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Virginia Geologists Featured in Report on 2011 Louisa County Earthquake

Charlottesville, Va.- Two geologists with Virginia's Department of Mines, Minerals and Energy (DMME) are featured in a newly released scientific study about the 2011 earthquake in Louisa County, Virginia. The earthquake, which occurred in a previously unknown fault zone, caused over \$200 million in damage—alerting citizens and scientists to the fact that damaging earthquakes can and do happen in the eastern part of the United States.

"The 2011 Mineral, Virginia, Earthquake, and Its Significance for Seismic Hazards in Eastern North America" was released by The Geological Society of America and includes research and writings from DMME geologists David Spears and Matt Heller. It contains twenty-three papers in which scientists from the U.S. Geological Survey, Virginia Tech and other universities also contributed. The papers present the findings of the combined efforts of these scientists to understand the earth's response to the earthquake, damage caused to man-made structures and the geological and geophysical factors that contributed to the earthquake.

Spears, Virginia's State Geologist, co-authored three papers in the volume. Spears says the book provides an opportunity to better understand earthquakes on the east coast. "This was the most damaging earthquake ever recorded in Virginia. It gave us and other scientists a unique opportunity to research and produce information that will help us better prepare for such an event should there be one in the future."

Two of Spears's papers relate findings from new geologic mapping to geophysical surveys to understand the structure of the earth's crust about five miles below the surface. That is where scientists believe the earthquake motion initiated. The third paper describes the geology in the location of the earthquake. Scientists exposed and studied rocks across a group of previously unknown faults that were active in the past.

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Heller, manager of DMME's Geologic Mapping section, is lead author on a paper analyzing the damage to residential property near the earthquake's epicenter in Louisa County. The study identifies a "bull's-eye" of damage northwest of the epicenter and documents a level of damage usually caused by severe shaking. Heller and his co-authors also considered the age and construction of the buildings damaged to provide a reference for engineers.

The book is available from the Geological Society of America through its website at:
<http://specialpapers.gsapubs.org/content/509>

You can also find information about the 2011 earthquake on DMME's website:
<http://www.dmme.virginia.gov/DGMR/earthquake2011.shtml>

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