

## Place-Based Teaching with the Midcontinent Rift System: Using the Geologic and Geophysical Signature of the MCRS to Educate about Tectonics

A major challenge for geoscience educators in the Midwest is that plate tectonics, one of the grand unifying themes of the earth sciences, seems very remote. It encompasses fascinating dynamic processes, which are captivating for teaching, yet it can be difficult for educators to connect these concepts to students' experiences because active tectonics occurs in places most students have not seen in person. The North American Midcontinent Rift System (MCRS), the dominant geophysical feature of the midcontinent, offers an extraordinary opportunity for students in the Midwest to observe the effects of plate tectonics close to home. Unfortunately, the MCRS is surprisingly unrecognized outside of the geological community. Hence we sought to increase awareness of the MCRS for both formal and informal educators, as well as the general public through workshops and the development of a new IRIS Active Earth Monitor Display about the MCRS.

A week-long workshop was held at Michigan Tech in August 2014 for a group of formal educators and informal educators from Illinois, Michigan, Minnesota, Nebraska, and Wisconsin. The workshop was designed to provide training and build experience using geological and geophysical methods to investigate the MCRS. The educators engaged in activities that they could use in their respective educational facilities and began developing a content set for the IRIS Active Earth Monitor. The development of this Active Earth Monitor content set is unique in that teams consisting of both formal and informal educators were paired to create the content pages. The formal educators (classroom teachers from grades 8-16) shared ways for teaching how and why we know what we know about the MCRS and how to relate that to state and national science standards. The informal educators (from national, state and regional parks) taught the classroom teachers about how to capture audience the viewer's attention and how to help people relate with heart and mind to the content.



Figure 1: Participants collected active source seismic (left) and gravity (right) data, and analyzed data in the field (center). Some photos by Shelly Olds (UNAVCO).