

California Earthquake Early Warning Advisory Board Meeting

June 25, 2025

EARTHQUAKE WARNING CALIFORNIA



Roll Call

- Secretary of Business, Consumer Services, and Housing
- Secretary of Natural Resources Agency
- Secretary of California Health and Human Services
- Speaker of the Assembly Appointee representing the Interests of Private Businesses
- Senate Committee on Rules Appointee representing County Government
- Governor's Appointee representing the Utilities Industry
- Secretary of Transportation
- Chancellor of the California State University
- President of the University of California



Opening Comments

Review of Minutes September 11, 2024

Recent Events

Phillip Labra, System Operations Manager

Main Markov Mark

2024-12-05 18:44:21 (UTC) 40.374°N 125.022°W 10.0 km depth

- December 5, 2024, at 10:44 AM (Pacific Time)
- EEW Alerts
 - MyShake alerted 468,247 devices
 - Google delivered over 4.5 million alerts
 - WEAs were issued for ShakeAlert and the Tsunami Warning
- Latency: 15.8 seconds (MyShake)
- USGS Felt Report: Over 16.8k reported
- Aftershocks: 880 events

Source: https://earthquake.usgs.gov/earthquakes/eventpage/nc75095651/oaf/overview





M7.0 EEW Latency

2024-12-05 18:44:21 (UTC) 40.374°N 125.022°W 10.0 km depth

• ShakeAlert issued the first alert message in 15.1 seconds. It then took MyShake 0.7 seconds (total of 15.8 seconds since origin time) to deliver the alert to the first device.







M7.0 MyShake App Downloads

2024-12-05 18:44:21 (UTC) 40.374°N 125.022°W 10.0 km depth

Date	Number of Downloads	Download Daily Increase
12/5/2024	3,734,051	+7,294
12/6/2024	3,754,430	+20,379
12/9/2024	3,761,204	+6,774
12/10/2024	3,772,119	+10,915
12/11/2024	3,774,188	+2,069
12/12/2024	3,775,116	+928
Total Increase Since Event:		+48,359







2024 Parker Butte (Yerington), Nevada

2024-12-09 23:08:31 (UTC) 39.168°N 119.024°W 9.3 km depth

- December 9, 2024, at 3:08 PM (Pacific Time)
- EEW Alerts
 - MyShake alerted 150,279 devices
 - Google delivered over 1.6 million alerts
 - WEAs were issued for ShakeAlert
 - Placer, Plumas, Lassen, El Dorado, Nevada, Calaveras, Amador, Sierra, Tuolumne, Alpine, Mono Counties
 - Latency: 16.6 seconds (MyShake)
- USGS Felt Report: Over 12k reported
- Aftershocks: 1,225 events

Source: https://earthquake.usgs.gov/earthquakes/eventpage/nn00888563/executive







2024-12-09 23:08:31 (UTC) 39.168°N 119.024°W 9.3 km depth

• ShakeAlert issued the first alert message in 16.3 seconds. It then took MyShake 0.3 seconds (total of 16.6 seconds since origin time) to deliver the alert to the first device.



Strong





MyShake App Downloads

2024-12-09 23:08:31 (UTC) 39.168°N 119.024°W 9.3 km depth

Date	Number of Downloads	Download Daily Increase
12/9/2024	3,761,204	+6,774
12/10/2024	3,772,119	+10,915
12/11/2024	3,774,188	+2,069
12/12/2024	3,775,116	+928
12/13/2024	3,776,040	+924
12/16/2024	3,778,989	+2,949
Total	Increase Since Event:	+24,559





M5.2 2024 Julian, CA Earthquake

2025-04-14 17:08:28 (UTC) 33.036°N 116.595°W 14.3 km depth

- April 14, 2024, at 10:08 AM (Pacific Time)
- EEW Alerts
 - MyShake alerted 693,044 devices
 - Google delivered over 6.8 million alerts
 - WEAs were issued for ShakeAlert
 - Kern, Ventura, Los Angeles, Orange, San Bernardino, San Diego, Riverside, and Imperial counties
 - Latency: 5.1 seconds (MyShake)
- USGS Felt Report: Over 42.5k reported
- Aftershocks: 397 events

Source: https://earthquake.usgs.gov/earthquakes/eventpage/ew1744650510/executive





M5.2 EEW Latency

2025-04-14 17:08:28 (UTC) 33.036°N 116.595°W 14.3 km depth

• ShakeAlert issued the first alert message in 16.3 seconds. It then took MyShake 0.3 seconds (total of 16.6 seconds since origin time) to deliver the alert to the first device.





