

2022 Earthquake Insight Field Trip

Sponsored by the Missouri Seismic Safety Commission

Friday afternoon, November 4, through mid-day Sunday, November 6, 2022

FAQs

Who's invited?

This field trip is an educational and networking event for business professionals, risk managers, emergency planners, engineers, government officials, students, faculty, geoscientists, and others who are interested in earthquake hazards and earthquake risks in the central US. *Earthquake Insight Field Trips* were first presented in 2005, hosted by Earthquake Insight LLC and sponsored by the US Geological Survey. Since 2021, the *Earthquake Insight Field Trip* is also sponsored by the Missouri Seismic Safety Commission.

Why should I go?

Geoscientists have long recognized the very real risk of earthquakes in the central US. And engineers know how to design structures to resist earthquakes. But unfortunately, a lot of new development still does not consider earthquake hazards. Sites are selected and projects are built without really considering earthquakes. As a result, much of the built environment is at high risk from earthquakes. **This field trip will help you recognize this gap between *what we know about earthquakes* and *what we do about them*.**

Where are we going?

This field trip starts in Cahokia, Ill., which is just across the Mississippi River from St. Louis, Mo. The route includes parts of southwest Illinois, southeast Missouri, western Tennessee, and western Kentucky. This itinerary will focus on field evidence of past earthquakes on the New Madrid fault system. We will also talk about other diffuse, earthquake source zones in Illinois, Indiana, western Kentucky, and other parts of the central US. These are less well understood, but still pose hazards to the region. We'll also discuss some of the engineering challenges unique to central US earthquake country. Perhaps most importantly, we will look at potential impacts to the national economy, transportation, emergency response, communications, and specific markets.

What is on the agenda?

- 1) A look at two neighboring historic structures (one an *unreinforced masonry* [URM] structure and the other an early French structure built of vertical logs, a *poteaux-en-terre*) that went through the 1811-12 New Madrid earthquakes and discussion of their response to those events;
- 2) Travel through urbanized areas that have a lot of high-risk structures;
- 3) A look at developed areas that will shake harder than other areas due to the underlying geology;
- 4) A visit to Kaskaskia, Ill., and Ste. Genevieve, Mo., and a discussion of their histories related to the 1811-12 New Madrid earthquakes;
- 5) A look at a probable head-scarp of a lateral-spread feature (a large, low-angle landslide) that was created during the 1811-12 New Madrid earthquakes;
- 6) A look at liquefaction evidence from 1811-12 New Madrid earthquakes and earlier events;
- 7) A look at the Little River Drainage District (engineered drainage) system and a basic overview of its purpose, history, function, value, and risk exposure;
- 8) A visit to New Madrid, Mo., to see where "the river ran backwards," Eliza Bryan's grave, and to soak up the *seismic ambiance* of this place;
- 9) A look at the fault scarp (a linear topographic feature) created during the 1811-12 New Madrid earthquakes, which is still clearly visible today – and the new, critical infrastructure improvements that straddle it;
- 10) A visit to Reelfoot Lake, which also was created during the 1811-12 New Madrid earthquake series;
- 11) A look at a fresh landslide at Hickman, Ky., that threatens three structures, including a church and parsonage; and
- 12) Discussions of industrial operations; markets; infrastructure; resources; assets; and logistics, transportation, and communication sectors exposed to high earthquake risk that is *generally unrecognized*.

By the end of the trip, participants will be able to spot and better understand *earthquake evidence*, *earthquake hazards* as well as *earthquake risks*.

Is this the first field trip of its kind?

