Presenting author is indicated in bold.

Time	*202B/C*	*204*	*208A*	*208B*
	Earthquake Source Parameters: Theory, Observations and Interpretations (see page 1174)	**Collective Impact in Earthquake Science (see page 1130)**	**USGS National Seismic Hazard Models: 2023 and Beyond (see page 1300)**	**Seismology's Role in Assessing Volcanic Hazard at Multiple Time Scales (see page 1253)**
8:00 AM	Leveraging the Iran Regional Moment Tensor Database to Estimate Parameter Uncertainties in 1D and 3D Earth Models. **Braunmiller, J.**, Rodríguez Cardozo, F., Ghods, A., Sawade, L.	Learning Past Disasters and Forecasting Future Earthquakes on the 100th Anniversary of the 1923 Kanto Earthquake. **Satake, K.**	2023 U.S. 50-State National Seismic Hazard Model. **Petersen, M. D.**, Shumway, A. M., Powers, P. M., Field, E. H., Moschetti, M. P., *et al.*	INVITED: Analysis of the Seismicity Recorded Before the May 22, 2021 Eruption of Nyiragongo Volcano, Democratic Republic of the Congo. **Sadiki, A.**
8:15 AM	INVITED: Time-Domain Determination of Regional Wave Propagation Characteristics and Earthquake Source Spectra: Application to the Ridgecrest, California Earthquakes. Al-Ismail, F., **Ellsworth, W. L.**, Beroza, G. C.	Developing Guidance to Communicate Global Aftershock Forecasts. **McBride, S. K.**, Schneider, M., van der Elst, N., Hardebeck, J. L., Michael, A. J., *et al.*	Overview of the Final Earthquake Rupture Forecasts for the 2023 USGS NSHM. **Field, E. H.**	Precursory Seismicity and Explosion Seismoacoustics of the Recent Phreatomagmatic Eruption of Semisopochnoi Volcano, Alaska. **Lyons, J. J.**, Hotovec-Ellis, A., Iezzi, A., Haney, M., Fee, D.
8:30 AM	STUDENT: Use of the Second Seismic Moments to Estimate Source Parameters and Rupture Directivity of Moderate Earthquakes in Central Italy. **Cuius, A.**, Meng, H., Saraò, A., Costa, G.	Improving Family Resilience for Earthquakes in Hispaniola. **Espinal, D.**, Rodgers, J., Mentor-William, G., Pierre, J., Dévilmé, G., *et al.*	Hazard Implications and Epistemic Uncertainties of the Updated Fault-System Inversion Model for the 2023 U.S. National Seismic Hazard Model. **Milner, K. R.**, Field, E. H.	Temporal and Spatial Evolution of Cabeza De Vaca 2021 Rift Eruption (Cumbre Vieja Volcano, La Palma, Canary Islands) From Geophysical and Geodesic Paramethers Analyses. **Benito Oterino, M.**, Alvarado, G. E., *et al.*
8:45 AM	Duration and Dynamic Stress Drop During the Initial Rupture "Breakaway" Stage of Ridgecrest Earthquakes. **Ji, C.**, Archuleta, R. J., Peyton, A.	Using a Collective Impact Framework in SZ4D to Build Equity and Capacity With Geoscience. **Brudzinski, M. R.**	A Fault-Based Crustal Deformation Model With Deep Driven Dislocation Sources for the 2023 Update to the US National Seismic Hazard Model. **Zeng, Y.**	The February 2018 Seismic Swarm in the Island of São Miguel, Azores. Soares, A., **Custodio, S.**, Cesca, S., Silva, R., Vuan, A., *et al.*
9:00 AM	STUDENT: Early Parameters of Seismograms: What Influences Them and Are They Useful in Understanding Earthquake Determinism? **Colquhoun, R.**, Hawthorne, J. C.	Dealing With the Unexpected: South Carolina's Response to the 2021-2022 Elgin-Lugoff Earthquake Sequence. **Jaume, S.**, Howard, S., Becker, D.	The 2023 Update of the Alaska National Seismic Hazard Model. **Powers, P. M.**, Altekruse, J. M.	Precursory Seismic Signals Before Two Catastrophic Landslides at Irazú Volcano, Costa Rica. **Chaves, E. J.**, Pacheco, J. F., Schwartz, S. Y., Finnegan, N., Higman, B.
