is likely that the nearby residents of Nuraghe Pidighi were the ones knapping these materials as opposed to distant communities and peoples. These results therefore have important implications in interpreting the social, economic, and symbolic function of Mitza Pidighi and in understanding the role of obsidian use outside of domestic contexts.

References

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