

New Students

The Arizona Space Geodesy Laboratory (formerly the Tectonic Geodesy Laboratory) welcomes two new students, Samantha Portnoy (MS) and Cassie Hanagan (PhD). Samantha comes to us from the University of Vermont, where she received a BS in Geology and a BA in Graphic Design/Digital Art. Her research assesses the signal associated with the recent Ridgecrest, CA earthquake recorded in borehole strainmeter data. Cassie obtained her BS in Geoscience from Penn State. She is studying Coulomb stress changes associated with earthquake sequences in central Italy.



The Arizona Space Geodesy Lab. From left to right: Cassie Hanagan, Lisa Knowles, Phillip McFarland, Katherine Guns, Sam Portnoy, and Dr. Rick Bennett.

The Global Seismology and Tectonics (GSAT) group has two new undergraduate additions, Autumn Muhly and Peter Blake, both under the tutelage of Dr. Eric Kiser. Autumn assists PhD candidate Haiyang Kehoe with his research investigating the rupture processes of deep-focus earthquakes using back-projection techniques. Peter is working to process seismic data collected around Lassen Peak in order to locate earthquakes and constrain magmatic processes underneath the volcano.

Recent Graduates

Daniel Portner completed his PhD this past spring and was awarded the 2019 Graduate Student Award in Scholarship; formerly advised by Dr. Susan Beck, his dissertation was titled *Variability in Slab Structure and Behavior Within and Among the South American and Eastern Mediterranean Subduction Systems*. He is now a postdoctoral fellow at the Carnegie Institution for Science. David Moussa, formerly advised by Dr. Kiser, graduated with an MS this past spring; his research focused on earthquake processes near the Indian Heaven Volcanic Field in Washington state.

Field Work and Student Updates

This past summer, GSAT members and alumnus Dr. Kevin Ward (Assistant Professor, South Dakota School of Mines) deployed 80 nodal seismometers in Lassen Volcanic National Park. These instruments were deployed with the goal of characterizing the magma system surrounding Lassen Peak, the southernmost active volcano in the Cascade Range. A variety of seismic imaging techniques will be used by researchers in GSAT and the South Dakota School of Mines, ultimately improving our understanding of volcanic hazards in the region.

The reflection seismology group, led by Drs. Roy Johnson and Amanda Hughes, performed field work near Bakersfield, CA



Dr. Kevin Ward (center) and Dr. Eric Kiser (right) instructing Peter Blake (left) on how to properly deploy a nodal seismometer in Lassen Volcanic National Park this past summer.

this past spring in order to image the White Wolf fault. They deployed over 1000 nodal seismometers to collect data from the active source experiment. PhD student Terrance Delisser is analyzing the data as part of his research. PhD student Lauren Reeher also performed field work this past summer in the Paradox Basin, UT. Her research focuses on mechanical characterization of Jurassic sandstone near salt structures.

Dr. Rick Bennett's PhD candidates Phillip McFarland and Katherine Guns are both set to defend in Spring 2020. Phillip's dissertation is on the crustal kinematics of the central Andes, and Katherine's dissertation is on the effects of post-seismic deformation on GPS time series and estimated fault slip rates in Southern California.

PhD candidates Audrey Dunham and Lisa Knowles are co-chairs for a new graduate-to-undergraduate mentorship program through the Southern Arizona Chapter of the Association for Women Geoscientists. Clint Koch was awarded a scholarship from the Society of Exploration Geophysicists.

Faculty and Researcher Updates

GSAT saw the departure of two research scientists this past spring, Drs. Colton Lynner and Brandon Bishop. Dr. Lynner accepted a tenure-track faculty position at the University of Delaware, and Dr. Bishop started a position as a postdoctoral fellow at Saint Louis University. GSAT P.I. Dr. Beck recently received funding for a grant to deploy 300 nodal and 30 broadband seismometers in Ecuador this coming spring.

Dr. Bennett is co-teaching a newly offered course, Active Tectonics, with Dr. Hughes. The course includes a five-day field trip across Southern California with stops in Death Valley and the Ventura Basin. Dr. Bennett and Diedre Lamb (Assistant Director, UA Disability Resource Center) are also excited to report that the fourth-annual Accessible Earth course in Orvieto, Italy was a huge success and continues to provide a unique and accessible alternative to a traditional field camp.

Dr. Chris Harig was recently featured in an episode of *Arizona Science* by AZPM to discuss his research using satellites to predict rising sea levels. Drs. Harig and Bennett are also hard at work as executive committee members of UA's Earth Dynamics Observatory (EDO). Through EDO, they work with other UA faculty to develop new and exciting remote sensing satellite missions.