

2021 Northern California Earthquake Hazards Workshop
February 2-4, 2021
USGS, virtual from Menlo Park, California

AGENDA

Day 1, Tuesday, February 2

9:15-10:00 a.m. **Welcoming Remarks**

Steve Hickman, Earthquake Science Center Director (USGS)
Keith Knudsen, Northern California Earthquake Hazards Coordinator (USGS)
Sarah Minson, Workshop Overview (USGS)
John Grindle, Workshop Format (Grin Events)

10:00-11:45 a.m. **Disparate Hazard and Risk**

Speakers [15 min each]:

Dave Applegate (USGS) *Community-focused science for disaster risk reduction.*

Laurie Johnson (Laurie Johnson Consulting | Research, and California Earthquake Authority) *Disparate patterns of displacement and long-term recovery challenges following a major earthquake in Northern California: Insights from the communities at risk analysis of the HayWired Scenario*

Ana-Marie Jones (Interpro, Inc.) *Unequal Risks and the Diversity Solution*

Alessandra Jerolleman (Jacksonville State University) *Towards a More Just Recovery: Reducing Disparities in Disaster Recovery Outcomes and Hazard Mitigation*

Discussion: 45 min

Moderators: **Mark Benthien** (SCEC, Earthquake Country Alliance), **Keith Knudsen** (USGS)

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

1:00-3:00 p.m. **Advances in Computation and Instrumentation**

Speakers [15 min each]:

Clara Yoon (USGS) *The potential of machine learning to modernize earthquake monitoring*

Greg Beroza (Stanford) *Deep Learning for Earthquake Science*

Noha Farghal (USGS) *The Potential of Fiber-optic Distributed Acoustic Sensing in Earthquake Early Warning*

Rufus Catchings (USGS) *The New USGS 3C Nodal Seismographs and Facilities*

Heather Savage (UCSC) *History of earthquakes along the creeping section of the San Andreas fault*

Kevin Milner (USC) *Operational Earthquake Forecasting with UCERF3-ETAS: Lessons Learned from the 2019 Ridgecrest Sequence and Implications for Future UCERFs*

Discussion: 30 min

Moderators: **Annemarie Baltay** (USGS), **Taka'aki Taira** (Berkeley)

3:00-3:15 p.m. **Break**

3:15 p.m.-4:15 p.m. **Lightning Talks: Everything You Want to Know About Current Earthquake Research in Northern California in Less than an Hour!**

Moderator: Sarah Minson (USGS) [1 slide and 3 min per speaker]

4:15-5:00 p.m. **Networking/Open discussion/Breakout rooms**

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

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.

Day 2, Wednesday, February 3

9:00-10:15 a.m. Swarms of Swarms

Speakers [15 min each]:

Andrea Llenos (USGS) *It's swarmy outside: Developing swarm earthquake forecasting methods*

Alicia Hotovec-Ellis (USGS) *Why do swarms happen? A brief review of what we know about swarm physics*

Doug Dreger (UC Berkeley) *Moment tensors, state of stress, finite-source scaling and pseudo fracture network from micro earthquakes at the Geysers, CA*

Discussion: 30 min

Moderators: **Ole Kaven** (USGS), **David Shelly** (USGS)

10:15-10:30 a.m. Break

10:30-12:00 p.m. Frontiers of Northern California Earthquake Hazards Research

Speakers [15 min each]:

Steve DeLong (USGS) *Research challenges from the coast to the Delta: Understanding hazard from partially creeping and "secondary" faults*

Kim Blisniuk (SJSU) *Holocene slip rates in the Santa Cruz Mountains reveal temporal and spatial consistency along the Northern San Andreas Fault, CA*

Chelsea Scott (ASU) *Aseismic Deformation Along the Central San Andreas and Calaveras Faults From Differencing Repeat Airborne Lidar*

Mike Oskin (UC Davis) *Geological slip rate and earthquake potential of the West Napa fault*

Discussion: 30 min

Moderators: **Tim Dawson** (CGS), **Steve Thompson** (LCI)

12:00 p.m.-1:00 p.m. Break

1:00 p.m.-2:30 p.m. North Coast Tectonics

Speakers [15 min each]:

Sam Johnson (USGS) *The Northern San Andreas Fault - A Coastal and Marine Perspective*

Lori Dengler (Humboldt State University) *The 1906 earthquake on California's North Coast*

Kathryn Materna (USGS) *Quantifying rates of interseismic deformation on faults near Humboldt Bay, Southern Cascadia*

Bob McPherson (Humboldt State University) *Where Broken Plates Meet: The MTJ*

Discussion: 30 min

Moderators: **Jay Patton** (CGS), **Carol Prentice** (USGS emeritus)

2:30 p.m.-3:30 p.m. Lightning Talks: Everything You Want to Know About Current Earthquake Research in Northern California in Less than an Hour!

Moderator: Sarah Minson (USGS) [1 slide and 3 min per speaker]

3:30 p.m. - 4:30 p.m. Networking/Open discussion/Breakout rooms

4:30 p.m. Adjourn day 2

Day 3, Thursday, February 4

9:00 a.m.-10:15 a.m. Sights on Site-Specific Shaking

Speakers [15 min each]:

Domniki Asimaki (Caltech) *A sediment velocity model for the simulation of basin amplification effects in Southern California*

Sean Ahdi (USGS) *Why We Are Still Using VS_{30} for Seismic Site Characterization*

Valerie Sahakian (University of Oregon) *Bay Area site effects from Kappa and Site Spectral Parameters*

Discussion: 30 min

Moderators: **Alex Grant** (USGS), **Grace Parker** (USGS)

10:15-10:30 a.m. Break

10:30-11:45 a.m. Northern Maacama Seismicity and Creep

Speakers [15 min each]:

Harvey Kelsey (Humboldt State University) *Northern Maacama fault: lidar-based fault trace geometry, active traces vs. seismicity, and summary of paleoseismic data*

Felix Waldhauser (Lamont-Doherty Earth Observatory) *Real-time precision seismology on the Maacama Fault*

Gareth Funning (UC Riverside) *Creep and fault complexity on the Maacama fault from InSAR and repeating earthquakes*

Discussion: 30 min

Moderators: **Stu Nishenko** (PG&E), **Robert Sickler** (USGS)

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

1:00-2:00 p.m. Lightning Talks: Everything You Want to Know About Current Earthquake Research in Northern California in Less than an Hour!

Moderator: Sarah Minson (USGS) [1 slide and 3 min per speaker]

2:00 p.m. Concluding Remarks, Keith Knudsen

2:15 p.m. - 3:15 p.m. **Networking/Open discussion/Breakout rooms**

3:15 p.m. **Adjourn**