This is the 16th *Earthquake Insight Field Trip* since June 2005. The final report on the 2005 event was filed online at https://usgs.primo.exlibrisgroup.com/discovery/fulldisplay?vid=01USGSL_INST:01USGSL_INST&search_scope=z_Institution&tab=z_Institution&docid=alma991002295869703886&lang=en&context=L&adaptor=Local%20Search%20Engine&query=any,contains,05HQGR0014&sortby=rank&offset=0&virtualBrowse=true. There are about 300 alumni of past *Earthquake Insight Field Trips* from Texas, Ohio, California, New York, Bermuda, Minnesota, Georgia, Arkansas, Connecticut, Arizona, Iowa, Colorado, Rhode Island, Pennsylvania, Kentucky, Missouri, and Illinois. Participants have represented State Farm, Pfizer, FEMA, FM Global, the Missouri State Senate, Odyssey Re, Dillard's, AEP River Ops, Country Financial, US Army, Growmark, Missouri State Emergency Management Agency, Wal-Mart, Chubb, US Department of Transportation, Tennessee Valley Authority (TVA), California Department of Insurance, Ameren, AON, AG Edwards (now Wells Fargo), ABC/Disney, General Re, Time-Warner, Edward Jones, The Republic Group, Shelter Insurance, St. Paul/Travelers, Enbridge, Swiss Re, SAIC, CenterPoint Energy, US Social Security Administration, Northern Illinois University, Missouri Geological Survey, Arkansas Geological Survey, Vincennes University, and many others. We haven't lost anyone yet.

Who's in charge?

Phyllis Steckel, a registered geologist, is the field trip leader. She has been involved in earthquake risk reduction in the central US for over 30 years. The Missouri Seismic Safety Commission is the field trip sponsor.

Who else is going?

Invitations have gone out to individuals, insurance and financial professional groups, risk managers, engineers, elected officials, personal networks, as well as students and faculty at several regional universities. The invitation has also been extended to the USGS Central US List-Server, the Association of Engineering & Environmental Geologists (AEG), other professional organizations, and others in industry and consulting. → **Feel free to pass this invitation to others** who may want to join us.

How many will participate?

There is a **minimum of 12 participants**. If there are fewer than that, the 2022 Earthquake Insight Field Trip will be cancelled. On the high end, the 2022 *Earthquake Insight Field Trip* is limited to about 10 vehicles and 40 people.

What can I expect?

Remember, this is a *field* trip. Check the forecast before you leave home and be prepared. This route includes some rural areas that have marginal cell-phone coverage. But **leave the rock picks and heavy boots at home**; most of the stops are simply road-side discussions. The route includes many highway miles; a route log will be available for each vehicle. Time at the stops will be limited. There are restroom breaks along the route. However, drivers should leave each morning with a full tank, as there are no planned fuel stops (and it will be difficult to catch up).

What about transportation?

Carpool transportation must be arranged by the participants – so it's best to find others to share a ride. Contact Phyllis Steckel a few weeks before the field trip for names of others who are going. There is a rough limit of **10 vehicles**, so each vehicle should be full, if possible. Carpools should be arranged before the beginning of the field trip. Also, it is not possible to leave vehicles at the starting site (Holy Family Church in Cahokia, Ill.). However, vehicles may be left at the Best Western Inn in Chester, Ill., the first night's hotel. There are no scheduled stops for re-fueling vehicles: → **drivers must fuel their vehicles before departure** each morning.

How about lodging and meals?

On **Friday night**, November 4, lodging will be in Chester, Ill., at the Best Western Inn; **MAKE YOUR OWN HOTEL RESERVATION** at https://www.bestwestern.com/en_US/book/hotels-in-chester/best-western-chester-hotel/propertyCode.14135.html. Be aware that this hotel is two stories and it may not have an elevator. Dinner options include pizza, fast foods, or a dinner buffet at a local restaurant; to be decided by field-trippers that evening. **There will be an introduction presentation on central US earthquake hazards and risks that evening in the hotel lobby: the rest of the trip will make more sense if you attend.** On Saturday morning, a free breakfast is provided by the hotel.

For **lunches** bring a cooler and your own lunches and beverages from home. If you are flying in from some distance and this is not possible, please contact Phyllis Steckel (psteckel@charter.net) for options. Unfortunately, there are no dependable lunch options that can feed a group in a timely manner near where our lunch stops are located.

