

# Owens Valley fault Scarp: The 1872 Earthquake

BY: Bryan "B-Cast" Castillo

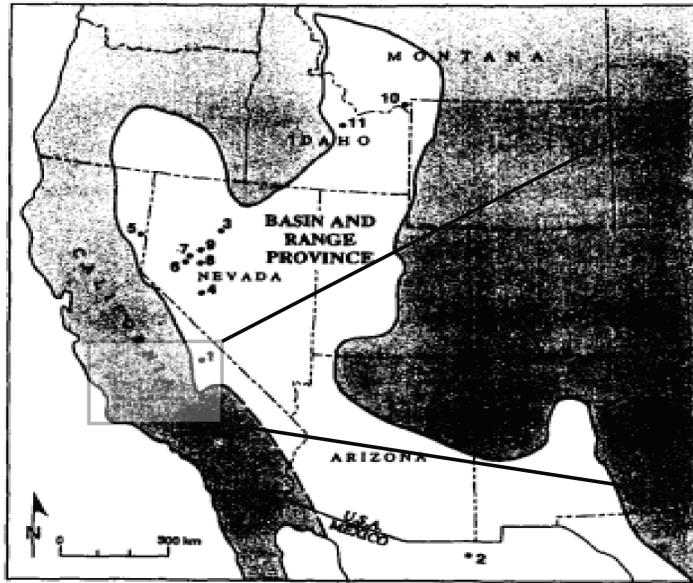


Figure 1: (DePolo et. al., 1991) Illustrates the Basin and Range province. #1 is the location of the 1872 Owens Valley earthquake.

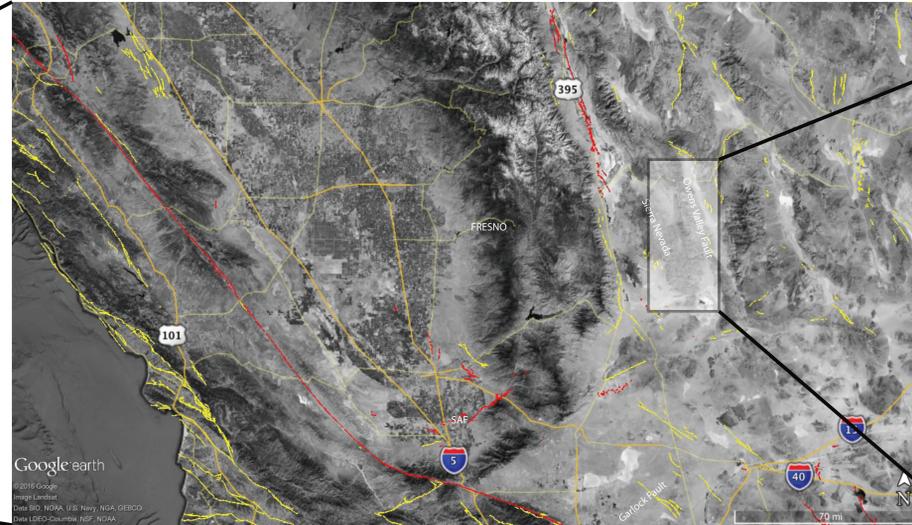


Figure 2: A closer look to the different active faults in the central California region. (SAF) San Andreas Fault. Owens valley is located to the NE (red strand).

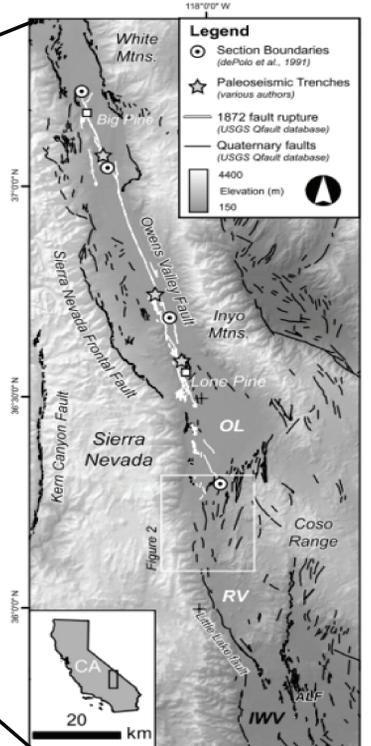


Figure 3: Map illustrating the 1872 rupture on the Owens Valley fault (Amos et. al., 2013).



Figure 4: (Amos et. al., 2013) Field Photograph of Sage Flat Scarp.

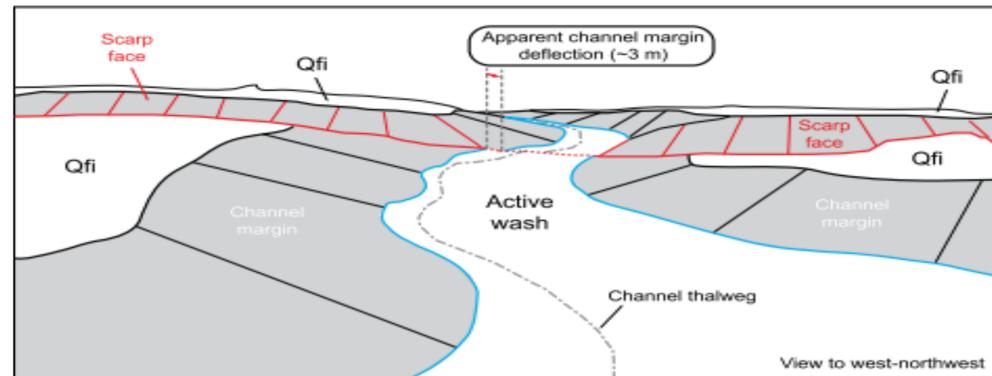


Figure 5: (Amos et. al., 2013) Illustrates a schematic line drawing of the Sage Flat Scarp. Joshua Trees are ~2m.

