
**Data Repository**

**Plate DR1.** Geologic cross section across the Basin and Range Province at ~39°N (1:200,000-scale). The present-day geometry is shown on A, and the pre-extensional geometry is shown on B. See the text for details on restoration methodology and estimation of extension. Light shaded areas above the modern surface on A represent eroded rock. The present-day and restored positions of the Paleogene unconformity, which is the datum used to restore extension, are shown with thick red lines. On B, the Paleogene unconformity is restored to an elevation of ~3 km, and light shaded areas above the unconformity either represent eroded pre-Paleogene rocks or Paleogene and younger rocks deposited above the unconformity. On B, the restored positions of the modern erosion surface are shown with thick blue lines. Crustal thickness data from proximal EarthScope USArray seismic stations distributed along the length of the cross section (Gilbert, 2012) are shown on A. Interpretations of Moho depth and prominent reflectors from the COCORP seismic reflection profile are also shown on A, and are modified from Allmendinger et al. (1983) for western Utah, Hauser et al. (1987) for eastern Nevada, Allmendinger et al. (1987) for central Nevada, and Surpless et al. (2002) for western Nevada and eastern California. The COCORP data illustrate important aspects of crustal structure, but were not used for the calculation of pre-extensional thicknesses, as they were collected from ~100 km to the north of the section line across much of Nevada (see Fig. 1A in the main text).

**Figure DR1.** Geologic map of part of the northern Pancake Range (1:12,000-scale), mapped by S. Long. Location of cross section line is shown with dark gray line.

**Table DR1.** Data supporting three-point problems for determination of fault and unconformity dip angles. The ‘strike azimuth’ was determined by locating two points of equal elevation along a fault trace, and connecting them with a line. The ‘elevation difference’ column represents the vertical distance between the elevation that the strike azimuth was determined at and a lower-elevation point measured along the fault trace, which was typically located at the bottom of a drainage. The ‘horizontal distance’ column represents the map distance between the strike azimuth line and the lower-elevation point, measured perpendicular from the strike azimuth line. The ‘fault dip angle’ was calculated by the equation: dip angle = tan⁻¹(elevation difference/horizontal distance).
REFERENCES CITED


Map units:
- **Qal**: Quaternary alluvium
- **Qc**: Quaternary colluvium
- **Qaf**: Quaternary alluvial fans
- **Tb**: Tertiary basalt
- **Tt**: Tertiary tuff
- **Tv**: Tertiary volcaniclastic rocks
- **Tr**: Tertiary rhyolite dike
- **Trd**: Tertiary rhyolite
- **IPe**: Pennsylvanian Ely Limestone
- **Mdp**: Mississippian Diamond Peak Formation

Strike and dip symbols:
- **Bedding**: 18
- **Compaction foliation**: 25
- **Flow foliation**: 30

Contacts:
- **Syncline**
- **Normal fault**
- **Stratigraphic contact**
- **Line of cross-section**
<table>
<thead>
<tr>
<th>Location and fault</th>
<th>Geologic mapping source</th>
<th>Strike azimuth</th>
<th>Elevation difference</th>
<th>Horizontal distance</th>
<th>Fault dip angle</th>
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</thead>
<tbody>
<tr>
<td>Schell Creek Range, easternmost low-angle normal fault</td>
<td>Drewes (1967)</td>
<td>008°</td>
<td>160'</td>
<td>600'</td>
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<td>Egan Range, Kaibab fault</td>
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<td>Mahogany Hills, 1st-order W-dipping normal fault</td>
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