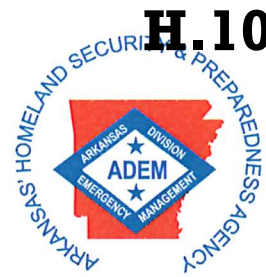




STATE OF ARKANSAS  
GOVERNOR SARAH HUCKABEE SANDERS  
DEPARTMENT OF PUBLIC SAFETY  
DIVISION OF EMERGENCY MANAGEMENT



MIKE HAGAR  
SECRETARY

A.J. GARY  
DIRECTOR

October 21, 2024

The Honorable Terry Rice, State Senator  
The Honorable Jeff Wardlaw, State Representative  
Co-Chairs, Arkansas Legislative Council  
c/o Bureau of Legislative Research  
Room 315, State Capitol Building  
Little Rock, AR 72201

Dear Senator and Representative:

Enclosed is the annual Arkansas Earthquake Program report as required per ACA 12-77-107. We are providing this report in an electronic version and can provide a print version upon request.

Please do not hesitate to contact me if I, or my staff, may be of further assistance.

Sincerely,

A.J. Gary  
Director and State Homeland Security Advisor

To the Co-chairs of the Legislative Council:

In accordance with the House Bill 2032 amending Act 711, the Arkansas Division of Emergency Management (ADEM) hereby reports the following activities of the Arkansas Earthquake Program from November 1, 2023, to October 31, 2024, as they relate to specific requirements of the bill:

**A. Continued assessment from proper scientific authorities of the seismic risk to the state:**

In 2023 and 2024, ADEM maintained its relationship with the Arkansas Department of Energy and Environment (E & E), Office of the State Geologist (OSG), and the State Fire Marshall through meetings, email, phone correspondence, and educational events.

- ADEM and OSG share responsibilities for the Arkansas Governor’s Earthquake Advisory Council (GEAC) meetings.
- ADEM contacts the State Fire Marshal for subject matter expertise, most often to answer questions about the Arkansas Building Code.
- ADEM and OSG continue to interact frequently. Activities that have involved both agencies are INSPECT ARKANSAS (INSPARK) trainings, educational/ STEM events, and the regular discussion of possible projects that might be undertaken with the funding available from the National Earthquake Hazard Reduction Program (NEHRP). ADEM and OSG work together to spread earthquake awareness and mitigation throughout the state, cooperatively staffing booths at preparedness events. (A list of conference calls, presentations, and meetings begins on page 6.)

**Office of the State Geologist (OSG), Research Activity**

Paleo seismology—OSG staff recently assisted Dr. Tuttle and Dr. Al-Shukri in paleo seismology fieldwork this fall, associated with a USGS National Earthquake Hazards Reduction Program (NEHRP) grant awarded to them. The fieldwork was conducted in three trenches containing sand blows near Marianna, Arkansas. It involved identifying and logging geologic sediments and rocks for signs of ancient earthquakes. The findings of this fieldwork will be published in a scientific professional journal.

Raspberry Shake—OSG recently updated its instrument, the Raspberry Shake. This is a high-precision professional seismometer sensor. It measures ground motion activity and will be installed in the OSG office with a monitor to observe any ground motion. The software will allow access to Raspberry Shakes worldwide. It will be used for educational and instructional purposes.

Great ShakeOut—E & E and OSG, participated in the Great ShakeOut on Thursday, October 17. Posters, flyers, emails, communication blasts to employees, a rolling video

on earthquake information, and an informational booth on the New Madrid Seismic Zone were featured during this event.

**Seismometer Stations**—OSG is working with the University of Memphis, Center for Earthquake Research and Information (CERI), to maintain nine stations across the state. OSG is considering installing one additional permanent seismic station just west of the Mississippi Embayment area near Batesville. This station will be designed to provide additional seismicity monitoring near the New Madrid Seismic Zone.

**Bull Shoals Poster**- Ongoing research into seismicity surrounding Bull Shoals Lake. In 2017, a M3.6 occurred with 35 aftershocks. The investigation focuses on post-impoundment seismic activity in the area and related phenomena known as reservoir-induced seismicity.