1872 Earthquake:

- March 26th, 1872
- Mw > 7.5
- Surface rupture: ~113 km
- Dextral motion
- Maximum dextral offset: 7 m
- Mean dextral offset: 6m
- Maximum vertical offset: 4.4 m
- Mean vertical offset: 1 m

Owens Valley Historic earthquake and sliprates:

- Penultimate event: 8.8 to 10.2 ka (Bacon and Pazzopane, 2007)
- Recurrence interval: <10 k.y. for OVF

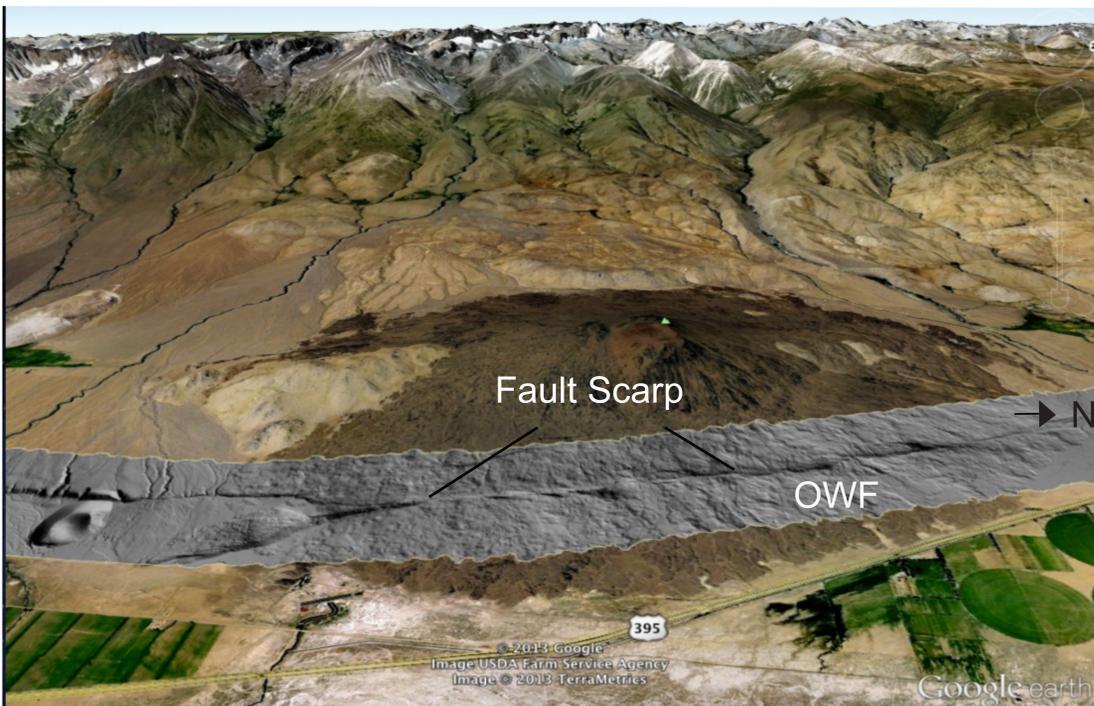


Figure 6: (Austin Elliott, 2013) LiDAR Imaging on Google Earth portraying the OVF fault scarp. OVF = Owens Valley Fault. Looking Towards the West.



Figure 7: (Adapted from: <http://marlimillerphoto.com/SrA-17.html>) Shows a fault scarp on the Owens Valley fault.) OVF = Owens Valley Fault. Person for scale. Looking Towards the West.

## References:

Amos C. B., Lutz A.T., Jayko A.S., Mahan S.A., Fisher G.B., Unruh J.R., 2013, Refining the Southern Extent of the 1872 Owens valley Earthquake Rupture through Paleoseismic Investigations in the Haiwee Area, Southeastern California: Bulletin of the Seismological Society of America, Vol. 103, No. 2A, pp. 1022-1037, April 2013, doi: 10.1785/0120120024

Hough S.E., Hutton K, 2008, Revisiting the 1872 Owens Valley, California, Earthquake: Bulletin of the Seismological Society of America, Vol. 98, No. 2, pp. 931-949, April 2008, doi: 10.1785/0120070186

DePolo C.M., Clark D.G., Slemmons D. B., Ramelli A.R., 1991, Historical surface faulting in the Basin and Range province, western North America: implications for fault segmentation: Journal of Structural Geology, Vol. 13, No. 2, pp. 123 to 136, 1991

Bacon S.N., Pezzopane S.K., 2007, A 25,000-year record of earthquakes on the Owens Valley fault near Lone Pine, California: Implications for recurrence intervals, slip rates, and segmentation models: Geological Society of America Bulletin 119(7), July 2007, DOI: 10.1130/B25879.1