

## **Subterranean Records of Climate Change**

Excerpt from the University of Texas College of Natural Resources describing the collaborative effort of the two scientists, Banner and Jackson, to use caves in order to study global climates changes and the history and possible future of the Edwards Trinity aquifer.

Banner applies the principles of chemistry and isotope geochemistry to groundwater in rocks and minerals. By studying the changing chemistry of water dripping into caves, he can trace climate change.

Banner said stalagmites have growth layers that are similar to, but more complex than, tree rings. They represent a "frozen record of groundwater change over time. We have a clean lab and a mass spectrometer lab and very precise techniques for dating these growth layers as far back as 400,000 years ago."

Jackson, in turn, uses complex computer models of Earth's climate system. He is especially interested in cycles of glaciation and processes involved in episodes of extreme climate variability between 120,000 and 10,000 years ago. Jackson's computer modeling of soil moisture records caught Banner's attention. "We looked at the output of his computer results on soil moisture and our independent studies on speleothem growth rates and saw they corresponded," Banner said. Speleothems are cave formations, such as stalagmites.

Banner also works with Dr. Randy Linder of the Section of Integrative Biology, an expert on the extraction and sequencing of DNA from plants. The two will be looking for organic matter possibly preserved in the same stalagmites that could provide clues on response of organic communities to change in soil moisture.

<http://www.utexas.edu/cons/admin/publications/focus/spring02/p9.html>