

# The Late Glacial Sequence of Cova de Les Borres and the Emergence of Epipalaeolithic Geometric Microliths in Eastern Iberia

Rabuñal, J.R.<sup>1,2,®</sup>; Soto, M.<sup>3,4</sup>; Morales, J.I.<sup>5,6</sup>; Lombao, D.<sup>7,5</sup>; Soares-Remiseiro, M.<sup>8</sup>; Fernández-Marchena, J.L.<sup>9,5,6</sup>; García-Argudo, G.<sup>9</sup>; Riede, F.<sup>2</sup>; Vallverdú, J.<sup>5,6</sup>



## INTRODUCTION

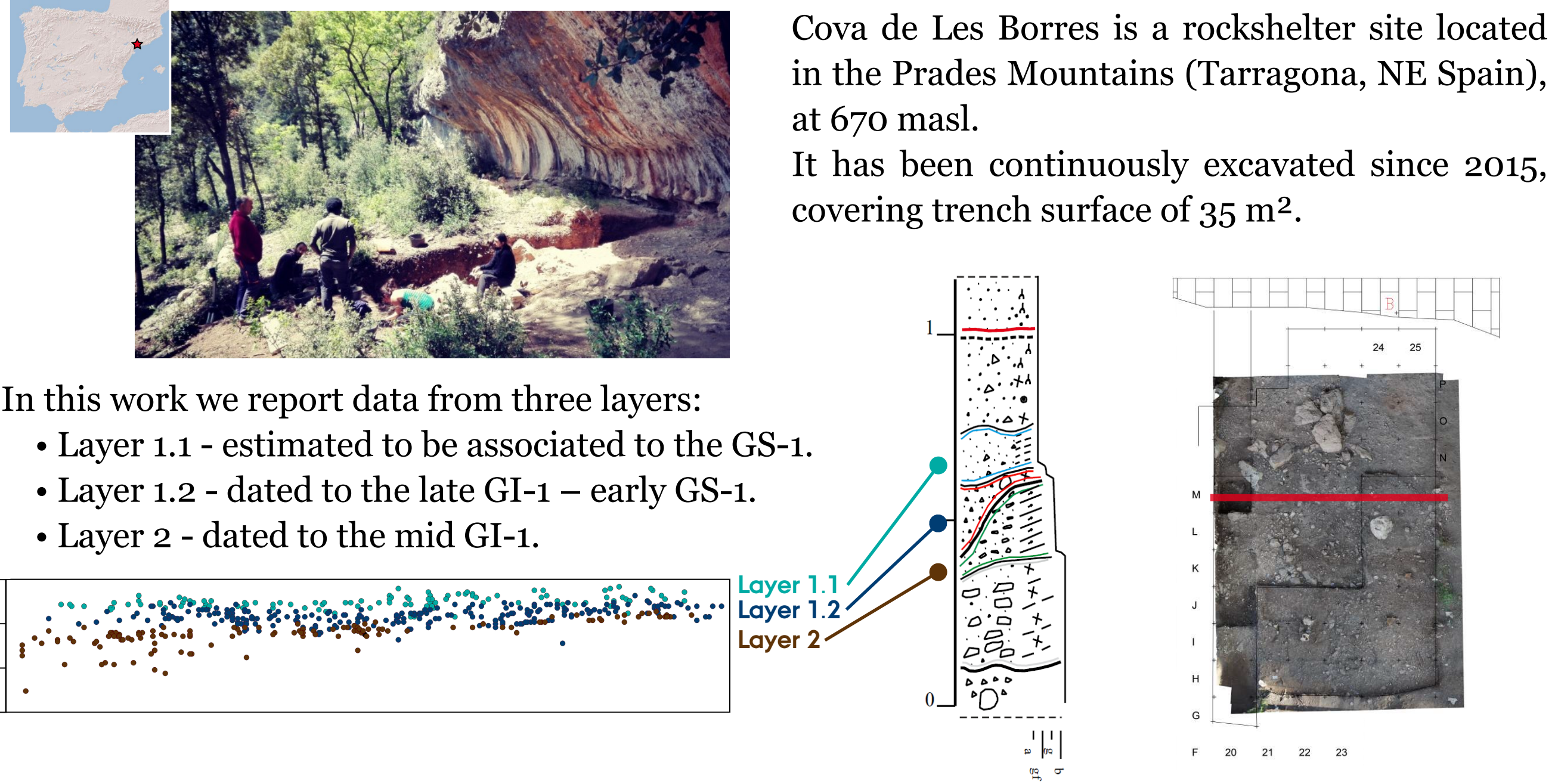
Eastern Iberian Epipalaeolithic lithic assemblages (c. 14-11.5 ka cal BP) are described as microblade industries chiefly characterized by endscrapers and backed artefacts. They represent a Late Magdalenian phenomenon, argued by the continuity and stability of their general design. But some minor modifications in their production systems and typological structure throughout the Late Glacial have been reported:

- A simplification of bladelet production strategies.
- Diachronic changes in the stylistic configuration of backed artefacts.
- A microlithization of armatures.
- The incorporation of geometric microliths from around 12.7 ka cal BP — which led to the definition of a "Sauveterrian" facies.