9:15–10:00 AM	Poster Break			

Time	*208C*	*209A*	*209B*	*209C*
	High-frequency Ground Motion Measurements, Assessments and Predictions (see page 1212)	**The 2020-2021 Southwest Puerto Rico Seismic Sequence: Current State of Knowledge and Implications (see page 1101)**	**Earth's Structure From the Crust to the Core (see page 1160)**	**De-risking Deep Geothermal Projects: Geophysical Monitoring and Forecast Modeling Advances (see page 1147)**
8:00 AM	INVITED: A Model for Small-Strain Damping for the Groningen Field Constrained by Vertical Array Measurements. **Rodriguez-Marek, A.**, Ruigrok, E., Edwards, B., Kruiver, P. K., Dost, B., *et al.*	A Detailed View of the 2020-2021 Southwestern Puerto Rico Seismic Sequence With Deep Learning. **Yoon, C. E.**, Cochran, E. S., Vanacore, E. A., Huerfano, V. A., Báez-Sánchez, G., *et al.*	STUDENT: Teleseismic P Wave Travel Times on Dense Nodal Networks Across the Kilauea East Rift Zone Reveal Two High-Speed Intrusive Cores. **Wei, X.**, Shen, Y.	Assessing the Relative Contributions of Fluid Pressure and Elastic Stress to Induced Seismicity. **Goebel, T. H. W.**, Koirala, R., Guo, H., Schuster, V., Brodsky, E. E.
8:15 AM	High Frequency Attenuation of Seismic Waves Due to the Heterogeneous Nature of the Crust : Theoretical Developments and Numerical Investigations. **Colvez, M.**, Lopez-Caballero, F., Cottereau, R.	Ground Failure Triggered by the 2020 M6.4 Puerto Rico Earthquake. **Allstadt, K.**, Thompson, E. M., Bayouth García, D., Irizarry Brugman, E., Hughes, K., *et al.*	Crustal Structure of the Caucasus. **Godoladze, T.**, Nabelek, J.	The Effect of Correlated Permeability on Fluid-Induced Seismicity. **Davidsen, J.**, Khajehdehi, O., Karimi, K.
8:30 AM	Empirical Correlations of Response Spectral Ordinates, Arias Intensity (AI) and Cumulative Absolute Velocity (CAV) With Fourier Spectral Ordinates of Ground-Motion and Associated Variabilities. **Bora, S.**	INVITED: Finding Fault With Earthquakes. **Joyce, J.**	STUDENT: High-Resolution Crustal Attenuation Model in Southeastern Tibetan Plateau and Its Implications for Regional Tectonic Deformation. **Li, R.**, Zhao, L., Xie, X., Yao, Z.	INVITED: STUDENT: Transient Evolution of the Relative Size Distribution of Earthquakes as a Risk Indicator for Induced Seismicity. **Ritz, V. A.**, Rinaldi, A. P., Wiemer, S.
8:45 AM	Broadband Ground Motion Synthesis via Generative Adversarial Neural Operators. Shi, Y., **Lavrentiadis, G.**, Ross, Z. E., Asimaki, D.	Insar Measurement of the Coseismic and Postseismic Displacements From the 2020 Southwest Puerto Rico Seismic Sequence. **Fielding, E. J.**, Vanacore, E. A., López-Venegas, A. M.	STUDENT: A High-Resolution Phase Velocity Inversion for the Crustal Structure of the Southeastern US Using a Double-Sided Hankel Transform. **Barman, D.**, Pulliam, J.	An Ensemble Approach to Characterizing Trailing Induced Seismicity. **Schultz, R.**, Ellsworth, W. L., Beroza, G. C.