**Lawrence County Earthquake Events**- Ongoing research into seismicity in the area referred to as the eastern Ozarks diffused seismicity. This area has seen numerous small earthquakes over the years. More recently, western Lawrence County has seen 11 low-magnitude earthquakes since June 2022. OSG installed a temporary seismic station just south of Ravenden (XA02) to better evaluate the seismicity along with three other temporary stations in the northern half of Arkansas, which will help augment the data from the nine permanent stations of the Arkansas Seismic Network (ASN) for better control on the earthquake depth and epicentral location.

**B. Training and education of the state and local government officials, employees, and citizens of Arkansas regarding preparation and protective measures that can be taken before, during, and after an earthquake:**

During the period covered by this report, ADEM hosted courses to support earthquake response. Below is a list of classes offered by the state.

- April 18, 2024: Cal OES Safety Assessment Program (SAP) Training
- June 11, 2024: ATC-20, Rapid Visual Inspection Training
- September 17, 2024: Cal OES Safety Assessment Program (SAP) Training

In 2024, ADEM promoted the following National Earthquake Technical Assistance Program (NETAP) courses offered by FEMA, the Central US Earthquake Consortium (CUSEC), and the Applied Technology Council.

- November 1, 2023: Building Codes-Why They Matter
- April 3, 2024: FEMA P-2343, Improving Performance of Buildings in Very High-Seismic Regions
- June 25, 2024: FEMA E74 Reducing the Risks of Nonstructural Earthquake Damage

- July 25, 2024: FEMA E74 Reducing the Risks of Nonstructural Earthquake Damage
- August 6, 2024: FEMA E74 Reducing the Risks of Nonstructural Earthquake Damage
- August 20, 2024: FEMA 154 Rapid Visual; Screening of Buildings for Potential Seismic Hazards
- August 22, 2024: ATC-20, Rapid Visual Inspection Training
- August 24, 2024: ATC-20, Rapid Visual Inspection Training

**C. Planning coordination, guidance, and assistance to all state and local government officials in preparation for, response to, and recovery from earthquakes:**

INSPEct ARKansas (INSPARK)

Arkansas has had a training program for building inspections for over twenty years.

The INSPARK website ([inspectarkansas.org](https://inspectarkansas.org)) allows members to access information, take reassessment tests, and learn more about mitigating damage from earthquakes in the state. The ArcGIS Survey123 App, the primary means of data collection during training and real-life events, has been successfully integrated into the INSPARK Program. The Survey123 App information can be conveyed to the State Emergency Operations Center (SEOC) in real time during a disaster.

INSPARK leaders have been working to build a stronger relationship with the American Institute of Architects Arkansas Chapter (AIAAR). AIAAR has established a Disaster Assistance Committee (DAC) whose role will be to support ADEM and the INSPARK program. The committee will be looking at means to support members and member firms that suffer a loss from a disaster. DAC will also be working toward recruiting architects to join INSPARK and educating the architecture profession about natural and man-made hazards and what these architects can do to protect themselves, their families, and their offices from risks.

Did You Feel It (DYFI)

After an earthquake, the Earthquake Program Manager communicates with the affected county's Emergency Manager to encourage them to remind their citizens of the United States Geological Survey (USGS) DYFI website. The website collects information from people who felt an earthquake and creates maps that show what people experienced and the extent of the damage.

Arkansas updates the New Madrid Seismic Zone Earthquake Plan

ADEM Operations started hosting meetings with key partners on August 9, 2024. Through several meetings and discussions, Arkansas is moving forward with creating a plan aligned with the Federal Emergency Management Association (FEMA) Earthquake Plan. On

August 29, 2024, at the Arkansas Emergency Management Conference, ADEM Operations and Planning led a breakout session that highlighted the engagement needed from our Federal, State, and Private Sector Partners. Some of the expectations of the updated plan include creating an all-hazards, direct, and effective plan with a primary focus on a New Madrid Earthquake event, identifying staging areas that could be utilized for a catastrophic event, and determining gaps through exercise. Currently, ADEM Planning is working to include lifelines into this version of the plan. ADEM operations is re-visiting and re-evaluating the staging areas identified in the previous plan. ADEM Area Coordinators are working with their local coordinators to ensure the locals are involved in the planning effort. Moving forward, we will engage our Emergency Support Function (ESF) partners and our National Guard partners to update or rewrite their information into the Arkansas New Madrid Seismic Zone Earthquake Plan.

