CONTENT GUIDE FOR EOSC118

Precious Metals and Provenance Enquiries using LA-ICP-MS
Guera, M.F., Sarthre, C. O., Gondonneau, A., and Barrandon, J. N. (1999). Journals of Archaeological Science, Vol 26, pp 1101-1110.

This article describes a characterization and provenance study on a suite of archaeological gold samples using a high precision analytical chemistry technique. It comprises several sections, including a detailed description of the analytical technique used. We will read the whole article except the section titled "Tracing Gold with LA-ICP-MS".

As usual, use the discussion board on Connect to pose questions, since questions that you have are probably being thought by another one of your fellow students.

Use the following questions to help you through the article:

1. What is the main question addressed in this article?
   manufacturing technology of the artefacts and the provenance of the ores
2. What trace element was used to track the influx of Potosian silver to Spain?
   indium
3. What trace element was used to track the influx of Brazilian gold to Portugal?(Hint: see Fig. 2 and 3)
   pd
4. What does LA-ICP- MS stand for? Why is this analytical method so useful?
   plasma mass spectrometry and laser ablation - non-destructive, solid and liquid (no dilation), need only 1 ug
5. In table 5, what column would be used to assess the gold fineness of the coins?
   lead (ppm)
6. How was the Ir/Pt ratio used in this study?
   unique fingerprint
7. In the conclusion, what do the authors state about the effectiveness of LA-ICP-MS in archaeology?
   one of the most powerful. No dilation of liquid, and need very small sample