6. Student Spotlight: Gabriel Gribler, Boise State University

Gabriel Gribler is a first-year doctoral student in geophysics at Boise State University. As part of the Center for Geophysical Investigation of the Shallow Subsurface (CGISS), his dissertation research focuses on the applications and advancement of multicomponent surface wave processing techniques. After completing his Master's thesis at Boise State, his motivation to continue into the Ph.D. program was propelled by the question, "Now that we can easily collect multicomponent seismic data, what can we do with it?" Before starting graduate school, Gabe became fascinated with active seismic methods after taking Seismic Exploration as an undergraduate student at the University of Washington. His intense curiosity did not go unnoticed by the course's professor, Dr. Thomas Pratt, who connected Gabe with Dr. Lee Liberty at Boise State University. Since then, Gabe's enthusiasm and consistent curiosity has effectively helped him progress to where he is today.

As a seasoned AGU student member, Gabe has given both an oral presentation in 2014 and a poster presentation at the recent 2015 meeting. His 2014 work, "Multi-component body and surface wave seismic analysis using an urban landstreamer system: An integrative earthquake hazards assessment approach" (NS43B-04), combined surface wave, *P*-wave reflection, and refraction data in order to observe areas of high liquefaction potential in western Idaho. Gabe and other CGISS researchers constructed a landstreamer consisting of both vertically and radially oriented geophones to allow for rapid acquisition of the full elliptic motion of the Rayleigh wave surface wave. This ongoing project has been supported by the U.S. Geological Survey under Project Award G13AP00032.

With that question, "what can we do with [multi-component data]," lurking in his mind, he developed a polar coordinate mute to utilize both of these Rayleigh wave components simultaneously during processing. This mute can differentiate between prograde and retrograde motion to combine dispersion (frequency vs. phase velocity) information and yield a more coherent fundamental mode. Correctly identifying the fundamental mode is key to producing realistic shear wave velocity profiles and thus is critical for earthquake hazard studies. At the 2015 Fall Meeting, Gabe presented his continued efforts in multicomponent seismic acquisition and polar mute, "A polar coordinate approach to identify and remove higher mode Rayleigh waves" (NS41B-1938). His polar mute offers an alternative processing method for isolating higher mode surface waves that interfere with fundamental mode dispersion energy. This progressive research was recently submitted to *Geophysics* and is under review for 2016 publication.

If you are interested in learning more about active multicomponent seismic research at CGISS, please contact Gabe.