Latency



M5.2 MyShake App Downloads

2025-04-14 17:08:28 (UTC) 33.036°N 116.595°W 14.3 km depth

Date	Number of Downloads	Download Daily Increase
4/14/2025	3,957,436	+27,000
4/15/2025	3,983,052	+25,616
4/16/2025	3,992,017	+8,965
4/17/2025	3,997,766	+5,749
4/18/2025	4,001,167	+3,401
4/21/2025	4,006,638	+5,471
Total	Increase Since Event:	+76,202









Discussion

- Tell us about your experience(s) with these recent earthquake events:
 - Did you hear any notable stories from partners, stakeholders, or the public about how the recent quakes affected them?







Discussion

2) What lessons have you or your organization taken away from the recent earthquakes?

What changes, if any, has your agency or organization made since the event?



Research and Development

Brandon Howland, Research & Development Lead Coordinator

EEW Benefits Cost Assessment

Sharyl Rabinovici, PhD, Pacific Earthquake Engineering Center, UC Berkeley

California Earthquake Early Warning System (CEEWS) Benefit-Cost Assessment

Presentation to the California Earthquake Early Warning Advisory Board June 25, 2025





Presenter: Sharyl Rabinovici, PhD Consultant / Project Lead



California EEW BCA Project: Goals and Methods

What is the current state of EEW operations, use, benefits, and costs?

What opportunities exist to increase system reach and impacts?

- Stakeholder interviews
- Literature review/analysis
- Benefit-Cost Analysis (BCA)



EEW Developments Worldwide and in California

Seismic- and geodetic-based EEW systems in at least 23 nations:

- 10 countries with operational public-alerting systems:
 Japan, Mexico, USA, China,
 India, Taiwan, Turkey,
 Canada, South Korea,
 Romania, Italy
- 13 countries in development, testing, or restricted use



Figure Source: (McBride et. al., 2022)

California's Strong Leadership: CEEWS powered by ShakeAlert™

- Global leadership on earthquake detection and processing science / technology
- Early and sustained financial commitment
- Leveraged assets and partnerships
- Embedded in public safety / preparedness (e.g., Great ShakeOut)
- Dense instrumentation (90%+)
- Successful alert track record
- Vendor ecosystem
- Growing public interest and support



Qualitative Interview Coverage

 17 stakeholder interviews: 22 people from 14 organizations, including 9 "License-to-Operate" (LtO) technical partners

Category	California	Other U.S. Regions	National	Global
Seismic network design and operation	٧	٧		
Real-time seismic data analysis / alerting	V	٧	V	٧
EEW program management	V		V	
EEW first-tier user / LtO / pilot partners	V	\checkmark		V
Automated EEW application users	V			
Human response EEW application users	V			
Emergency managers	V	٧		
Social scientists		V	V	

LtO Types & Their Importance to Program Strategy

Personal Device Delivery	Specialized Vendor	Add-On Vendor	Institutional
Use telecom infrastructure to distribute EEW alerts to personal electronic devices	Specific EEW delivery solutions for public and private clients	Integrate EEW into broader multi-hazard notification platforms serving public and private clients	Directly use EEW to protect assets, operations, and persons on-site
Android/Google	Early Warning Labs	AlertFM	Allen Institute
MyShake / UC Berkeley Seismology Lab	Kinemetrics	Everbridge	BART
FEMA IPAWS / WEA*	RH2 Engineering	Genasys	Jet Propulsion Laboratory (JPL)
	SkyAlert	Valcom	JPL Deep Space Network
	Varius		MetroLink (SCRRA)

*FEMA IPAWS/WEA is not officially an LtO, but still a critical technical partner for alert delivery.