## OBJECTIVE

In this work, we examine the variability and evolution of Late Glacial lithic industries in Eastern Iberia using new chronological, technological, and typological data from Cova de Les Borres, a novel sequence in the NE Mediterranean façade.

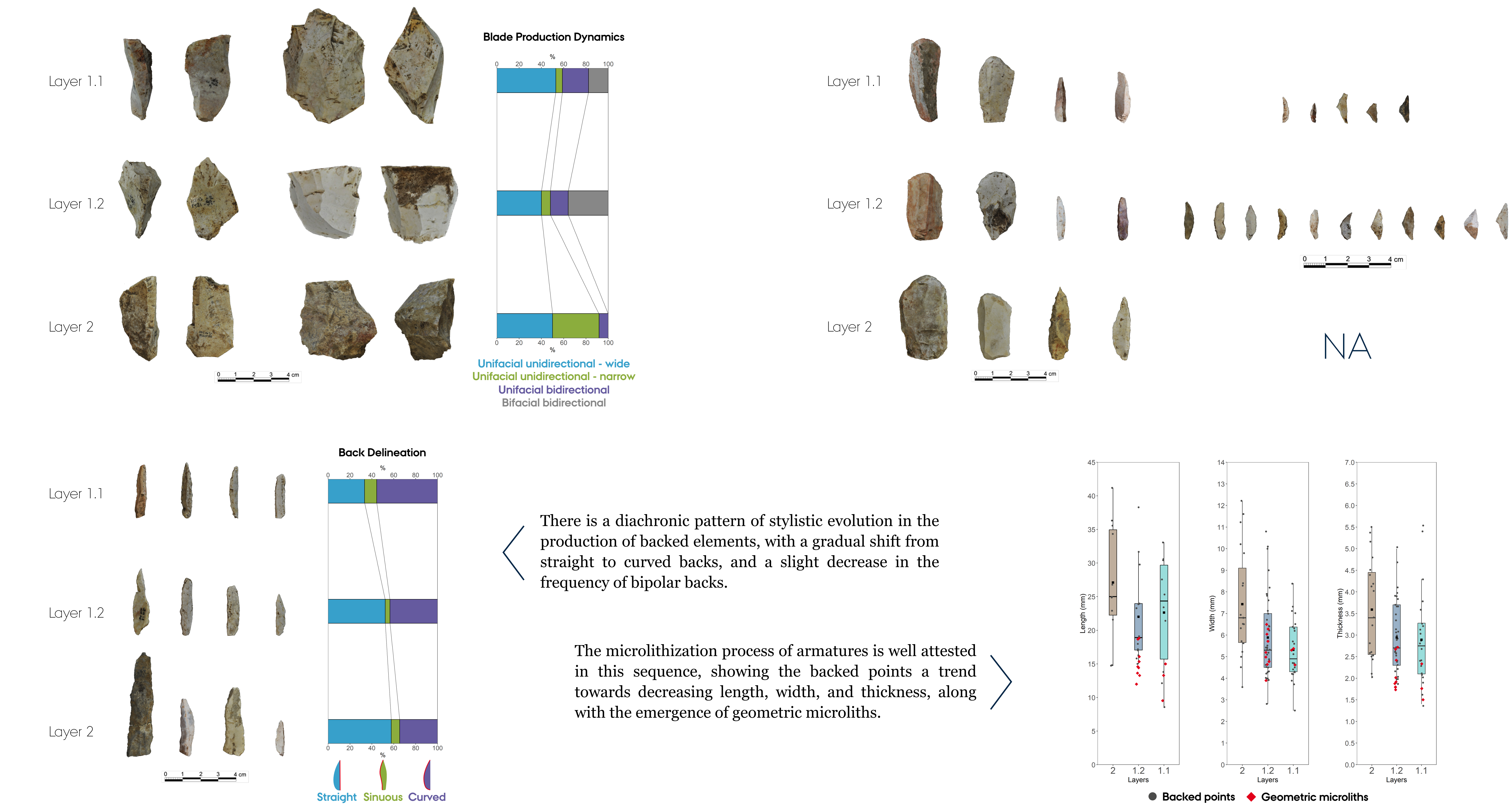
## COVA DE LES BORRES



## RESULTS — LATE GLACIAL TECHNO-TYPEOLOGICAL EVOLUTION

All layers have yielded abundant lithic assemblages, featuring systematic bladelet production from burin-cores, and blade/elongated flake production from cores with simple, frontal reduction schemes with scarce preparation. Unifacial unidirectional dynamics are prevalent in all layers, with bidirectional dynamics becoming more common in the upper ones.

