Welcome to Jurassic Arc: Resolving the Prebatholith History of the Sierra Nevada

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The Sierra Nevada is best known for breath-taking exposures of granitic rocks in places like Yosemite Valley, Kings Canyon, and the Tahoe Basin. These rocks are part of the Sierra Nevada batholith, which is in turn a segment in a massive granitic backbone that spans much of the length of western North America. These granitic rocks offer us interesting glimpses into how pulses of intensive igneous activity built the Sierra Nevada batholith during the Mesozoic. However, earlier chapters in this geologic story are difficult to unravel because processes associated with batholith emplacement tend to obliterate preexisting rocks. Fortunately, these preexisting rocks are preserved in a few isolated locations throughout the Sierra Nevada. The rarity of these exposures is significant, because the relationships they preserve provide our only basis for understanding the timing and mechanisms behind the earliest states in the geologic evolution of this region.

The Mt. Tallac roof pendant near South Lake Tahoe is one of the largest and best exposed of these exposures. Over the past several years, undergraduate students working with Dr. Burmeister and in collaboration with a network of researchers at other institutions applied a variety of techniques, including geologic mapping, petrography, geochemistry, strain analysis, and paleomagnetic analysis to begin to resolve the details associated with what appears to be a surprisingly rapid series of developments in the early history of the central Sierra Nevada.

Biography: Kurtis Burmeister is an Associate Professor in the Department of Environmental & Geological Sciences at the University of the Pacific. His undergraduate-based field resaerch program is currently examining topics broadly associated with convergent tectonics in western Ireland, the Sierra Nevada, upstate New York, and southern Japan.

Kurt completed a BA in Biological Sciences and an MA in Vertebrate Paleontology at the UC Santa Barbara before earning a PhD in Structural Geology at the University of Illinois. Kurt is also an Adjunct Professor at the University of Illinois, Co-Director of the Wasatch-Uinta Geological Field Camp program, and the Executive Secretary of the USGS/NAGT Cooperative Field Training Program.