**D. Coordination of earthquake program activities with comparable agencies of the federal government and other states:**

Arkansas Governor's Earthquake Advisory Council

The Arkansas Governor's Earthquake Advisory Council (GEAC) meets bi-annually. Detailed notes are submitted to the Governor and are available from the State's Earthquake Program Manager (EPM).

Sixty-five people attended the April 19, 2024, GEAC meeting.

Panel discussion on the April 8, 2024 Eclipse.

- Michael Kelly (ARDOT)
- Penny Rubow (AWIN)
- Chief Josh McMilliamn (ATU)
- John Hilland (ATU)
- Eric Ekhoff (ADEM)

Keynote Speaker:

- Sarah Hernandez, The University of Arkansas at Fayetteville, Data Driven Methods to Assess Transportation System Resilience in Arkansas.

Forty people attended the October 18, 2024, GEAC held at the Arkansas State University Beebe in Heber Springs, AR. Keynote speakers were:

- Dr. Haydar Al-Shukri, The University of Arkansas at Little Rock, Geophysical and Paleo Seismological Investigations of the Marianna Earthquake Source in East Central Arkansas

- Jeff Allender, American Red Cross, Red Cross’ Earthquake Preparedness brief
- Martha Kopper, Office of the State Geologist (OSG), Turkey-Syria, Ridgecrest CA, and Christ Church, NZ Earthquakes and Comparisons to the New Madrid Seismic Zone.

Emergency Management Assistance Compact

ADEM Operations attended the annual All Hazards Resource Allocation Workshop with the National Guard. This workshop brought together Guard representatives from every state to discuss their most catastrophic events and to allocate resources in the event of an earthquake. Arkansas EMAC has assisted our neighboring states with nine missions this year, which were good practices for similar missions that must be undertaken in an earthquake event.

ShakeOut

The Arkansas Earthquake Program continues to promote the Central United States ShakeOut actively. This yearly drill encourages people in homes, schools, businesses, and other organizations to practice what to do during an earthquake and improve preparedness using the “Drop, Cover and Hold On” methodology. A ShakeOut Social Media campaign has been developed, utilizing NEHRP funds to encourage people to register for this international drill. The PSAs, which can be used across various platforms, are specifically NMSZ-oriented, and can be used indefinitely.

ShakeOut was held on October 17, 2024, at 10:17 am. There were 66,860 registered participants in Arkansas. ShakeOut.org offered many innovative ideas and approaches for participating in the drill and adapting it to a pandemic. Participation across different groups were as follows.

<b>Category</b>	<b>Participants</b>
<u>Individuals/Families</u>	69
<u>Childcare and Pre-Schools</u>	976
<u>K-12 Schools and Districts</u>	31,873
<u>Colleges and Universities</u>	20,071
<u>Local Government</u>	864
<u>State Government</u>	8,739

<u>Federal/National Government (Including Military)</u>	74
<u>Tribes/Indigenous Peoples</u>	0
<u>Businesses</u>	399
<u>Hotels and Other Lodgings</u>	0
<u>Healthcare</u>	2,263
<u>Senior Facilities/Communities</u>	240
<u>Disability/AFN Organizations</u>	1,000
<u>Non-Profit Organizations</u>	90
<u>Neighborhood Groups</u>	0
<u>Preparedness Organizations</u>	18
<u>Faith-based Organizations</u>	0
<u>Museums, Libraries, Parks, etc.</u>	0
<u>Volunteer/Service Clubs</u>	0
<u>Youth Organizations</u>	0
<u>Animal Shelter/Service Providers</u>	0
<u>Agriculture/Livestock Sector</u>	0
<u>Volunteer Radio Groups</u>	7
<u>Science/Engineering Organizations</u>	0
<u>Media Organizations</u>	2
<u>Other</u>	175

