

2023 Northern California Earthquake Hazards Workshop  
January 31 – February 2, 2023  
USGS, virtual from Moffett Field, California  
*Pacific Standard Time (UTC-8)*

**AGENDA**

**Day 1, Tuesday, January 31**

**9:30-10:00 a.m. Welcoming Remarks**

David Applegate, U.S. Geological Survey Director (USGS)  
Christine Goulet, Earthquake Science Center Director (USGS)  
Keith Knudsen, Northern California Earthquake Hazards Program Coordinator #1 (USGS)  
Sarah Minson, Northern California Earthquake Hazards Program Coordinator #2 (USGS)  
John Grindle, Workshop Format (Grin Events)

**10:00-11:45 a.m. Community-Based Risk Reduction**

Speakers [15 min each]:

**Janise Rodgers** (Geohazards International) *Effectiveness of Past California Earthquake Scenarios in Motivating Mitigation*  
**Janiele Maffei** (CEA) *Reducing Residential Earthquake Risk – How focusing on one vulnerability will impact post-earthquake resilience and recovery*  
**Sarah Atkinson** (SPUR Oakland) *Let's work together: Unifying earthquake preparedness with regional safety & resilience efforts.*  
**AJ Faas** (SJSU) *Post-Vulnerability: Reciprocal Knowledge Production for Disaster Risk Reduction*  
**Laura Hall** (RDPO/Portland Metro UASI) *Cohesive, consistent, accessible, trauma-informed disaster messaging*  
Discussion: 30 min

Moderators: **Robert Emberson** (NASA), **Danielle Mieler** (City of Alameda)

**11:45 a.m.-1:00 p.m. Break**

**1:00-2:30 p.m. Where in the World is NCEHW Today? How Green and Hazardous was my Greenville Fault?**

Speakers [15 min each]:

**Gareth Funning** (UCR) *Preliminary estimates of crustal deformation between the Bay Area and the Sacramento-San Joaquin Delta*  
**Chris Madugo** (PG&E) *The Concord-Green Valley Fault Zone: Overview and Industry Perspective*  
**Lian Xue** (PKU) *Kinematics of the 2015 San Ramon, California earthquake swarm: Implications for fault zone structure and driving mechanisms*  
**Artie Rodgers** (LLNL) *Scenario Earthquake Simulations for the Greenville Fault*

Discussion: 30 min

Moderators: **Don Hoirup** (DWR), **Chad Trexler** (USGS)

**2:30-3:00 p.m. Break**

**3:00-5:00 p.m. Ferndale Earthquakes: A Late-Breaking Session Late on the First Day**

**Robert C. McPherson** (Cal Poly Humboldt), **Jason Patton** (CGS), **Kevin Furlong** (Penn State), **Maggie Ortiz-Milan** (EERI), **John Eidinger** (G&E), **Lori Dengler** (Cal Poly Humboldt), **Robert deGroot** (USGS), **Jessie Saunders** (Caltech), **Hamid Haddadi** (CGS), **Grace Parker** (USGS), **Robert W. Graves** (USGS), **Dara Goldberg** (USGS), **Kathryn Materna** (USGS), **Danielle Lindsay** (UCB), **Peggy Hellweg** (UCB), **Ross Stein** (Temblor), **Andrew Michael** (USGS), **Clara Yoon** (USGS), **Andrew J. Barbour** (USGS), **David Shelly** (USGS), **Jenna Hill** (USGS)

Moderators: **Sarah Minson** (USGS), **Jason Patton** (CGS)

*Welcome to the U.S. Geological Survey.*

*We serve the Nation by providing reliable scientific information. The USGS strives to provide a diverse, inclusive, and respectful environment because it is essential to the integrity of our organization and our science. If anything fails to exemplify these ideals, please alert an organizer for immediate assistance.*

5:00 p.m. **Adjourn day 1**

**Day 2, Wednesday, February 1**

9:30-11:00 a.m. **Where in the World is NCEHW Today? Do You Know the Way to San Jose?**

Speakers [15 min each]:

**Julien Marty** (UCB) + **David Oppenheimer** (USGS) *2022 M5.1 Alum Rock Event – Background and Analysis*

**Rob Skoumal** (USGS) *Using machine learning techniques to improve focal mechanisms*

**Heather Shaddox** (UCB) *Creepmeter data on the San Andreas and Calaveras faults*

**Alex Sarmiento** (UCLA) + **Steve Thompson** (LCI) *A Probabilistic Fault Displacement Hazard Map of California: Approach and First Results*

Discussion: 30 min

Moderators: **Vicki Langenheim** (USGS), **Heidi Stenner** (Geohazards International)

11:00-11:15 a.m. **Break**

11:15-11:45 a.m. **Thunder Talks**

**Craig Hartline** (Calpine), **Michael Floyd** (MIT), **Doerte Mann** (Earthscope), **Yuexin Li** (Caltech), **Peter Shearer** (UCSD), **Susan Hough** (USGS)

11:45 a.m.-12:45 p.m. **Break**

12:45-2:15 p.m. **Where in the World is NCEHW Today? A Dirigible Over Silicon Valley With a View...to a Kill!**

Speakers [15 min each]:

**Carl M. Wentworth** (USGS scientist emeritus) *The Quaternary Santa Clara basin and San Francisco Bay trough: origin, fill, and faulting*