Quantitative BCA Use Case Coverage & Approach

Use Cases Considered

Personal Protective Action Alerts:

Smartphone Notifications

School Public Address Alerts

Automated Controls:

Mass Transit

High-Rise Elevators

We consistently apply conservative assumptions, rather than "best case" or "best guess"

 High confidence in using these numbers to set priorities and make decisions with trade-offs

Use Case Findings: Success with Smartphones

California has widespread, fast, and reliable smartphone notifications with measurable injury avoidance benefits.

Benefits considered: Avoided physical injuries and PTSD

→ Per earthquake, \$574 benefit per person in locations with VI+ shaking that receives a warning of ≥10 sec





Untapped Potential for School PA Alerts

High importance & low cost; small *current* benefits due to low coverage.

- O <2% public school children</p>
- High non-monetary barriers to adoption
- → \$272 benefit per student at a school with VI+ shaking that receives ≥10 sec warning

(kids do DCHO better than adults)



Automated Mass Transit Control: Millions of Safer Rides Each Month



Successful implementation for both BART and Metrolink passenger trains.

- Benefits considered: Avoided casualties and PTSD, car replacement
- Benefits depend on train speed when alert is received, predicted shaking intensity, and distance to epicenter

Computation of Benefits for a Use Case & Region



- Calculate distance and alert arrival time for 112
 segments in BART network
- Use OpenSHA Intensity Measure tool to estimate benefits for <u>each relevant UCERF3 rupture*</u>
- Calculate the resulting expected EEW benefit for BART using the probability of occurrence of each earthquake
- Similar methodology for the other use cases, but with points of interest being buildings with people, children, or elevators



Magnitude 7.0 on Hayward (UCERF Rupture ID 102943)

*Uniform California Earthquake Rupture Forecast, Version 3 (USGS, CGS, SCEC 2013)

Elevator Control Findings

Minimal uptake in this highly regulated, standards-driven market.

- Common in Japan but not elsewhere
- Benefits considered: injury via dehydration from entrapment due to power loss
- Lack of data to estimate additional indirect benefits



Bottom Line

- 1. CEEWS is a comparatively low-cost/high value public safety program that makes unique mitigation possible
 - Public's willingness to pay for EEW to exist implies benefits outweigh costs at least 20-to-1 annually
- Program is positioned to grow its impacts significantly if fortified and focused on high-value initiatives
 - Full report offers many insights/suggestions for CEEWS sustainability, strengthening, targeting, and expansion

Recognition and gratitude to all our research participants and colleagues–past, present, and future.

Your Questions / Discussion

Contact Information & Contributors:

Project Lead: Sharyl Rabinovici, PhD Email: <u>srabinovici12@gmail.com</u> Mobile: 650-207-6544

Qualitative Lead:Laurie A. Johnson, PhD (Laurie Johnson Consulting)Principal Investigator:Khalid Mosalam, PhD (UC Berkeley/PEER)Geospatial Modelling:Selim Gűnay PhD (UC Berkeley/PEER)BCA Models:Dan Acland, PhD (UC Berkeley Goldman School)Research Support:Jeri Sawyer, MS (Greene Economics LLC)BCA Model Advisor:Keith Porter, PhD (SPA Risk LLC)





Airport Feasibility Study

Adam Cohen, Resilient and Innovative Mobility Initiative, UC Berkeley



Enhancing Airport Resilience with Earthquake Early Warning (EEW) Systems

Adam Cohen, UC Berkeley

Image Source: "LAX LA" by monkeytime | brachiator is licensed under CC BY-SA 2.0 Caption: Theme building at LAX

Introduction

- Airports play a role in disaster response and recovery, including emergency relief operations
- Earthquakes pose significant risks to airports
- EEW can provide advance notice before strong shaking occurs


Overview of Earthquake Early Warning (EEW) POTENTIAL BENEFITS FOR AIRPORTS

- Provides real-time warnings to personnel and passengers
- Reduces injuries by allowing passengers and personnel to take protective actions
- Enables automated safety actions (e.g., shutting down fuel lines and stopping elevators)
- Minimizes service disruptions by allowing airports to initiate emergency protocols before severe shaking occurs.