9:00 AM	Rupture Directivity Effects Observed in Ground Motions From the 2022 M5.1 Alum Rock Earthquake. **Parker, G. A.**, Hirakawa, E., Baltay, A. S., Hanks, T. C.	Mature Diffuse Tectonic Block Boundary Revealed by the 2020 Southwestern Puerto Rico Seismic Sequence. **ten Brink, U. S.**, Vanacore, E. A., Fielding, E. J., Chaytor, J. D., López-Venegas, A. M., *et al.*	STUDENT: New Images of the Radially Anisotropic Uppermost Mantle Beneath the Continental US. **Hariharan, A.**, Dalton, C. A.	Assessing Potential Hazard and Risk from EGS Projects in Nevada and Oregon. **Wong, I. G.**, Bubeck, A., Gray, B., Lewandowski, N., McGregor, I., *et al.*
9:15–10:00 AM	Poster Break			

Time	*202B/C*	*204*	*208A*	*208B*
	Earthquake Source Parameters: Theory, Observations and Interpretations (see page 1174)	**Monitoring Climate Change With Seismology (see page 1219)**	**USGS National Seismic Hazard Models: 2023 and Beyond (see page 1300)**	**Seismology's Role in Assessing Volcanic Hazard at Multiple Time Scales (see page 1253)**
10:00 AM	INVITED: Challenges in Quantifying Small Earthquakes. **Herrmann, R. B.**, Benz, H. M.	INVITED: Climate Change Seismology. **Aster, R. C.**	Towards Regionalized Earthquake Source Models of Subduction Interface Earthquakes. **Skarlatoudis, A.**, Condon, S., Thio, H., Somerville, P.	STUDENT: A Look Under the Hood: Characterizing the Spatiotemporal Evolution of Mount Hood Seismicity Through Data Mining and High Precision Relocation. **Johnson, B. N.**, Hartog, R.
10:15 AM	On the Limitations of Spectral Source Parameter Estimation for Minor and Microearthquakes. **Parolai, S.**, Oth, A.	Vertical-Slice Ocean Tomography Using CTBTO Hydrophones. **Wu, W.**, Shen, Z., Peng, S., Zhan, Z., Callies, J.	Incorporating the M9 Project Simulations Into Non-Ergodic Site and Path Terms for the Cascadia Region Outside the Seattle Region. **Sung, C.**, Abrahamson, N. A.	INVITED: Solid Earth–atmosphere Interaction Forces During the 15 January 2022 Tonga Eruption. **Garza-Giron, R.**, Lay, T., Pollitz, F. F., Kanamori, H., Rivera, L.
10:30 AM	Effects of Failure Parameterization on Pre- and Co-Seismic Earthquake Rupture. **Bolotskaya, E.**, Hager, B. H.	STUDENT: Deciphering Climate Information From Array Ambient Noise in Groningen. **Zhong, Y.**, Gu, C., Fehler, M., Prieto, G. A., Wu, P., *et al.*	PSHA Study for the State of Hawai'i Based on Regionalized Seismic Source Characterization and Ground Motion Characterization Models. **Gregor, N.**, Beutel, J., Hunt, D., Hoeft, J., *et al.*	STUDENT: Temporal Velocity Variations Associated With the 2020 Eruption of Kīlauea Volcano in Hawai'i, Revealed by Ambient Noise Cross-Correlation. **Vinarski, E.**, Lin, G., *et al.*
10:45 AM	STUDENT: Yielding and Fracture in the Nucleation of Frictional Fault Slip. **Castellano, M.**, Lorez, F., Kammer, D.	Seasonal Change at Shallow Depth in the Permafrost Region of Alaska From Seismic Noise. **Tanimoto, T.**, Anderson, A.	STUDENT: Update of NGA-East Database to Include Central and Eastern North America Events Since November 2011. **Ramos-Sepulveda, M. E.**, Parker, G. A., *et al.*	STUDENT: High-Resolution Passive Imaging Beneath Valles Caldera. **Pradhan, K. K.**, Chaput, J. A., Schmandt, B.
