RADIOCARBON DATING OF DIFFICULT SAMPLES: NATURAL AND LABORATORY EFFECTS

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Radiocarbon dating by accelerator mass spectrometry (AMS) is routine in many laboratories around the world. The applications of 14C measurements based on the nuclide produced in the atmosphere are vast and generally easy to interpret, as the 14C value at the time of initial incorporation to the material is established. Clearly, the initial assumptions of the 14C composition are important. However, certain types of samples including bones, sediments, and lacustrine samples present special problems, since the basic assumptions can be different. These assumptions need to be treated carefully. We also encounter similar questions in the initial 14C when the nuclide is incorporated into rock surfaces or meteorites in space by direct “in situ” production of 14C in the silicate. In this talk, I will highlight some examples of these problems using some specific examples.