



Apr 23rd, 9:00 AM - 4:00 PM

# The Cretaceous/Tertiary Extinction Event and Clues Regarding the Existence of Wildfires: A Carbon Study

Kelly Foxall

*Illinois Wesleyan University*

Wendy Wolbach, Faculty Advisor

*Illinois Wesleyan University*

Follow this and additional works at: <http://digitalcommons.iwu.edu/jwprc>

Foxall, Kelly and Wolbach, Faculty Advisor, Wendy, "The Cretaceous/Tertiary Extinction Event and Clues Regarding the Existence of Wildfires: A Carbon Study" (1994). *John Wesley Powell Student Research Conference*. 17.  
<http://digitalcommons.iwu.edu/jwprc/1994/posters/17>

This Event is brought to you for free and open access by The Ames Library, the Andrew W. Mellon Center for Curricular and Faculty Development, the Office of the Provost and the Office of the President. It has been accepted for inclusion in Digital Commons @ IWU by the faculty at Illinois Wesleyan University. For more information, please contact [digitalcommons@iwu.edu](mailto:digitalcommons@iwu.edu).

©Copyright is owned by the author of this document.

THE CRETACEOUS/TERTIARY EXTINCTION EVENT AND CLUES  
REGARDING THE EXISTENCE OF WILDFIRES: A CARBON STUDY.

*Kelly Foxall and Wendy Wolbach\*, Department of Chemistry,  
Illinois Wesleyan University, Bloomington IL 61702.*

The theory that a giant meteorite impacted with the Earth 65 million years ago (Alvarez *et al.*, 1980), causing the world-wide mass extinction at the Cretaceous/Tertiary (K/T) boundary, was supported by the discovery of major wildfires by Wolbach *et al.* (1985). Samples collected in Haiti, near the proposed location of the impact crater in the Yucatan Peninsula, may yield clues which will further support the impact/wildfire cause of the extinctions at the K/T boundary.

Alternating rock demineralization treatments of HCl and HF were used to isolate elemental and organic carbon from sedimentary rock samples spanning the K/T boundary at the deep sea Beloc site in Haiti. After determining the mass abundance of reduced carbon in each sample, half of the resulting residue was removed and carbon isotopes ( $^{13}\text{C}/^{12}\text{C}$ ) measured using mass spectrometry. The remaining portion is currently being oxidized with  $\text{Cr}_2\text{O}_7^{2-}$  to remove organic carbon and kerogen, leaving elemental carbon. Elemental carbon will be analyzed isotopically and imaged using a scanning electron microscope to determine its morphology. If the carbon has the characteristic morphology of soot ("bunch of grapes"), the soot content of that sample can be determined. A discovery of soot would support the existence of wildfires 65 million years ago. The results of mass abundance, isotopic composition and scanning electron microscope studies may thus yield information to indicate the global environmental stresses which contributed to the Cretaceous/Tertiary mass extinctions.