On **Saturday night**, November 5, suggested lodging is at the Dyersburg, Tenn., Hampton Inn; **MAKE YOUR OWN HOTEL RESERVATION** at <http://hamptoninn3.hilton.com/en/hotels/tennessee/hampton-inn-dyersburg->

DYETNHX/index.html. Dinner options include barbeque, steak houses, and many fast food outlets. On Sunday morning, a free breakfast is provided at the hotel.

What about adult beverages?

Adult beverages may not be consumed at lunch or at any time while travelling. However, those who are over 21 years of age and who wish to purchase adult beverages for the evenings, feel free. Just be aware that there are limited selections along the route, and some of the counties are dry (local law prohibits or restricts alcohol sales).

What should I wear?

Wear comfortable, closed shoes and comfortable long pants. Dress for the weather. However, there will be no off-pavement or hard-rock-type activities. **Leave the heavy boots and rock picks at home.** Geoscientists are among the world's worst dressed, so just about anything will be better than your hosts.

What should I bring?

Dress for the weather. Jeans and tennies are fine. Definitely bring cameras and extra batteries. Muted cell phones are welcome during the breaks, although coverage will be marginal in some areas. At some of the field sites, there may be insects, mud, poison oak, bright sun, dust, and allergens. Bring a day pack with rain gear, sunscreen, sunglasses, and allergy meds. Bring lots of business cards (students, too – make your own as you may want to network). And most importantly, please don't forget your generous good humor!

When and where do we meet?

The group will meet on Friday afternoon, November 4, at 4:00 pm in Cahokia, Ill. The site is in front of the Holy Family Catholic Church building, which was built circa 1789. The church is located just south of the intersection of Highway 3 and Camp Jackson Road. Our rendezvous point will actually be our first stop. This structure survived the 1811-12 New Madrid earthquakes, and it has a fascinating history!

When will it be over?

The field trip will dismiss near Cairo, Ill., mid-afternoon on Sunday, November 6.

What about cost?

There is **no funding available to underwrite any of the logistics or arrangements** for the 2022 *Earthquake Insight Field Trip*. The field trip planning and staging is done by **volunteers who are paying all of their own expenses** – so please don't ask for financial assistance. As a result, each field-tripper must arrange transportation on his/her own: it is suggested that participants find others who are going and figure out a carpool to share transportation costs. (The route is about 600 miles round-trip from Cahokia, Ill. Dead-head distance will vary for carpoolers and will depend on each participant's domicile – so you will have to figure out your own transportation costs and arrangements.) Per person, the hotels range from about \$30 to \$100 per person a night, depending on how many share a room – so you will have to figure out your hotel costs and arrangements and also **make your own hotel reservations**. Dinners will be about \$20.00 a person on Friday and Saturday nights, depending on menu choices – so, again, you will have to figure out your dinner costs and arrangements.

Are any Continuing Ed Units (CEUs) or Professional Development Hours (PDHs) available?

Yes. Contact Dr. Francisco Gomez (fgomez@missouri.edu) for more information and arrangements.

Any feedback from earlier participants? Visit https://idlewords.com/2015/07/confronting_new_madrid.htm for an interesting recap by a 2015 participant. Definitely worth the 20-minute read.

I still have some questions. How do I get answers?

Contact **Phyllis Steckel** at 636-359-1955 or psteckel@charter.net.



TOP: Participants from the first Earthquake Insight Field Trip in 2005 pose at a bridge retrofit of a bridge over the Mississippi River in Cape Girardeau, Mo.

MIDDLE: We will see this exterior seismic retrofit of the telephone exchange building in New Madrid, Mo.

BOTTOM: Close-up inspection of cypress-tree stumps buried in the 1811-12 New Madrid earthquakes in northeast Arkansas. Unfortunately, this site is no longer on the itinerary, as bulldozers have graded it level. The land ownership has also changed hands.