Earthquake Risks to Airports

SEISMIC THREATS TO AIRPORT INFRASTRUCTURE

Structural Damage



Nonstructural Damage





Earthquake Risks to Airports

SEISMIC THREATS TO AIRPORT INFRASTRUCTURE

Liquefaction



Fuel and Pipeline Damage





Applications Most Relevant to Airports

Alerts and Automated Actions

- Staff vs. public facing alerts
- Automated action (e.g., elevators/conveyances; people movers; baggage handling systems; fire bay doors; fuel, water, and gas lines; etc.)

Airfield and Air Traffic Control (ATC) Applications

- Possible alerts for ATC and pilots
- Temporary flight restrictions for affected airports
- FAA Regulations and airport/tower implementation
- Coordination with FAA and adjacent airports to manage diverted flights



Benefit-Cost Analysis

QUANTIFICATION OF BENEFITS

Alerts

- Staff-facing
- Public-facing

Automated actions

- Elevators
- Fire Bay Doors
- Fuel Systems
- Water Systems
- Gas Systems
- Baggage Systems
- Airport People Mover
- Airside Response

- EEW benefits calculated for most of the use cases in PSP and LAX
- $\checkmark\,$ Calculated benefits are due to reduction in
 - Injuries and deaths
 - Infrastructure damage and corresponding repairs (e.g., elevator)
 - Occurrence of secondary hazards (fire, explosion, flooding)



Benefit-Cost Analysis

QUANTIFICATION OF COSTS

- Delivering EEW notification to airports:
 - ✓ Server purchase, setup, maintenance
 - ✓ Internet connectivity
- Operational integration and implementation:
 - Costs associated with linking the EEW notification to each use case (e.g., communicating with the PA system, transmitting the alarm signal and actuating a valve or controlling an elevator)
- Training and maintenance:
 - ✓ Regular system testing
 - ✓ Staff training
 - ✓ Emergency drills



Case Studies: Los Angeles (LAX) & Palm Springs (PSP) International Airports

LAX Airport Background

- 2023 566,000 flights, 36 million enplanements
- 4 runways, 10 terminals
- Located near several active fault zones, including the Newport-Inglewood Fault and within proximity to the Santa Monica and Hollywood faults

PSP Airport Background

- 2023 62,000 flights , 1.6 million enplanements
- 2 runways, 2 terminals
- Located near several active faults, including the San Andreas Fault, and the Banning and Garnet Hill strands



Summary of the Benefits and Costs of Different EEW Applications at LAX and PSP



	PSP			LAX		
Application	Benefit (\$M)	Cost (\$M)	BCR	Benefit (\$M)	Cost (\$M)	BCR
Smartphone Alert	0.150	0.076	2.0	3.10	0.12	25.8
Gas Shutoff	11.500	0.123	93.5	3.60	0.21	17.1
Fire Station	0.044	0.069	0.6	1 05	0.07	15.0
Bay Doors	0.044	0.008	0.0	1.05	0.07	13.0
Elevator Stop	0.0048	0.13	0.04	0.07	0.29	0.2
Fuel Shutoff	0	0	NA	3.64	0.18	20.2
Water Shutoff	0.009	0.508	0.02	0.12	0.10	1.2
Baggage System Shutoff	NA	0.078	NA	NA	0.27	NA
Backup Power	NA	0.078	NA	NA	0.065	NA

Policy Considerations for EEW Implementation

- Will FAA guidelines and requirements be needed for EEW integration at airports?
- State and federal regulations on seismic safety and emergency preparedness
- Comparison with international EEW policies and best practices
- Strategies to encourage wider adoption of EEW in aviation across California and the U.S.





Policy Considerations for EEW Implementation

Lessons from Other Sectors

- Several case studies from other sectors using EEW such as rail, healthcare, and utilities (e.g., BART, Menlo Park Fire, etc.)
- Successful applications of automated response systems (e.g., stopping elevators, shutting off fuel lines, etc.)
- Potential for cross-sector partnerships for peer exchange of lessons learned

Public Awareness and Outreach Initiatives

- Importance of <u>training airport personnel</u> on EEW procedures
- <u>Educating passengers</u> on EEW alerts and appropriate response actions
- Incorporating <u>EEW drills</u> into standard airport emergency preparedness exercises
- Multilingual and accessible communication strategies for diverse travelers

Key Findings



- Financial Constraints: Upfront costs to decision-makers.
- Technical Challenges: Integration with legacy systems
- Stakeholder Skepticism: Concerns over reliability and operational impacts
- Cybersecurity Risks: Securing EEW data and systems

Additional Research Needs

- Case studies at other CA airports, particularly General Aviation (GA) airports
- Improve warning accuracy
 - More research is needed because false alarms at airports could have notable implications
- Develop model SOPs for warning responses
- Post-deployment research on institutional and economic impacts of EEW at airports

Thank You!