11:00 AM	Four Granites in the Lab: Acoustic Emission During the Uniaxial Loading. **Jechumtálová, Z.**, Šílený, J., Petružálek, M., Lokajíček, T., Kolář, P.	INVITED: Seismic Network Hardening Against Tropical Systems: A Tale of Two Hurricanes. **Vanacore, E. A.**, Rivera-Torres, J. M., Friberg, P., Huerfano-Moreno, V., Baez-Sanchez, G., *et al.*	STUDENT: Development of a Site Response and Hazard Model for the U.S. Atlantic and Gulf Coastal Plains With a Geology-Based Shear Wave Velocity Model. **Gann-Phillips, C.**, Cabas, A., *et al.*	Rapid Strengthening of the La Soufriere Volcano Monitoring During Eruption, Covid-19 and Dengue Fever Threats. **Lynch, L. L.**, Robertson, R.
11:30 AM–12:30 PM	*Plenary:* Volcanism in the Eastern Caribbean: Hazards, Monitoring, Challenges and Lessons Learnt.			
12:30–2:00 PM	Lunch Break			

Time	*208C*	*209A*	*209B*	*209C*
	From Sensors and Networks to Site Characterization and Site Response: Coming Full Circle (see page 1198)	**The 2020-2021 Southwest Puerto Rico Seismic Sequence: Current State of Knowledge and Implications (see page 1101)**	**Earth's Structure From the Crust to the Core (see page 1160)**	**De-risking Deep Geothermal Projects: Geophysical Monitoring and Forecast Modeling Advances (see page 1147)**
10:00 AM	INVITED: Site Characterization by Means of Geophysical MASW Method at Designated Instrumented Sites of the Puerto Rico Strong Motion Program Seismic Network. **Huerta-López, C. I.**, Herrera-Laverde, G. D., López-Fajardo, J., Rodríguez-Jiménez, M. A., Martínez-Cruzado, J. A., *et al.*	New Insights Into the 2019 Puerto Rico Sequence - a Combined Study Based on Correlation Fractal Dimension and Static Stress Changes. **Mangalagiri, T.**, Chandriyan, H., Singha Roy, P.	Upper-Lithospheric Structure of Northeastern Venezuela From Joint Inversion of Surface-Wave Dispersion and Receiver Functions. **Cabieces, R.**, Arnaiz-Rodriguez, M., Vilaseñor, A., Berg, E. M., Olivar-Castaño, A., *et al.*	INVITED: Factors Characterizing Stable Seismic Energy Release During Hydraulic Stimulations: Egs Helsinki and Experimental Perspective. **Kwiatek, G.**, Martinez-Garzon, P., Bohnhoff, M., Dresen, G.
10:15 AM	STUDENT: Noise-Based Estimation of Local Seismic Amplification in an Industrialized Area of the French Rhone Valley. **Gisselbrecht, L.**, Froment, B., Boué, P.	A Three-Year Update on the Performance of the USGS Aftershock Forecasts for the 2020 SW Puerto Rico Sequence. **van der Elst, N.**, Hardebeck, J. L., Michael, A. J.	INVITED: Anisotropic and Anelastic Global Adjoint Tomography. **Bozdag, E.**, Örsvuran, R., Espindola Carmona, A., Peter, D.	De-risking Enhanced Geothermal Energy Projects: Insights from the DEEP Project. **Wiemer, S.**, Lanza, F.
10:30 AM	Empirical Site Response of Mexico City Developed From Regional Customization of Global Subduction Ground Motion Models. **Contreras, V.**, Stewart, J. P., Pérez-Campos, X., *et al.*	Insights Into the 2019-2022 Southwest Puerto Rico Seismic Swarm and Broader Caribbean Seismo-tectonics With an Automatic Workflow Aided by Machine-learning Pickers. **Walter, J.**	Radial Reference Models: Core Structure and Spin Transition Effects. **Kennett, B. L. N.**	Clustering Analysis of Microseisms Generated During Hydraulic Fracturing Recorded by Downhole Geophones. **Qiu, H.**, Nakata, N., Qin, L., White, M.