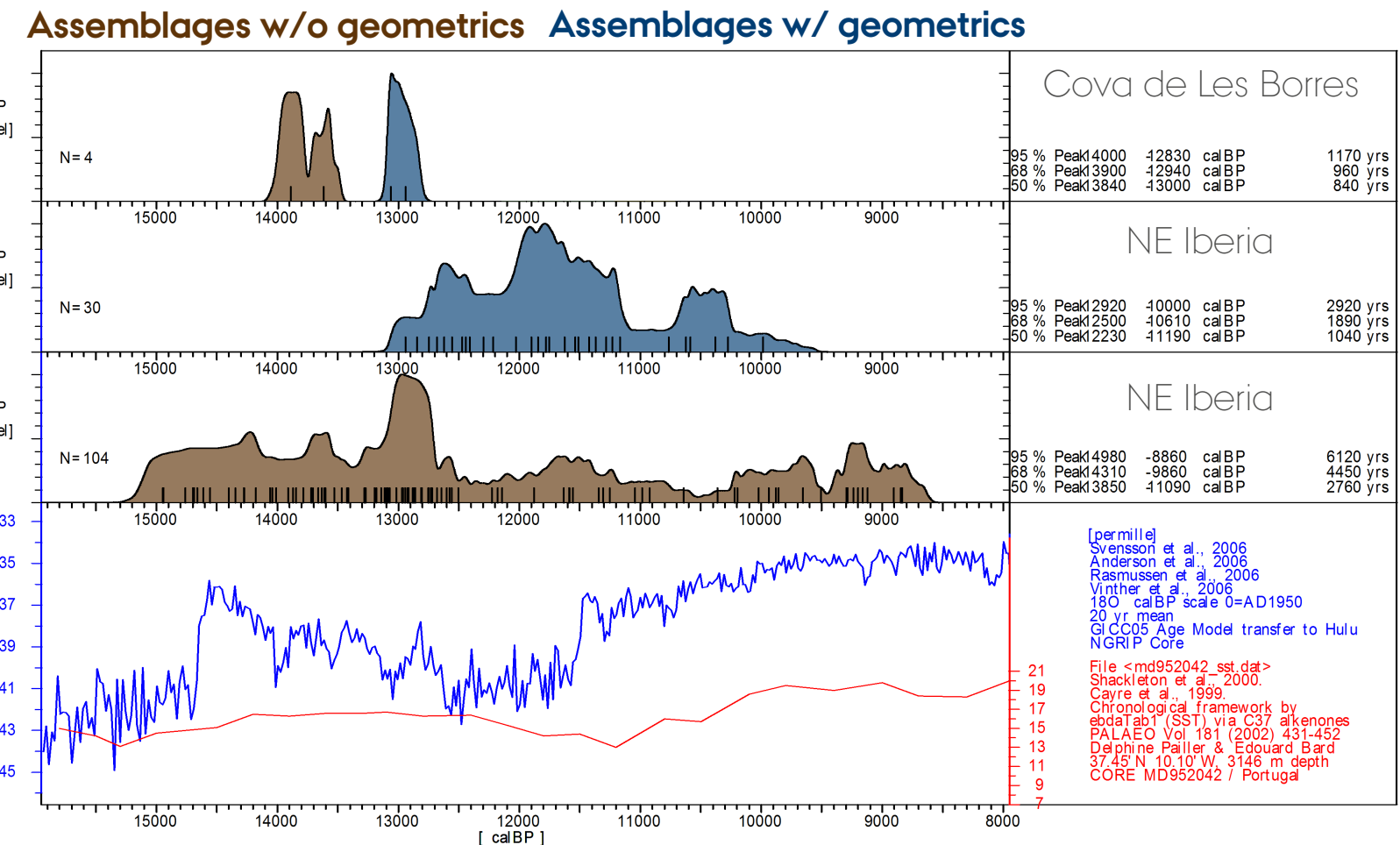
Retouched assemblages have similar typological structures, with a predominance of backed artefacts and endscrapers. Backed elements are particularly abundant in Layer 1.2 surpassing 50% of retouched artefacts. Geometric microliths, abstent in Layer 2, appear in Layer 1.2 — 6 segments and 5 triangles — and continue in Layer 1.1 — 2 segments, 2 triangles and 1 trapeze —.



## FINAL REMARKS

Cova de Les Borres is one of the **few sites with successive archaeological layers dating to the GI-1 and GS-1**, becoming a key sequence for the study of technological variability and cultural evolution during the Late Glacial in Eastern Iberia.

Layer 1.2 provides the as yet **oldest radiocarbon dates for assemblages with geometric microliths in Eastern Iberia**, suggesting that they appear at ca. 13,000 cal BP, around the transition between the GI-1 and the GS-1.



Geometric microliths have a scarce representation in Late Glacial assemblages (usually <20% of retouched artefacts), and all through the Younger Dryas and during the early Holocene **assemblages with and without geometrics coexist**.

Exploring the possible circumstances behind this coexistence (cultural evolution, regionalization, site function...) is of major interest to weight in on the synchronic and diachronic dimensions of **technological variability vs. cultural taxonomy during the Pleistocene-Holocene transition** in Eastern Iberia.