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Discussion

1) We discussed many use cases that would benefit from EEW. Which one do you believe would have the most impact on your industry?



Datacasting

Brandon Howland, Research & Development Lead Coordinator







california public television

Earthquake Warning California Advisory Board Datacasting Presentation

June 2025



Datacasting Research Pilot

- A phased approach
 - Installing the equipment onto California Public Television towers
 - USGS ShakeAlert EEW Alerts
 - Reaching 85% of Californians
 - Very low latency
 - High bandwidth
 - Distributing receivers





Datacasting – Receiver Funding

- AB 102 in the Budget Act of 2023, made amendments to appropriations, which included \$500,000 for the purchase and installation of receiver boxes
- Funds are distributed to America's Public Television Stations (APTS) through a grant
- Focus is on the first responder sector in seismically vulnerable and hard-to-reach places within California
 - Emergency Operations Centers (EOCs)





Receiver Deployment

- Project Interest Surveys
- Informational Webinars
- Deployment June 2025 ~ December 2025
- Receivers & antennas will be shipped to their location(s)
- Grant funded no equipment cost & no service fees







Steps

Confirming participation

Installing receivers and antennas

 Confirm operation via receiver alert history playback and test alert reception check-ins







Discussion

2) Redundancy in alerting mechanisms during a disaster can save lives. What other types of alerting pathways should we consider?





BREAK (10 minutes)



System Operations Update

Phillip Labra, System Operations Manager





CEEWS Network Goal of 1,115 Stations April 2025 Status







CEEWS System Operations Overview 2016-2025









Sensor Build Out Status

- Completed 698 new and updated EEW/real-time stations, bringing the total contributing to EEW to 1,046 (69 remaining)
- Connected 172 EEW stations to the existing State Microwave.

	Funded New/Updated EEW Stations	Completed	Remaining
CA Geological Survey	232	232	0
US Geological Survey	162 (+1)	161	1 (+1)
UC Berkeley	153 (+1)	152	1 (+1)
Caltech	133	133	0
Department of Water Resources (DWR)	22	22	0
Total	702	700	2
	Funded EEW Microwave Connection	Completed	Remaining
Public Safety Communications (PSC)	317	172	145



USGS Updates

Natalia Ruppert, USGS ShakeAlert Program

MyShake Updates

Phillip Labra, System Operations Manager

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MyShake App Updates

Earthquake Early Warning Alerts Partnership with USGS ShakeAlert and Cal OES



Million+ Downloads

• MyShake

ABOUT FAQ

Earthquake Early Warning now available publicly in California, Oregon, and Washington

Have earthquake information at your fingertips, see damage reports shared by citizen scientists like you, help us build a glob seismic network.

Download on the App Store

GOVERNOR GAVIN NEWSOM

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← News

Apr 25, 2025

California exceeds 4 million MyShake app downloads, urges Californians to take preparedness steps

What you need to know: More Californians than ever are connecting with earthquake warning services as the MyShake app reaches over 4 million downloads.

SACRAMENTO – During Earthquake Preparedness Month, Governor Gavin Newsom today announced a major milestone: the MyShake app – which alerts Californians before an earthquake begins – has surpassed 4 million downloads, the equivalent of more than 10% of the state. This achievement is a significant step in expanding access to California's lifesaving earthquake technology and building resilience across the state.

Launched under Governor Gavin Newsom's leadership, California's nation-leading Earthquake Early Warning system notifies residents in advance of shaking by using ground motion sensors across California. More than 60% of the 1,046 sensors have been installed since the program launched in 2019, making the system more accurate and able to deliver alerts faster.