10:45 AM	Achieving Deep Site Characterization in Greater Vancouver, British Columbia, Canada. **Molnar, S.**, Bilson Darko, A., Kapron, M.	INVITED: Lessons Learned as a Geoscience Communicator During the 2020-2021 Southwest Puerto Rico Seismic Sequence. **Jaramillo-Nieves, L. G.**	Revisit Smsks Differential Traveltime Data and the Inferred Stratification at Earth's Outermost Outer Core. **Niu, F.**, Zhou, Y.	Noise Characterization of Surface DAS in Monitoring the April 2022 Stimulation at Utah FORGE. **Mendoza, M. M.**, Sheehan, A. F., Jin, G., Titov, A.
11:00 AM	The Activities of the Emersito Ingv Emergency Task Force During the Marchigiana-Pesarese Offshore Seismic Sequence (Central Italy): Directional Amplification and Polarization Analyses. **Pischiutta, M.**, Ladina, C., Puglia, R., Marzorati, S., *et al.*	Behavioral Responses to the 2020-2021 Southwest Puerto Rico Earthquake Sequence: Information-Seeking, Rumors, and Protective Action Decision-Making. **Santos-Hernández, J. M.**, Campbell, N. M., McBride, S. K., *et al.*	The UPFLOW Experiment: Peeking from the Sea Floor to the Deep Mantle with an ~1,500 km Aperture Array of 49 Ocean Bottom Seismometers in the Mid-Atlantic. MG Ferreira, A., Miranda, M., Baranbooei, S., **Cabieces, R.**, *et al.*	Towards Best Practices for Egs Seismic Monitoring: Insights Gained at Utah Forge. **Pankow, K. L.**, Dyer, B., Rutledge, J., Bethmann, F., Eaton, D. W., *et al.*
11:30 AM–12:30 PM	*Plenary:* Volcanism in the Eastern Caribbean: Hazards, Monitoring, Challenges and Lessons Learnt.			
12:30–2:00 PM	Lunch Break			

Time	202B/C	204	208A	208B
	Earthquake Source Parameters: Theory, Observations and Interpretations (see page 1174)	**Transforming our Seismological Community through Inclusive Mentorship and Diverse Narratives (see page 1282)**	**USGS National Seismic Hazard Models: 2023 and Beyond (see page 1300)**	**Advances in Characterizing Seismic Hazard and Forecasting Risk in Hydrocarbon Systems (see page 1116)**
2:00 PM	INVITED: Review of the Seismicity of Mars. **Clinton, J.**, Ceylan, S., Stähler, S. C., Giardini, D., Charalambous, C., *et al.*	INVITED: Geophysical and Sea Level Monitoring in Puerto Rico, an Inclusive Experience. **Huerfano, V. A.**, Gomez, G., Baez Sanchez, G.	STUDENT: Bias of NGA-East GMMs and Site Amplification Models Relative to Supplemented Cena Ground Motion Database. **Ramos-Sepulveda, M. E.**, Parker, G. A., Buckreis, T. E., Moschetti, M. P., *et al.*	Detecting an Enormous Number of Small-Magnitude Earthquakes Using EQCCT. **Chen, Y.**, Saad, O. M., Chen, Y., Siervo, D., Zhang, F., *et al.*
2:15 PM	The 2017 Pohang, Korea, Earthquake and its Largest Aftershocks: Stress Drop and Source Complexity Suggestive of Fluid-faulting Interaction. **Son, M.**, Chaves, E. J., Cho, C.	INVITED: From Academia to Industry: How an Underrepresented Seismologist Became a Data Scientist. **Holt, M. M.**	Evaluating Bias of NGA-EAST GMMs and Site Factors for Ground Motions From Natural and Potentially Induced Earthquakes in Texas, Oklahoma, and Kansas. **Li, M.**, Rathje, E. M., *et al.*	Discriminating Natural and Injection-Induced Earthquakes in the Presence of Uncertainty: A Case Study in Alberta, Canada. **Eaton, D. W.**, Salvage, R. O., Furlong, C., Kao, H., Dettmer, J.