**Carol Prentice** (USGS scientist emerita) *Effects of the 1906 and 1989 earthquakes in the southern Santa Cruz Mountains and San Jose areas*

**Felipe Aron** (PUC-CIGIDEN Chile) *The river structure of fault-bounded mountains can be used to inform seismic hazard assessments*

**John Baldwin** (LCI) *Fault rupture hazard investigation of the Silver Creek fault, San Jose, CA*

Discussion: 30 min

Moderators: **Chris Hitchcock** (InfraTerra), **Judy Zachariasen** (CGS)

2:15-2:30 p.m. **Break**

2:30-4:15 p.m. **Modeling is Better with Friends: Updates from California Community Models**

Speakers [15 min each]:

**Josie Nevitt + Austin Elliott** (USGS) *Shallow fault creep within the Bay Area fault system from near-field observations*

**Roland Burgmann** (UCB) *Geodetic constraints on spatio-temporal variations of crustal deformation and slow fault slip in Northern California*

**Greg Beroza** (Stanford) *Some Recent Developments in Earthquake Monitoring*

**Russ Graymer** (USGS) *Developing a geology-based 3D seismic velocity model of the Central California Coast Ranges*

**Evan Hirakawa** (USGS) *Current state and future directions for the USGS San Francisco Bay region 3D seismic velocity model (SFVM)*

Discussion: 30 min

Moderators: **Jess Murray** (USGS), **Andreas Plesch** (Harvard)

4:15 p.m. **SCEC expansion breakout/Adjourn day 2**

### **Day 3, Thursday, February 2**

9:30-11:15 a.m. **Where in the World is NCEHW Today? A Blast from the Geysers.**

Speakers [15 min each]:

**Jared Peacock** (USGS) *Characterizing the Clear Lake Volcanic Field with geophysics*

**Patricia Martínez-Garzón** (GFZ) *Induced Earthquake Potential in Geothermal Reservoirs: Insights from The Geysers Geothermal field*

**Andrew Delorey** (LANL) *Triggered Earthquakes as a probe for stress conditions*

**Tamara Jeppson** (USGS) *Effect of thermal and mechanical processes on hydraulic transmissivity evolution*

**Roland Gritto** (Array Information Technology) *High Resolution Seismic Imaging of Reservoir Properties using a High-Density Seismic Network at The Geysers Geothermal Reservoir*

Discussion: 30 min

Moderators: **Ole Kaven** (USGS), **Dennise Templeton** (LLNL)

11:15-11:30 a.m. **Break**

11:30 a.m.-12:15 p.m. **Thunder Talks**

**David D. Jackson** (UCLA), **David Schaff** (Lamont Doherty), **John Rundle** (UCD), **Taka'aki Taira** (UCB), **Frederic Schoenberg** (UCLA), **Max Schneider** (USGS), **Anne Wein** (USGS), **Phillip John Labra/Yvette LaDuke** (CalOES), **Elaine Young** (UCD), **Lauren Dent** (USGS), **Larry Collins** (CalOES), **Jeff Adams** (CalOES)

Moderator: **Belle Philibosian** (USGS)

12:15-1:20 p.m. **Break**

1:20-2:15 p.m. **What Can the USGS Do for You?**

Speakers [10 min each]:

**Eleanour Snow** (USGS) *USGS internship programs and partnerships that support students*

**Steve DeLong** (USGS) *Student Internships: Increasing access to early-career experience at the U.S. Geological Survey Earthquake Science Center*

**Gavin Hayes** (USGS) *The Mendenhall post-doctoral fellowship program and other development opportunities at the USGS Earthquake Hazards Program*

**Gavin Hayes** (USGS) *External Grants Overview and Q&A*

Discussion: 15 min

Moderator: **Gavin Hayes** (USGS)

2:15-2:20 p.m. **Break**

2:20-3:20 p.m. **Thunder Talks**

**Kevin P. Furlong** (Penn State), **Jason Patton** (CGS), **Claire Divola** (UCSB), **Don Hoirup** (CDWR), **Robert Givler** (LCI), **Jonathan Delph** (Purdue), **Claire Doody** (UCB), **Brad Aagaard** (USGS), **Sean Ahdi** (USGS), **John Louie** (UNR), **Tara Nye** (Univ OR), **Annemarie Baltay** (USGS), **Kenneth Hudson** (UCLA), **Miles Wagner** (Consultant), **Chris Milliner** (Caltech)

Moderator: **Belle Philibosian** (USGS)

3:20-3:30 p.m. **Break**

3:30-5:15 p.m. **The Future is Soon: Northern California Updates to the NSHM and Beyond UCERF3**

Speakers [15 min each]:

**Alex Hatem** (USGS) *Northern California earthquake geology input data for use in the 2023 U.S. National Seismic Hazard Model*

**Fred Pollitz** (USGS) *Contribution of Deformation Models to the 2023 Update to the National Seismic Hazard Model*

**Kaj Johnson** (IU) *Physically-constrained creep rates for California faults in the 2023 NSHM model*

**Kevin Milner** (USC) *Updated Fault System Inversion Solutions and Hazard Implications for Northern California*

**Mark Petersen** (USGS) *Changes in the 2023 National Seismic Hazard Model in northern California from ground motion model updates*

Discussion: 30 min

Moderators: **Noha Farghal** (RMS), **Grace Parker** (USGS)

5:15 p.m. **Concluding Remarks**

5:30 p.m. **Adjourn**