Last week, the MyShake app distributed 693,044 alerts for the 5.2 magnitude earthquake near Julian in San Diego County, a subset of the total 7.5 million alerts sent out for that event. Some MyShake users received as much as 35 seconds notice before shaking occurred.

Source <u>https://www.gov.ca.gov/2025/04/25/california-exceeds-4-million-myshake-app-downloads-urges-californians-to-take-preparedness-steps/</u>



MyShake App Milestones

January 19

3 Million Downloads

September 13

MyShake on Chromebook

December 6



MyShake App Updates

Earthquake Early Warning Alerts Partnership with USGS ShakeAlert and Cal OES

- New MyShake Tools
- Enhancements
 - Visual and Audio
 - Magnitude Information
 - Location Improvements
 - Orientation
 - User-Informed
 Background
 Improvements



Cal OES and UC Berkeley Announce New MyShake Tools for Early Earthquake Notification

Published: Dec 17, 2024

😯 🔽 in 🖂 🚍 🛨



Earthquake Early Warning app, which notified more than 500,000 people following two recent earthquakes, is now available on laptops and tablets



Education and Outreach

Brandon Howland, Research & Development Lead Coordinator Jon Gudel, Education & Outreach Lead Coordinator Kris White, Earthquake Program Specialist





Earthquake Readiness Guide

Brandon Howland, Research & Development Lead Coordinator





EARTHQUAKE READINESS GUIDE



- The guide is a roadmap for Californians on earthquake tips and preparedness. Designed to provide the public with actions they can take to increase resilience to seismic hazards.
- Five essential components to the Guide include:
 - $_{\circ}$ Get Alerts
 - Make a Plan
 - Create a Go-Bag/Stay-Box
 - Take Protective Actions
 - Reconnect, Recover, Rebuild.





<u>STEP 1 – GET ALERTS</u>

EARTHQUAKE EARLY WARNING

- MYSHAKE APP:
 - MyShake provides advance notification of an earthquake before shaking occurs on earthquakes of magnitude 4.5 or greater.
- WIRELESS EMERGENCY ALERTS (WEAs):

 WEAs is a nationwide system providing lifesaving information.
- ANDROID ALERTS
 - In partnership with Google, California's earthquake early warning technology is automatically included in millions of Android phones used in California, without the need to download a separate app.











STEP 2 – MAKE A PLAN

- Plans should include:
 - Reconnection points
 - Creating a Contact List
 - $_{\odot}\,$ Turning off your Gas
 - Practicing safety drills
 - And much more!
- Secure Your Space:
 - Start now by moving furniture such as bookcases away from beds, sofas, or other places where people sit, sleep, or spend a lot of time.
 - Then continue by securing things such as televisions, computers, bookcases, furniture, unstrapped water heaters, etc.







STEP 3 – MAKE A GO-BAG/ STAY-BOX

- Have a Go-Bag, a pre-packed emergency kit containing essentials for survival and safety during evacuation. Some items include:
 - Copies of Key Documents, Cash , Medications, food, water, extra clothing, first aid supplies, etc.
- Assemble a Stay-Box, a prepared container with essential supplies, to be prepared to shelter in place during emergencies or disasters. Some items include:
 - Prepare for at least 3 days at home without water or electricity, supplies for pets, etc.






STEP 4 – TAKE PROTECTICE ACTIONS

- WHAT TO DO DURING SHAKING:
 - Indoors: Drop, Cover, and Hold On, or Lock, Cover, and Hold On.
 - In a Car: Pull over, stop, set the parking brake.
 - Outdoors: Drop, Cover, and Hold On, or Lock, Cover and Hold On. Avoid power lines, trees, signs, buildings, vehicles and other hazards.
 - In Bed: Turn face down and use a pillow to protect your head and neck. Hold on and stay put until shaking stops.
 - Near the Coast: Drop, Cover, and Hold On, or Lock, Cover and Hold On. As soon as shaking stops, walk quickly inland and/or to higher ground.