2:30 PM	STUDENT: Shallow Serpentinization Promoted the Up-dip High-Frequency Seismic Wave Radiation During the 2021 Mw8.1 Kermadec Megathrust Earthquake. **Zeng, H.**, Wei, S.	Trying. Failing. and Trying Again. and Again. An Informal Case Study on the Path to Figuring Out What You Want to Do for a Job and Help Others Do the Same. **Reusch, M.**	STUDENT: A Framework for Incorporating Epistemic Uncertainty in Site Effects in National Building Codes. **Anbazhagan, B.**, Rodriguez-Marek, A.	Cascading and Multi-Segment Rupture of a Mw 5.3 Injection-Induced Earthquake. **Glasgow, M. E.**, Schmandt, B., Bilek, S.
2:45 PM	New Empirical Source Scaling Laws for Crustal Earthquakes Incorporating the Fault Dip Angle and Seismogenic Thickness Effects. **Huang, J.**, Abrahamson, N. A., *et al.*	Perspectives on the Inaugural Resess Satellite Program at University of Washington. **Crowell, B. W.**, Condit, C., Schmidt, D., Ghent, J., Ott, J., *et al.*	An Update to FEMA P366: Estimating Annualized Earthquake Loss Estimates in the United States. **Jaiswal, K.**, Bausch, D., Rozelle, J.	Characteristics of a Complex Rupture Zone System Associated With the m5.4 Coalson (West Texas) Earthquake. **Savvaidis, A.**, Huang, D., Chen, Y., Dommisse, R., Breton, C., *et al.*
3:00 PM	Slow Earthquake Scaling Revisited. **Ide, S.**, Beroza, G. C.	Evolving NOAA's Tsunami Warning Center Workforce Towards Improved Service Equity. **Ohlendorf, S. J.**, Snider, D. J., Gridley, J.	STUDENT: Earthquake Hazard Prediction Software for South Carolina Considering Local Geology and Seismicity. **Jella, V.**, Ravichandran, N., Carlson, C. P., *et al.*	Investigating the Influence of Extraction on Seismicity in Areas of Injection Induced Seismicity. **Brudzinski, M. R.**, Blake, D., Currie, B. S., Dzubay, A. J., Fasola, S. L., *et al.*
3:15 PM–4:30 PM	Poster Break			

Time	208C	209A	209B	209C
	From Sensors and Networks to Site Characterization and Site Response: Coming Full Circle (see page 1198)	**Advances in Marine Seismoacoustics (see page 1119)**	**Earth's Structure From the Crust to the Core (see page 1160)**	**Legacy Seismic Data Collections: The Present State of and Future Outlook for Data from the Past (see page 1218)**
2:00 PM	Estimating Cross-Coupling in Site Response by Seismic Noise Interferometry: An Example From an Alpine Valley (Northeastern Italy). **Parolai, S.**, Laurenzano, G., Garbin, M.	Acoustic Detection of Volcanic Gas Seeps Using Underwater Distributed Acoustic Sensing. **Spica, Z.**, Caudron, C., Miao, Y., Wollin, C., Jousset, P., *et al.*	Imaging Deep Mantle Plumbing Beneath La Réunion and Comores Hotspots: Vertical Plume Conduits and Horizontal Ponding Zones. **Dongmo Wamba, M.**, Montagner, J., Romanowicz, B. A., Simons, F. J., Irving, J. C. E.	INVITED: Historical Seismograms of the South Pacific - Preserving and Utilizing a Unique 100-Year Continuous Record of Earth Observations. **Viskovic, P.**, Christophersen, A., Hanson, J. B., O'Hagan, S.
2:15 PM	STUDENT: Regional Seismic Site Characterization Maps of Massachusetts using a Depth to Bedrock and a Surficial Geology Map. **Pontrelli, M. A.**, Baise, L. G., Mabee, S., Clement, W. P., Ebel, J. E., *et al.*	INVITED: Submarine Volcano Seismoacoustics: Why Multi-Modal Data Is Important. **Tepp, G.**, Dziak, R. P.	A Seismic Investigation of Lithospheric Seismic Structure Beneath the Shillong Plateau and Adjoining Regions in N-E India by Jointly Fitting of Receiver Functions and Dispersion Curves. Agrawal, M., **Das, M. K.**, *et al.*	INVITED: European Efforts for Legacy Seismograms Preservation and Use: The Esc Wg on Seismological Legacy Data and the Seismostorm Project. **De Plaen, R. S. M.**, Batlló, J., Lecocq, T.
