



The role of inter-comparisons in radiocarbon quality assurance

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Radiocarbon dating is used widely in many geochronology projects as a basis for the creation and testing of chronological constructs. Radiocarbon measurements are by their nature complex and the degree of sample pre-treatment varies considerably depending on the material. Within the UK and Europe, there are a number of well-established laboratories and increasingly, scientists are not just commissioning new dates, but also using statistical modelling of assemblages of dates, perhaps measured in different laboratories, to provide formal date estimates for their investigations. The issue of comparability of measurements (and thus bias, accuracy and precision of measurement) from the diverse laboratories is one which has been the focus of some attention both within the ^{14}C community and the wider user communities for some time. As a result of this but also as part of laboratory benchmarking and quality assurance, the ^{14}C community has undertaken a wide-scale, far-reaching and evolving programme of inter-comparisons, to the benefit of laboratories and users alike. This paper presents the results from the most recent exercise SIRI. The objectives of SIRI included, through choice of material, to contribute to the discussion concerning laboratory offsets and error multipliers in the context of IntCal (the International Calibration Programme) and to gain a better understanding of differences in background derived from a range of infinite age material types.