University of Utah
UNDERGRADUATE RESEARCH JOURNAL

A LATE-HOLOCENE FIRE RECORD FROM THE SIERRA DE SAN PEDRO MÁRTIR NATIONAL PARK, BAJA CALIFORNIA, MEXICO

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This research investigates a fire history and environmental disturbances of a ciénega in the Sierra de San Pedro Mártir National Park in Northern Baja California, Mexico. A fire regime was reconstructed through charcoal analysis. Other environmental disturbances were reconstructed using the geochemical proxies magnetic susceptibility and loss on ignition. For this project, a sediment core was collected from a dry ciénega called the Palo Atravezado at approximately 2,750 meters (9,000 feet) in elevation. Ciénegas are wetland ecosystems that exist in arid environments and are ideal locations for sediment core recovery because they preserve information of past climates, such as charcoal particles, through deposition. Using both charcoal analysis and other proxies allowed conclusions to be drawn about past disturbance patterns of the site. The Sierra de San Pedro Mártir (SSPM) National Park was chosen as the study site because it has historically experienced less human impact than ciénega ecosystems in the southwestern United States, making the paleoecological record from the collected sediment core less altered by human activity. We hypothesize that the fire regime at this study site changed near 1800 (Figure 1). This may be due to altering land-use practices, fire suppression, livestock grazing, and other climate drivers.

This project is a component of a larger body of research investigating past oscillations of the North American Monsoon (NAM) and its forcing on vegetation and fire regimes in North America. The findings will be compared with other sites on the Baja Peninsula to investigate how vegetation changes, climatic changes, and land-use changes alter ecosystems and the impacts from the NAM in the region.

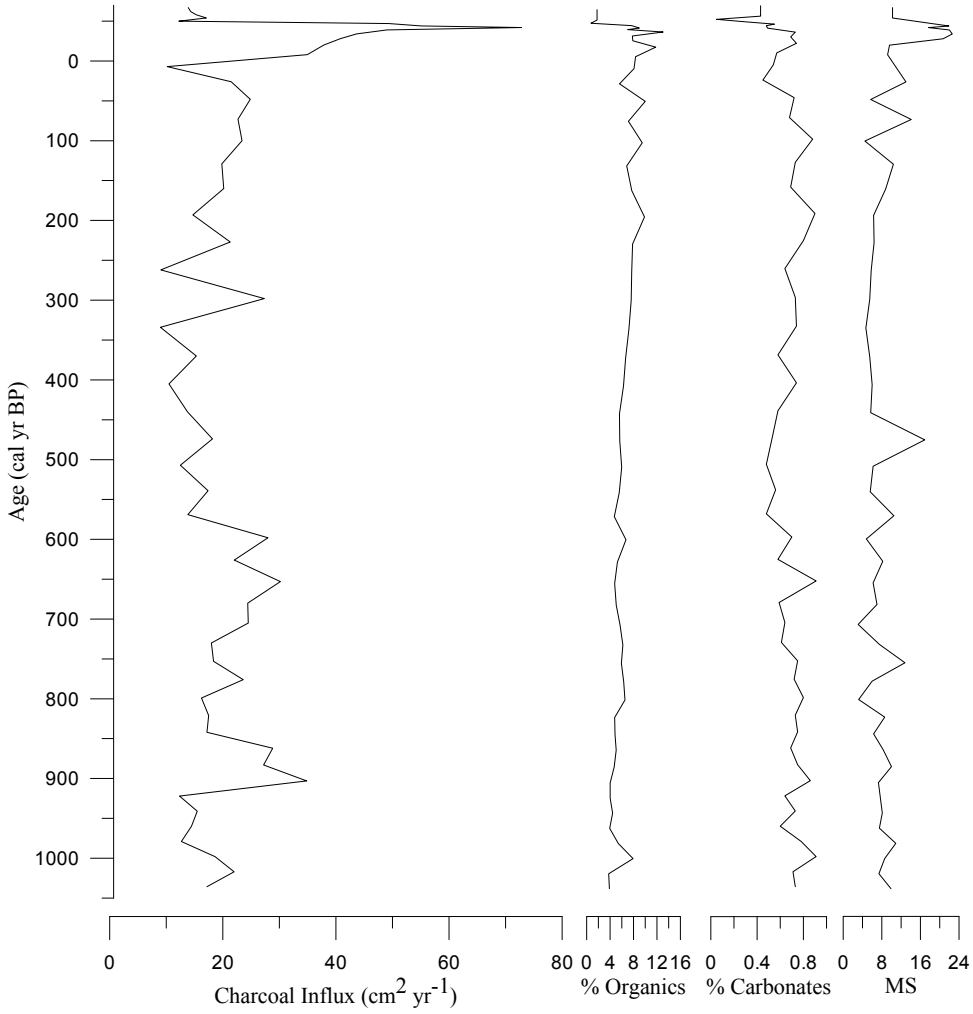

Figure 1: Charcoal influx, LOI, and magnetic susceptibility (MS) data plotted against the PA-18-B age model from CLAM (Blaauw, 2010).