### Conference calls, meetings, and trainings

- November 2, 2023 (and continuing on the 1st Thursday of each month): National Earthquake Program Managers Meeting (NEPM)
- November 28, 2023 (and continuing bi-monthly until April 2024): 2024 Solar Eclipse Tri-State Regional Planning Meeting
- November 30, 2023 (and continuing on the fourth Thursday of each month): Monthly Central United States Earthquake Consortium (CUSEC) conference call
- November 15, 2023 (and continuing bi-weekly throughout the year): Meeting of OSG to plan GEAC and educational earthquake events
- December 6, 2023 (and monthly throughout year) Earthquake Summit Planning Meeting
- December 7, 2023: Governor's Earthquake Advisory Committee (GEAC) Meeting
- December 12, 2023: CUSEC Regional Safety Evaluation Program Meeting

- December 18, 2023: FEMA NETAP AIC EC P&P Earthquake Webinar Planning Meeting
- December 21, 2023 (and continuing the third Monday of the Month): Annual Emergency Action Plan Seminar
- January 8, 2024: Community Emergency Response Team (CERT) meeting in Plummerville, AR
- January 16, 2024 (and continuing on the third Tuesday of each month): Monthly Central Eastern United States (CEUS) Earthquake Coordination Committee conference call
- January 23, 2024: CERT Training, Arkansas Educational Coop
- January 24, 2024: Preparedness Training, Jonesboro, AR
- February 1, 2024: CERT Training, Izard County Consolidated Schools
- February 2, 2024: ARDOT, Earthquake Awareness Month Preparation
- February 6, 2024: OSG, Planning meeting for GEAC Strategic Plan
- February 7, 2024: ADEM, North East Arkansas Integrated Preparedness Planning Workshop (IPPW) meeting, Jonesboro, AR
- February 8, 2024: Web training, The Role of Principals in School Safety Efforts
- February 13, 2024: Solar Eclipse Tri-State Communication Functional Exercise
- February 14, 2024: Web training, Answering the Call: Post Disaster Safety Evaluation
- February 16, 2024: GEAC Planning Committee
- February 22, 2024: Arkansas School for Math, Science, and Arts (ASMSA) Science Fair Judge
- February 27, 2024: CUSEC Rapid Visual Screening Meeting: Next Steps
- February 28, 2024: STEM Fair, Brockwell, AR
- March 6, 2024: CERT training, Plummerville, AR
- March 7, 2024: QuakeSmart Meeting, Arkansas Community Foundation
- March 9, 2024: ATU, Eclipse Planning, Earthquake Training
- March 11, 2024: CERT Strategic Plan Meeting, Russellville, AR
- March 12, 2024: CERT Training with 200 ATU Students, Russellville, AR
- March 14, 2024: Web training, The Role of Superintendents in School Safety Efforts
- March 20-22, 2024: Earthquake Summit, Cape Girardeau, MO
- March 20, 2024: CUSEC Regional Seismic Safety Council Meeting, Cape Girardeau, MO
- March 21, 2024: FEMA, Communications for Deaf and Hard of Hearing Stakeholder Meeting
- March 27-29, 2024: County Judges Conference, Hot Springs, AR
- April 11, 2024: CERT Training, Maynard, AR
- April 15, 2024: ADEM, ESF 16 Discussion
- April 15, 2024: NEPM building Safety presentation
- April 18, 2024: Cal OES SAP training, Fayetteville, AR



