

SOURCING OBSIDIAN FROM PREHISTORIC SITES IN NORTHWEST ROMANIA

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Abstract: Portable X-ray Fluorescence Spectroscopy (pXRF) was used to reveal the chemical signatures of 75 obsidian artefacts from seven sites in the Satu Mare region, ranging in age from Early Neolithic (late Starčevo-Criș culture) to Late Copper Age. The results reveal the origin of the obsidian to be the Carpathian 1 source area in eastern Slovakia, reinforcing the pattern documented elsewhere in Romania and in northern Bulgaria which indicates a clear preference for Carpathian 1 obsidian throughout the period from the later stages of the Early Neolithic to the Bronze Age.

Cuvinte-cheie: pXRF, surse de obsidian, neolitic, epoca cuprului, nord-vestul României

Rezumat: Pentru determinarea amprentei chimice a 75 de piese arheologice de obsidian provenind din nord-vestul României a fost utilizată metoda pXRF. Siturile de proveniență aparțin perioadei neolitic timpuriu – epoca târzie a cuprului. Rezultatele indică prezența obsidianului din sursa carpatică C1 localizată în estul Slovaciei. Acestea sunt în concordanță cu analize anterioare realizate pe probe din România și Bulgaria, indicând astfel în mod clar o preferință a comunităților preistorice de utilizare a sursei carpatice C1 începând cu etapele mai târzii ale neoliticului timpuriu și până în epoca bronzului.

INTRODUCTION

Obsidian sourcing (matching obsidian artefacts to specific geological sources of obsidian based on their elemental composition) has been used in Romanian archaeology since the 1970s (Williams-Thorpe 1978). However, most previous geochemical characterization studies have been limited to just a few artefacts per site and to relatively few sites. In this paper we report on the geochemical characterization of a large series of obsidian artefacts from seven sites in the Satu Mare region of northwest Romania belonging to the Neolithic and Copper Age periods. This research forms part of a much broader study of obsidian distribution patterns in Romanian prehistory being undertaken by two of us (AB and CB) with the aim of establishing the patterns of movement, modes of acquisition and use of obsidian during different archaeological periods.

SITES AND SAMPLES

The locations of the sites are shown in Fig. 1. Accounts of the excavations and principal archaeological finds can be found in Virag 2008, Astaloș *et alii* 2013, Virag 2014, Chmielewski, Astalos 2015 and Virag 2015. The list of sites, number of measured samples and their cultural attributions are summarized in Table 1.

Călinești-Oaș – Dâmbul Sfintei Marii (DSM) is located ca. 0.5 km northwest of Călinești-Oaș, on the slope of *Dâmbul Sfintei Marii* (Holy Mary's Hill). Discovered in 1999, archaeological investigation by test pits took place in the same year. The investigations continued on a larger scale in 2000 and 2001 (Németi, Astaloș 2001; Németi *et alii* 2002). Based on the results of the field observations in 1999–2001 (the distribution of the surface finds) and a field survey in the winter of 2008 (Chmielewski, Astaloș 2015) the size of the site was estimated to be ca. 50 × 50 metres.

The stratigraphic integrity of the site was heavily affected by soil erosion and agricultural activities. Two layers were distinguished (Chmielewski, Astaloș 2015):

1. Topsoil (20–30 cm thick) containing lithics (chipped and polished) and small corroded pottery sherds.
2. Yellow clay (with ferro-manganese concretions in places) in which archaeological features could be recognized.

Three pit-features were identified, Cx.1/2000, Cx.1/2001 and Cx.2/2001. To date, only the materials from Cx.1/Sul/2000 have been studied (Chmielewski, Astaloș 2015, fig. 5). The infill soil of this feature contained pottery sherds and an abundant chipped stone assemblage comprising mainly débitage and rare retouched blades. Cx.1/2000 was thus considered to be a 'workshop' for chipped lithic artefacts (Chmielewski, Astaloș 2015). The feature yielded 1457 chipped stone