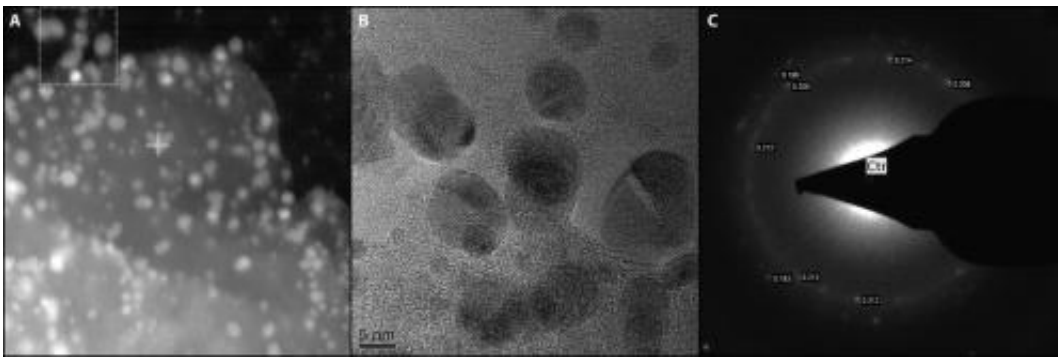


# Study in Oklahoma panhandle finds additional active process producing nanodiamonds

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Nanodiamonds discovered in the Younger-Dryas boundary sediments in the Bull Creek valley of the Oklahoma Panhandle. Such diamonds may support a hypothesis that a comet impact or explosion above the earth's surface ~11,000 years ago triggered climate change, large mammal extinctions, and altered human cultural trajectories.

In a University of Oklahoma-led study, researchers discovered an additional active process, not excluding an extraterrestrial event, that may have led to high concentrations of nanodiamonds in Younger Dryas-age sediments and in sediments less than 3,000 years old. Findings from quantifying sediments of different periods along the Bull Creek valley in the Oklahoma Panhandle suggest the distribution of nanodiamonds was not unique to the Younger Dryas sediments.

"Whatever process produced nanodiamond concentrations in the Younger Dryas sediments may have been active in recent millennia," said OU scientist Leland Bement, Oklahoma Archeological Survey. Bement led the project with Andrew Madden, OU School of Geology and Geophysics, with collaborators Brian Carter, Oklahoma State University; Alexander Simms, University of California Santa Barbara; and Mourad Benamara, University of Arkansas.

The presence of nanodiamonds in the sedimentological record has been cited as evidence supporting a hypothesis that an ET impact, probably a comet, triggered the Younger Dryas period of global cooling around 11,000 years ago and contributed to the extinction of many animals and altered human adaptations. The OU-led study found no correlation of nanodiamond concentration caused by alternative processes, including soil formation, erosion, prehistoric human activity or other climate reversals in Oklahoma panhandle sediments.

The recent OU-led study, "Quantifying the distribution of [nanodiamonds](#) in pre-Younger Dryas to recent age deposits along Bull Creek, Oklahoma Panhandle, USA," was published in the *Proceedings of the National Academy of Sciences*, Early Edition.

**More information:** [www.pnas.org/content/early/2014/01/27/1309734111.abstract](http://www.pnas.org/content/early/2014/01/27/1309734111.abstract)

Provided by University of Oklahoma

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