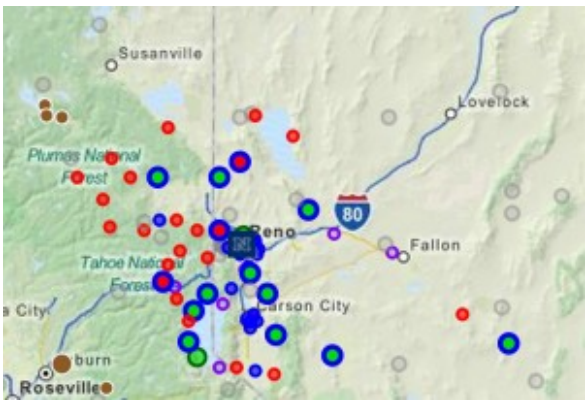
UNR lab plotting regional seismic faults

By Kathryn Reed

INCLINE VILLAGE – Technology is continuing to bring clarity to the seismic world, though not yet to the extent where temblors can be predicted.

LiDAR provides images and data that otherwise could not be ascertained or would take an exhorbitant amount of time to collect.

"It has immediate scientific value for tectonic analysis and mapping," Courtney Brailo explained at a talk earlier this month at the Tahoe Environmental Research Center in Incline Village. "We can measure change as it happens."



Seismic activity is normal throughout the Sierra. Map/UNR Seismology Lab

Brailo is a UNR graduate student working at the Nevada Seismological Lab.

By using LiDAR the lab has been able to document known faults and has discovered ones in the region that were previously unknown.

LiDAR uses lasers and GPS. It can be used on land or underwater. There is satellite, aerial, terrestrial and mobile scanning LiDAR.

Brailo explained how filters could get rid of vegetation on the ground, allowing scientists to get a better view of the terrain via the LiDAR method. This can provide better information at times than being in the field, especially because it is accurate up to centimeters.

“We are seeing things we’ve never seen before. We can see bare earth in Alpine terrain,” she said.

Brailo added, “We can scan 1,000 kilometers a day. It’s quick compared to other standards.”

The UNR lab has been using LiDAR since 2005. In 2010, it was used to map the entire Lake Tahoe Basin – including the faults on the South Shore as well as at Mount Rose. Today, Brailo is focusing more on the greater Reno area. Through her work corrections have been made to previously documented faults and she has documented a new one.

Having baseline data helps scientists measure change going forward. This includes movement in the faults, measuring offset drainage and what the plates look like.

LiDAR can also be used to help engineers and government entities know where it might be more or less dangerous to build based on potential seismic activity. Digital elevation models can be created. Fire crews have used LiDAR to map tree density. It can be used on buildings. It’s the technology that was tapped a few years ago to make sure the space shuttle could be trucked through the streets of Southern California.