We are pleased to announce that the 2016 Annual Pacific Cell FOP field trip will be held in Panamint Valley, CA, Friday through Sunday, October 7-9.

THE ESSENTIALS:
Registration, travel and camping information can be found on the FOP web site (here). Registration fees ($30 professionals, $20 students) go toward portable toilets, refreshments, and t-shirts for all. Although you may opt to register upon arrival, please do so in advance if at all possible, as it helps with planning (and guarantees that we have a t-shirt in your size).

MOTIVATION:
Panamint Valley is a tectonically active, pull-apart basin located within the Eastern California - Walker Lane shear zone (Burchfiel and Stewart, 1966). Despite spectacular exposures of alluvial and lacustrine stratigraphy that record a complex interplay between fault slip and basin subsidence, hydrologic fluctuations, and variations in sediment supply, the basin has received relatively limited study. Underscoring this, the last FOP in the valley was organized in 1978 by R.S.U. Smith. A brief reference list is included on the last page.

For the better part of a decade, have been working on a number of interrelated questions regarding the alluvial and lacustrine history of the young valley fill, the nature of slip along active faults in the valley, and the degree of soil development as a function of time. Although we do not intend to create a comprehensive field guide to the entire valley, we hope to address aspects of the following outstanding issues:
1. **What is the nature of slip along the range-bounding fault system?** Opening of the modern Panamint Valley fault system is argued to have occurred along a low-angle (<15°), oblique-slip normal fault that is linked to the dextral Hunter Mountain fault (Burchfiel et al. 1987; MIT and Biehler, 1987; Jones and Wesnousky, 1984). In contrast, Pleistocene slip along the active strands of the southern Panamint Valley fault system appears to be primarily right-lateral (Smith, 1979; Zhang et al., 1990). Low-angle detachments involving Plio-Quaternary deposits are present within the Panamint Range (Cichanski, 2000; Walker et al., 2005; Numelin et al., 2007; Andrew and Walker, 2009), but whether these participate in the active deformation field remains debated. We will present arguments from field observations that suggest to us that low-angle normal faults are not only active along much of the range front, but that these ruptured in prehistoric paleoseismic events.

2. **What was the timing, duration, and extent of lakes in Panamint Valley during the late Pleistocene?** The timing of lacustrine occupation of Panamint Valley has been a long-standing question in the hydrologic history of the eastern Sierra (Gale, 1914; Smith, 1976; Fitzpatrick and Bischoff, 1993; Fitzpatrick et al., 1993; Jayko et al., 2008). High shorelines attest to an extensive lake that filled most of the valley to a depth of several hundred meters (Smith, 1976), but the age of this system has been difficult to determine, with estimates ranging from ~70 ka to ~150 ka. We will present new age data from \(^{10}\)Be and \(^{36}\)Cl depth profiles, optically stimulated luminescence (OSL) and soil stratigraphy on beach ridges that argue for the younger side of this range (MIS 4 - 5a). We will also address a second debate, over the extent of the most recent (MIS 2) lake in Panamint Valley (Jayko et al., 2008). Dating and mapping of deposits and landforms associated with this period along the eastern foot of the Panamint Range suggest a relatively small and short-lived lake ~20-30 m depth.

3. **What are the primary rates and processes of soil development in the valley?** Much of our work has relied on soil development as a means to associate alluvial and lacustrine deposits of different age, landscape position, and source lithology. We have developed a relatively extensive data set of well-characterized soils (many associated with dated deposits). We will discuss the utility of using this chronosequence as a tool to help understand both the timing of episodes of alluvial fan development and the history of fault displacement. Examples will focus on soil stratigraphy associated with a widespread pulse of fan aggradation subsequent to lake occupation at 60-80 ka, and on Holocene ruptures along both the range front fault and the Ash Hill fault (e.g., Densmore and Anderson, 1997).
SELECTED REFERENCES


