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RECONSTRUCTING OBSIDIAN CONSUMPTION PATTERNS IN NEOLITHIC CORSICA: INSIGHTS FROM THE LISTRELLA E STABIELLE SITE

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In 2012 and 2015, preventive archaeological excavations have been conducted by the INRAP [Institut National de Recherches Archéologiques Preventives] on the Listrella e Stabielle settlement (**Figure 1**), located in the north-western part of the Corsican Island. The early occupation phase of this settlement is dated from the late 5th millennium B.C., and is materialized by a small group of structures circumscribed by a sturdy wall.

Figure 1

Map of the main Mediterranean obsidian sources (left) and location of the Listrella e Stabielle settlement (right).

Obsidian is the main lithic raw material found during this phase. From the middle of the 4th millennium B.C. and over the following centuries, the settlement is highly structured, developing a local copper metallurgy. For this most recent phase, only a small proportion of the lithic industries is made of obsidian.

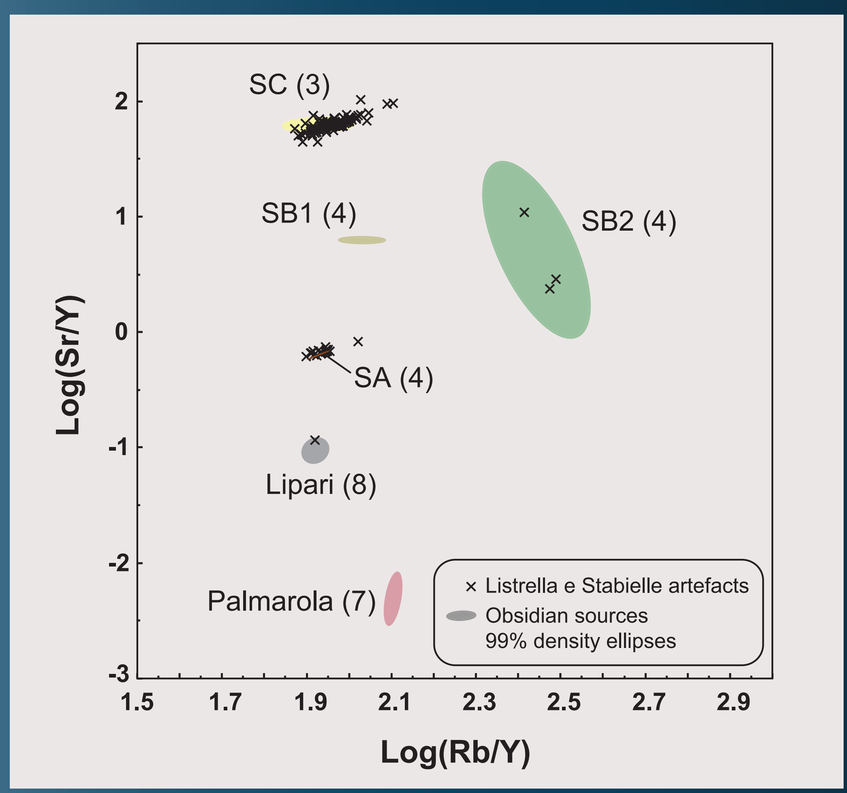

Figure 2

Comparison of the (Rb/Y) and (Sr/Y) log-ratios of 119 obsidian artefacts from the Listrella e Stabielle settlement with 35 geological samples from the Western Mediterranean sources (Sardinia [SA, SB1, SB, SC], Lipari, and Palmarola). The number of samples analysed for each source is specified in brackets. The sources of Pantelleria (Balata dei Turchi and Lago di Venere) are not represented in this graph to enhance visibility. ED-XRF data acquired at the IRAMAT-CRP2A.

The ED-XRF analyses have permitted the attribution of 119 archaeological obsidian samples from Listrella to the specific sources of SA (n=17), SB2 (n=3), SC (n=98), and Lipari (n=1). These results are represented in **Figure 2**, displaying a comparison of the (Rb/Y) and (Sr/Y) logratios. Another two artefacts presented problematic results. Complementary analyses by Raman micro-spectroscopy concluded that one of them (artefact '993') is made of rhyolite. A visual examination of the second artefact ('1022') revealed a siliceous nature (e.g. flint).

The obsidians excavated at the Listrella locus have been geochemically characterised by ED-XRF, while those from the Stabielle locus have been analysed by LA-ICP-MS. The ED-XRF analyses have been conducted at the IRAMAT-CRP2A, featuring a SEA6000VX High Sensitive X-Ray Analyzer from Seiko Instruments (*cf.* Lugliè *et al.*, 2014). At SOLARIS (Southern Cross University), the LA-ICP-MS analyses have been conducted with an ESI NW213 Laser Ablation System coupled to an Agilent 7700x ICP-MS (Orange *et al., submitted*).

The complementary use of both sourcing techniques, as well as the implementation of a newly conceived LA-ICP-MS protocol tailored to obsidian sourcing in the Mediterranean area, allowed the exhaustive geochemical sourcing of the assemblage in a limited amount of time.

