Title: Seismically imaging continental magmatic systems

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Abstract: Silicic magmatic systems formed Earth's distinctive continental crust and are one of the most important means of mass transfer between the solid Earth and the surface environment. They also underlie a diverse suite of natural hazards whose impacts increasingly affect the growing global population. As a seismologist I seek to gain insight into continental magmatic systems by imaging subsurface structural properties and, in some cases, seismogenic deformation. Modern seismic arrays and computational analyses help provide integrated perspectives on magmatic system structure from the initiation of mantle melting through regions of transient storage and differentiation into the final upper crustal staging volumes that may become unstable and feed eruptions. The presentation will explore recent results regarding the structure beneath a relatively small volume and more frequently erupting arc volcano, Mount St. Helens, and contrasting properties of more voluminous but less frequently erupting systems beneath Yellowstone and Long Valley calderas. New perspectives on these magmatic systems result from use of large arrays of rapidly deployable cable-free seismometers, hybrid active and passive source experiments, and techniques to extract multiple types of seismic wavefield measurements from ambient noise.