Did a comet hit the Great Lakes region and fragment human populations 12,900 years ago?

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Multi-institutional 26-member team of researchers propose a startling new theory: that an extraterrestrial impact, possibly a comet, set off a 1,000-year-long cold spell and wiped out or fragmented the prehistoric Clovis culture and a variety of animal genera across North America almost 13,000 years ago.

Driving the theory is a carbon-rich layer of soil that has been found, but not definitively explained, at some 50 Clovis-age sites in North America that date to the onset of a cooling period known as the Younger Dryas Event. The sites include several on the Channel Island off California where University of Oregon archaeologists Douglas J. Kennett and Jon M. Erlandson have conducted research.

The theory is being discussed publicly, for the first time, today in a news conference at the 2007 Joint Assembly of the American Geophysical Union being held this week in Acapulco, Mexico. Kennett is among the attendees who will be available to discuss the theory with their peers. The British journal *Nature* addressed the theory in a news-section story in its May 18 issue.

Before today, members of the team – including Kennett's father, James P. Kennett of the University of California, Santa Barbara, and Richard B. Firestone of Lawrence Berkeley National Laboratory – had been quietly introducing the theory to their professional colleagues.

Douglas Kennett, with Erlandson watching, detailed the theory May 19 to a fully packed UO classroom, where students and faculty members from archaeology, art history, anthropology, biology, geology, geography, political science and psychology, pelted Kennett with questions.

The researchers propose that a known reversal in the world's ocean currents and associated rapid global cooling, which some scientists blame for the extinction of multiple species of animals and the end of the Clovis Period, was itself the result of a bigger event. While generally accepted theory says glacial melting from the North American interior caused the shift in currents, the new proposal points to a large extraterrestrial object exploding above or even into the Laurentide Ice Sheet north of the Great Lakes.

"Highest concentrations of extraterrestrial impact materials occur in the Great Lakes area and spread out from there," Kennett said. "It would have had major effects on humans. Immediate effects would have been in the North and East, producing shockwaves, heat, flooding, wildfires, and a reduction and fragmentation of the human population."

The carbon-rich layer contains metallic microspherules, iridium, carbon spherules, fullerenes, charcoal and soot. Some of those ingredients were found worldwide in soils dating to the K-T Boundary of 65 million years ago.

The K-T layer marks the end of the Cretaceous Period and the beginning of the Tertiary Period, when numerous species were wiped out after a massive asteroid is believed to have struck Mexico's Yucatan Peninsula and the Gulf of Mexico.

Missing in the new theory is a crater marking an impact, but researchers argue that a strike above or into the Laurentide ice sheet could have absorbed it since it was less intense than the K-T event.

Kennett said that 35 animal genera went extinct at the end of the Pleistocene, with at least 15 clearly being wiped out close to 12,900 years ago. There

would have been major ecological shifts, driving Clovis survivors into isolated groups in search of food and warmth. There is evidence, he said, that pockets of Clovis people survived in refugia, especially in the western United States.

"This was a massive continental scale, if not global, event," Kennett said. He and Erlandson say that they are currently evaluating the existing paleoindian archaeological datasets, which Kennett describes as "suggestive of significant population reduction and fragmentation, but additional work is necessary to test the data further." Earlier research efforts need to be re-evaluated using new technologies that can narrow radiocarbon date ranges, and, as funding becomes available, new sites can be located and studied, Erlandson said.

"As we have grown more confident in the theory," Erlandson said, "we've been letting some of it out in informal talks to gage the response to see where we are headed and what the initial objections are, which will help us to maintain our own objectivity."

The interest in pursuing both old and new leads could ignite a major surge of interdisciplinary questioning and attract a new wave of interested students, Kennett and Erlandson said.

Source: University of Oregon