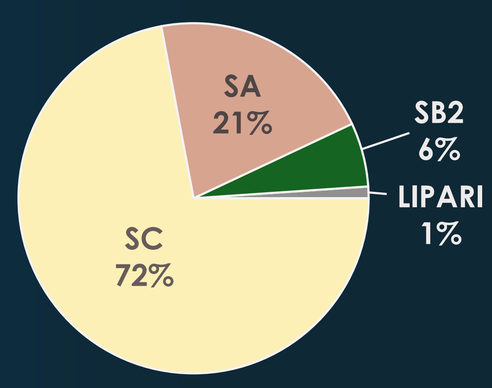

Figure 4

Pie chart presenting the proportions of each obsidian raw material detected within the Listrella e Stabielle assemblage (SA, SB2, SC, and Lipari).

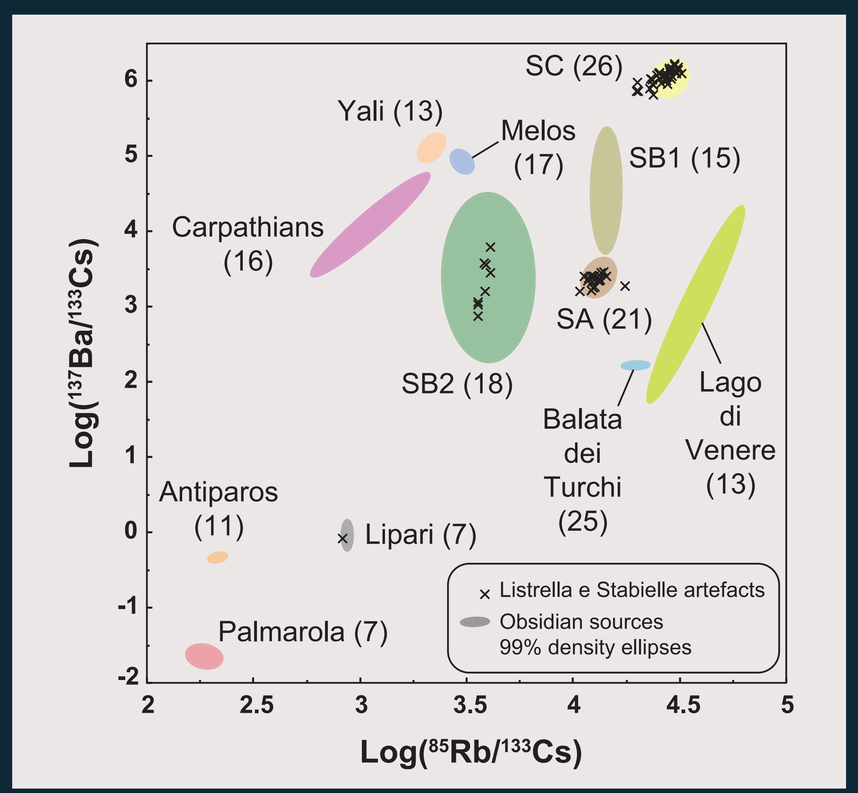

Figure 3

Comparison of the ($^{85}Rb/^{89}Y$) and ($^{88}Sr/^{89}Y$) log-ratios of 67 obsidian artefacts from the Listrella e Stabielle settlement with 200 geological samples from the Mediterranean sources (Sardinia [SA, SB1, SB, SC], Lipari, Palmarola, Pantelleria [Lago di Venere and Balata dei Turchi], Yali, Melos, Antiparos, and the Carpathians). The number of samples analysed for each source is specified in brackets. LA-ICP-MS data obtained at SOLARIS.

A total of 68 artefacts from Stabielle were analysed by LA-ICP-MS. They are coming from the same sources as the artefacts analysed by ED-XRF, that is SA (n=22), SB2 (n=8), SC (n=36), and Lipari (n=1). One artefact delivered erratic results, and could eventually be a rhyolite. The attribution of the other 67 artefacts is displayed in **Figure 3**, by means of the comparison of the ($^{85}Rb/^{133}Cs$) and ($^{137}Ba/^{133}Cs$) log-ratios.

The sourcing analyses conducted by ED-XRF and LA-ICP-MS on the Listrella e Stabielle settlement have shown that the majority of the obsidian assemblage is originating from Sardinia, and more specifically from the SC source (72%, see **Figure 4**). The rest of the assemblage was attributed to the SA (21%) and SB2 (6%) sources, while two artefacts were matching the further source of Lipari (see location of the sources in **Figure 1**). The well-established occupation sequence of the Listrella e Stabielle settlement, attributed to the end of the middle Neolithic - beginning of the late Neolithic, is contemporary with a turning point in the history of the diffusion of the obsidian from Lipari and Sardinia. The first results obtained on the site might suggest that, during this period, north Corsican settlements could interact with the Tuscan region rather than the southern coast of France (Provence/Languedoc). Once combined with the typological and technological characteristics of the artefacts, the sourcing results obtained with ED-XRF and LA-ICP-MS on the Listrella e Stabielle settlement will help to bring further information on the obsidian economy of the region.

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