

Hill Data: Ages of Mammoth Fossils in the Upper Missouri Basin

Background:

These radiocarbon data were collected on bone collagen from fossils of mammoths from the Upper Missouri River Basin (Hill, 2006, 2007). Among the goals of these studies was to establish the timing of habitation of this region by these now-extinct large mammals.

Data analysis:

- Calculate conventional radiocarbon ages with uncertainties for all samples
- Calculate calibrated calendar ages with uncertainties for all samples
- Develop a means of plotting these calendar ages as a summed probability function to compare examine possible fluctuations in mammoth habitation with other time series data like climate proxies including for example the oxygen isotope record of temperature/ice volume changes.

Questions to address in your data discussion and interpretation:

- Where samples come from the same site are their ages significantly different? Are their calendar ages distinguishable?
- Are there significant fluctuations in the presence (or absence) of mammoth in the region?
- How does the timing of mammoth habitation in the region compare to climatic and other ecological changes in the region?
- How does the timing of mammoth habitation in the region compare to estimates of human habitation in the region?

References:

- Hill, C.L., 2007, Pleistocene mammals in the greater Yellowstone ecosystem; *Northwest Geology*, v. 36, p. 151-166.
- Hill, C.L., 2006, Stratigraphic and geochronologic contexts of mammoth (*Mammuthus*) and other Pleistocene fauna, Upper Missouri Basin (northern Great Plains and Rocky Mountains), U.S.A.; *Quaternary International*, v. 142–143, p. 87–106.