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Changes in mobility patterns as a factor of ^{14}C date density variation in the Late Epigravettian of Northern Italy and Southeastern France

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ABSTRACT

This paper critically considers the use of radiocarbon dates as a demographic proxy for past population. Our goal is not to reject or valid this approach. We even did not focus on the various bias of this approach or on the several correction methods used to reduce them. We rather argue that when trying to interpret ^{14}C dates in a demographic perspective, it is essential to analyze socio-economic parameters. Studying the case of the Lateglacial Upper Palaeolithic of Southeastern France and Northern Italy, we demonstrate that the use of techno-economic approaches allows discussing this way to interpret the radiocarbon data. From this analysis we argue that a change in the density of dates cannot be simply interpreted in term of demography. We demonstrate that these variations can be the result of changes in the way people organize themselves in a territory. In other word, we argue that mobility patterns are somehow responsible for the density of dates and sites.

1. Introduction and context

This paper focuses on the peopling of a zone of Southern Europe, the Southeastern France and the North of Italy during the Late Glacial using "dates as data" (Rick, 1987). It was presented at the 78th SAA congress in Honolulu (HW, USA) for the 1st Frison Institute Symposium directed by R. L. Kelly and N. Naudinot on the topic of "*Date as Data: New Applications of Radiocarbon Dating to Archaeological Problems*". The use of dates as a proxy to estimate the changes in population as introduced by Rick is a classic subject in the English literature. However, the use of dates to highlight past population demography is not without difficulties, and multiple critical biases may prevent archaeologists from establishing a clear relationship between dates and people. These biases are numerous and include: conservation of the organic materials, taphonomy, change in the amount of carbon in a sample (reservoir effect, old wood effect …), use of date lists without knowledge of the sites, precision of the calibration curves, plateaus in the curve, size of the samples, research history, access to fields or collection, difference in founding dedicated to Archaeology from one country to the other or along the history, etc. Because of all these critical biases, we personally do not consider this approach to be particularly effective to estimate precisely population demography.

The purpose of this paper is not to discuss all these biases one by one. These last years, several papers focused on some of them and especially on sample questions, taphonomy or problems with the calibration curves. Some of these papers even propose models to correct some biases (Michczynska and Pazdur, 2004; Michczynski and Michczynska, 2006; Thorndycraft and Benito, 2006; Michczynska et al., 2007; Surovell and Brantigham, 2007; Smith et al., 2008; Surovell et al., 2009; Bamforth and Grund, 2012). Our objective in this paper is only to develop one of these biases which appear to be underestimated: the importance of changes in mobility patterns in the density of sites or dates.

Our research area is located between the Rhône valley in Southeastern France and the Veneto/Trentino/Friuli in Northern Italy (Fig. 1). The environments of this area are diverse, and from Southeastern France to the Adriatic Coast of Northern Italy, this part of the Mediterranean basin exhibits various ecotypes. The

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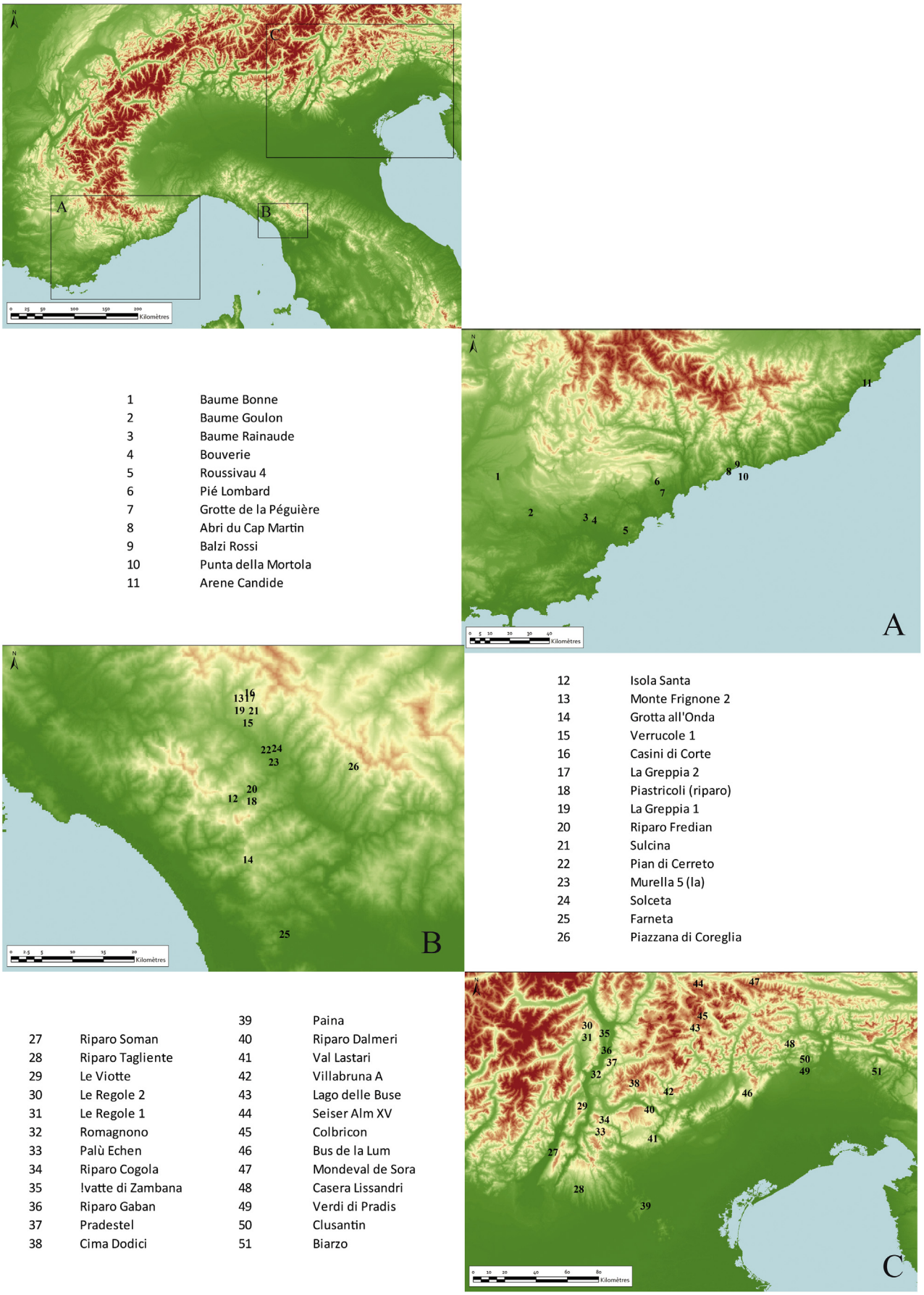

Fig. 1. Localization of the sites included in the study.

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