



November 18th, 2018

Material Analysis Report by Carbon 14 – AMS

Analysis Report to Carbon 14 by Accelerator Mass Spectrometry performed on a sample of cutaneous tissue sent to the Radiocarbon Laboratory of the UFF by Mr. Thierry Jamin.

Analysis description in the particle accelerator:

The material was observed under the microscope and downsampled. Chemical treatment with hydrochloric acid and sodium hydroxide was performed to remove any contaminants. In order to transform the Carbon present in CO_2 the material was combusted at 900° for 3 hours in vacuum ampoules containing cupric oxide and silver. The sample was purified in a vacuum system and transferred to a graphitization tube. The conversion of carbon dioxide to graphite occurs in vacuum sealed ampoules containing titanium hydride, zinc and iron in a muffin at 550°C ., as described by Macario et al. (2017).

Description de l'analyse dans l'accélérateur de particules :

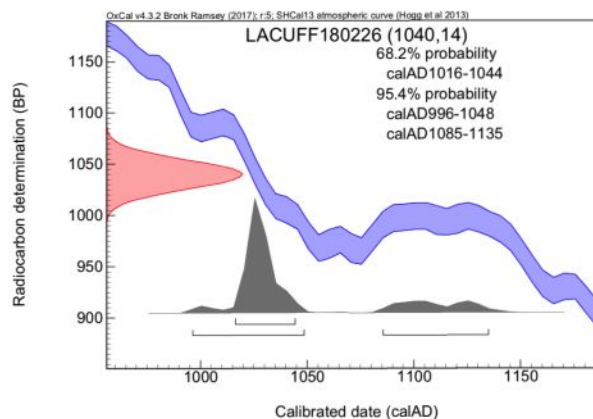
The graphite was then sent to the Australian National University accelerator system, an NEC 250 kV SSAMS, in which carbon isotope ratios were determined. The results were normalized by a standard sample of oxalic acid from the National Bureau of Standards (SRM 4990c).

Calibration

This process is performed to correct the approximations made for calculating the radiocarbon age and correcting the atmospheric carbon concentration. Calibration was performed using the Oxcal software (Bronk Ramsey, 2009) from the southern hemisphere atmospheric curve, called SHCal13 (Hogg et al, 2013).

Result

The sample dating LACUFF 180226 code, resulted in a conventional radiocarbon age of 1040 ± 15 BP (Before Present) (Stuiver Polach 1977). Given the origin of the sample as being from the southern hemisphere, the calibrated age was calculated at 996-1135 AD (ADC) with 95.4% reliability.



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References

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