

**Vegetation and Fire in the San Bernardino Mountains, Southern California since 120,000 years BP: Insights and Challenges for 21<sup>st</sup> century predictions**

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A new charcoal deposition record from closed-basin Baldwin Lake (2060 m) in the San Bernardino Mountains, Southern California, spans ~120,000 years. Peaks in charcoal accumulation rates (CHARs) and millennial-scale pollen data indicate that early in the basin's history (prior to 71,000 years BP), CHARs peaked in the midst of forest-to-steppe conversions that lasted several millennia, and prior to summer insolation maxima in the region. CHARs were highest during Marine Isotope Stage 2 (57,000 – 29,000 years BP), a time when 1) enhanced moisture delivery and 2) pine forest were sustained in the mountains, based upon additional sediment core proxy data.

This record offers new insight to the natural variability in vegetation and charcoal deposition in subalpine Mediterranean woodland, a region that is currently one of the most fire-prone in Southern California. It also illuminates the many challenges in bridging the paleoecological record with recent annually-resolved observations, and 21<sup>st</sup>-century forecasting. Such challenges include disparate sampling resolutions, variations in sediment focusing over time, and the role of recent greenhouse gas-induced warming. How can such paleoecological records on long timescales, often sampled at centennial or millennial scales, provide insight for 21<sup>st</sup> century wildfire policy and predictions?