IF YOU FEEL SHAKING OR GET AN ALERT:

If Possible:



Using a Cane:



Using a Walker:



Using a Wheelchair:







STEP 5 – RECONNECT, RECOVER, REBUILD

- Check for Hazards
 - Conduct safety check of your home. Check for gas leaks, chemical spills, damaged water pipes, etc.
- Stay Informed
 - Monitor local radio or television networks. Follow trusted public safety social media sources.
- Use Your Emergency Network
 - Contact family and loved ones. Check on neighbors.



- Insurance
 - Take pictures right away. Contact insurance agent or company to begin claims process. Keep records.







Influencer Campaign

Cal OES OVERNOR'S OFFICE OF EMERGENCY SERVICES Jon Gudel, Education & Outreach Lead Coordinator



Influencer Video Campaign

- Expanded the reach of earthquake safety messages to vulnerable, hard-to-reach online communities.
- Targeted hard-to-reach Californians in high seismic activity areas.
- Covered topics like Drop, Cover, and Hold On, and earthquake preparedness.









Influencer Video Campaign

DadinSF









Influencer Video

<u>Campaign</u>

LAinaMinute









Influencer Video

<u>Campaign</u>

Molly Burke





6

TikTok

@mollyburkeofficial





Discussion

1) Building off the influencer video campaign, what are some other ways to educate on earthquake preparedness to vulnerable populations and hard-to-reach communities?







Sacramento History Museum

Jon Gudel, Education & Outreach Lead Coordinator



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Sacramento History Museum

- Partnership between Cal OES and Sacramento History Museum.
- Located in Old Sacramento, the museum hosted a traveling exhibition referred to as "Earthquakes and Epidemics".
- Along with earthquakes, other disasters included wildfires, floods, and COVID.









Sacramento History Museum

- The museum's third floor was transformed into a historical reflection of the state's worst disasters.
- The Cal OES "Preparedness Room" focused on earthquake-related materials and preparedness info.
- The exhibit included:
 - Earthquake Early Warning
 - \circ Earthquake preparedness
 - Earthquake, Tsunami and Volcano
 Program
 - \circ CERT
 - Listos California







Sacramento History Museum

- "Ready, Set, Go Day" outreach event in early April to celebrate exhibit.
- The one-day event focused on getting families and individuals prepared for the next disaster.
- Hundreds of attendees rode the earthquake simulator and received preparedness info.
- Cal OES is in discussions with the California Academy of Sciences in SF on a similar exhibit.









Discussion

1) What are some recommendations on how the Earthquake Early Warning System can be promoted in your sector?





2024 CA Great Shakeout Tour



Kris White, Earthquake Program Specialist





2024 Great California ShakeOut Tour

Monday, October 14 – San Diego

(UC San Diego)

Tuesday, October 15 – Los Angeles (Homeboy Industries)

Wednesday, October 16 – Sacramento (Sacramento State)

Thursday, October 17 – ECA events









Great California ShakeOut Day

Thursday, October 17 at 10:17am

Drop, Cover, and Hold On MyShake App Earthquake Safety and Preparedness

Cal OES Headquarters

Drill coordination with the California State Warning Center Information booths Digital outreach Engage Cal OES staff









3 Cities + ShakeOut Day



ShakeOut Tour Metrics



\$2 million



Nearly 40 Media **Interviews**



95+ Total Media **Mentions**



200+ Earthquake Simulator **Experiences**



Nearly 30,000 MyShake **Downloads**

EARTHQUAKE WARNING CALIFORNIA Cal OES The Great CA ShakeOut Tour **Three Cities** 95+ Total Mentions 29.840 San Diego **39 Interviews Conducted MyShake Downloads** Los Angeles 2M Total Ad Equivalency Sacramento With Over 200 Shake Simulator Experiences "California is no stranger to natural disasters, like earthquakes. That's why it's important we work with communities statewide to have the life-saving information they need to stay safe before the next seismic event."







2025 Great California ShakeOut Day

3-5 City Tour + ShakeOut Day

Drop/Lock, Cover, and Hold MyShake App Earthquake Safety and Preparedness

Cal OES Headquarters

Earthquake Evacuation Drill Social Media Campaign Pastels in the Parking Lot Quake Heroes Screening Drill coordination with CSWC





Advisory Board Member Closing Comments

Cal OES Director Closing Comments

General Public Comment

Adjournment



Thank you

