Plant community response to mass extinction and climate change in the Paleocene Williston Basin of North Dakota, USA

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Using a nearly continuous sequence of Paleocene terrestrial sediments in the Williston Basin of North Dakota, USA, I examined rates of floral recovery from mass extinction and plant-community response to changing climate. I have constructed a ~325 meter composite section for the Cretaceous Hell Creek Formation and the Paleocene Ludlow and Tongue River Members of the Fort Union Formation that demonstrates a series of geomagnetic reversals that can be correlated to the part of the Geomagnetic Polarity Time Scale (GPTS) that extends from approximately 66.0 Ma to 61.75 Ma before present.

Census collections of megafloral localities through this interval document three distinct floral assemblages. Changes in the megafloral assemblages coincide with the regression of the epicontinental Cannonball Seaway, local changes in depositional environment, and regional and perhaps global changes in temperature. These data suggest that changes in early Paleocene plant communities are related to both floral evolution and local, regional, and global paleoenvironmental conditions.

Friday, November 21st 2008, McCook Auditorium, 3:00 pm, Refreshments 2:45 pm