- April 19, 2024: GEAC, Conway, AR
- April 22-26, 2024: NEPM, St. Louis, MO
- May 1, 2024: ATU Advisory Board Meeting, Russellville, AR
- May 1, 2024: FEMA, Notice of Funding (NOFO) NEHRP meeting
- May 14, 2024: CERT Training, Freeway Medical, Little Rock, AR
- May 16, 2024: FEMA, Deaf and Hard of Hearing Stakeholder Meeting
- May 16, 2024: GEAC planning meeting, Maumelle, AR
- May 30, 2024: FEMA Seismic Benefit-Cost Analysis (BCA) Forum and Listening Session
- June 1, 2024: Arkansas School for Math, Science, and Arts (ASMSA) Science Festival
- June 5, 2024: Water Heater Strap Giveaway, Jonesboro, AR
- June 11, 2024: ATC-20, Cromwell Engineer and Architect, Little Rock, AR
- June 13, 2024: Municipal League Summer Conference, Jonesboro, AR
- June 15, 2024: Child Safety Fair, Conway, AR
- June 18, 2024: CERT, Wilbur Mills Educational Coop
- June 19, 2024: Water Heater Strap Giveaway, Baldknob, AR
- July 2, 2024: Arkansas Department of Education interview
- July 17, 2024: CERT training, Hot Springs, AR
- July 18, 2024: FEMA, Emergency Communications for Deaf and Hard of Hearing Stakeholders Meeting
- July 23, 2024: FEMA R6, State/Tribal Program Managers Meeting
- July 25, 2024: GEAC meeting, UCA, Conway, AR
- August 6, 2024: Insurance Summit Meeting
- August 7-8, 2024: Association of Counties Conference, Hot Springs, AR
- August 8, 2024: Volunteer Louisiana, Earthquake Preparedness Meeting
- August 19, 2024: Rapid Visual Screening (RVS) meeting
- August 22, 2024: Be 2 Weeks Ready National Partners Brief
- August 23, 2023: CERT Skills Training, AR School for the Deaf, Little Rock, AR
- August 26-27, 2024: FEMA G 235 Emergency Planning training
- September 9, 2024: ATU Planning Board Meeting
- September 10, 2024: Preparedness Meeting, Pea Ridge, AR
- September 11, 2024: IZard County AR, CERT
- September 12-13, 2024: County Judges Association Meeting, Jonesboro, AR
- September 17, 2024: Cal OES, Russellville, AR
- September 19, 2024: Safety Day, ASU
- September 21, 2024: Safety Fair, Park Plaza Mall, Little Rock, AR
- September 24, 2024: State Police Conference, Hot Springs, AR
- September 26, 2024: CERT, Melborne, AR
- September 28, 2024: Pope County Emergency Management Fair, Russellville, AR

- September 29, 2024: CERT, Conway, AR
- October 5, 2024: Rural Fire Show, Conway, AR
- October 8, 2024: ADEM, Great ShakeOut PSA
- October 17, 2024: ShakeOut International Earthquake Drill, Jonesboro, AR
- October 18, 2024: GEAC, Heber Springs, AR
- October 19, 2024: Wellness Fair, Jacksonville, AR
- October 21, 2024: RVS Review Craighead County, Little Rock, AR
- October 21-22, 2024: Earthquake Insurance Summit, Little Rock, AR

**E. The dissemination of information to the public about earthquake hazards, especially to Arkansans living near the New Madrid Fault, protective measures, seismic resistance in building construction, and appropriate actions to be taken before, during, and after an earthquake. Along with other matters, the Arkansas Division of Emergency Management shall determine to be necessary or appropriate to educate, inform, and equip citizens in this state to deal with an earthquake. Presentations:**

- November 1-2, 2023: Deaf CERT Training, Little Rock, AR
- December 13, 2023: Earthquake 101, Greene County, AR
- March 9, 2024: Eclipse Meeting, CERT, Preparedness training
- April 10, 2024: CERT presentation, Walmart HQ, Bentonville, AR
- April 16, 2024: Severe Weather Day/Preparedness presentation, Jonesboro, AR
- April 18, 2024: Cal OES, EQ 101, Fayetteville, AR
- April 19, 2024: GEAC, State Presentation, Conway, AR
- April 22-26, 2024: NEPM, State Presentation, St Louis, MO
- June 11, 2024: ATC-20, EQ 101, Little Rock, AR
- July 2, 2024: EQ PSA, Little Rock, AR
- July 23, 2024: FEMA R6, State Update, Denton, TX
- September 10, 2024: EQ Presentation, Pea Ridge, AR
- September 11, 2024: EQ 101, Clay County LEPC Meeting
- September 17, 2024: Cal OES, EQ 101, Russellville, AR
- October 8, 2024: Great ShakeOut PSA, Little Rock, AR
- October 18, 2024: GEAC, State Update, Heber Springs, AR
- October 22, 2024: Earthquake Insurance Summit, Panel Discussion, Little Rock, AR

### Recommendations for Improvement

Due in large part to the efforts of the Arkansas Earthquake Program, in conjunction with the CUSEC and FEMA, many Arkansas citizens have become aware of the potential threat posed by the New Madrid Seismic Zone (NMSZ). However, there is still room for improvement.

ADEM recommends increasing public outreach to promote citizen involvement in the mitigation of the NMSZ peril. The Arkansas Earthquake Program requires additional funding for education and awareness activities to build and maintain interest in preparedness against this hazard.