2:30 PM	USGS SmartSolo Seismometer Arrays in the Upper Mississippi Embayment. **Boyd, O. S.**, Pratt, T. L., Lindberg, N. S., Sarker, K., Bhattarai, R. R., *et al.*	Non-Linear Seismoacoustic Responses of Explosions in Different Rock Types and Water: Comparisons With Experimental Data. **Ezzedine, S. M.**, Cashion, A., Laintz, K., Vorobiev, O., Walter, W. R.	Effects of Partial Melt in the Uppermost Mantle on SK(K)S Splitting: Global Wavefield Simulations and Potential Applications. **Loeberich, E.**, Wolf, J., Long, M. D.	The Electronic Archive of Printed Station/Network Bulletins at the ISC. Di Giacomo, D., **Storchak, D. A.**
2:45 PM	Seismic Monitoring of Fragile Geologic Features Near Avila Beach, California. **Steidl, J.**, Hegarty, P., Kottke, A.	Exploring the Potential of Low-cost Hydrophones in Constraining Subsea Faults and Seismic Early Warning for the San Francisco Bay Region. **Salaree, A.**, Spica, Z.	INVITED: Post-Seismic Deformation Following a Deep (~560-km) Earthquake Reveals Weak Base of the Upper Mantle. **Park, S.**, Avouac, J., Zhan, Z., Gualandi, A.	The Air Force Technical Application Center Efforts to Collect, Preserve and Integrate Historic Geophysical Data. **Soto-Cordero, L.**, Jezard, M. F., Poffenberger, A.
3:00 PM	STUDENT: Capturing Spatial Variability of Site Effects: from Geology to Proxy Considerations to inform Spatial Ground Motion Correlation Models. **Lorenzo-Velazquez, C.**, Cabas, A.	INVITED: New Constraints on the Factors That Control the Lithosphere-Asthenosphere Transition and the Driving Forces of Plate Motions From the Pi-Lab Experiment. **Rychert, C.**, Harmon, N., Agius, M., Bogiatzis, P., *et al.*	The Mantle Transition Zone Seismic Discontinuities Beneath NW South America From P-Wave Receiver Function Analysis. **Vargas, C. A.**, Cubillos, J. E.	STUDENT: An Update on the Development of the Digitseis Software. **Lee, T. A.**, Ishii, M., Ishii, H.
3:15 PM–4:30 PM	Poster Break			

Time	202B/C	204	208A	208B
	Earthquake Source Parameters: Theory, Observations and Interpretations (see page 1174)	**Seismology for the Energy Transition (see page 1251)**	**2025 Puerto Rico and the U.S. Virgin Islands National Seismic Hazard Model Update (see page 1105)**	**Advances in Characterizing Seismic Hazard and Forecasting Risk in Hydrocarbon Systems (see page 1116)**
4:30 PM	The Devastating 2022 M6.2 Afghanistan Earthquake: Challenges, Processes and Implications. Kufner, S., Bie, L., Gao, Y., Lindner, M., Waizy, H., **Rietbrock, A.**, *et al.*	INVITED: Technical Subsurface Workflows for Geological Carbon Sequestration. **Imhof, M. G.**	USGS 2025 Puerto Rico and the U.S. Virgin Islands NSHM Update. **Shumway, A. M.**, Field, E. H., Moschetti, M. P., Jaiswal, K.	Bridging the Data Gap and Relocation Errors for Improved Spatiotemporal Evaluation of Induced Seismicity in the Delaware Basin. **Aziz Zanjani, A.**, DeShon, H. R., Binetti, L.
4:45 PM	INVITED: 2021 and 2022 North Coast California Earthquake Sequences and Fault Complexity in the Vicinity of the Mendocino Triple Junction. **Hellweg, M.**, Dreger, D. S., Dengler, L., Lomax, A., McPherson, R.	Machine-learning Fault Detection on 3D Seismic Migration Images of the San Juan Basin CarbonSAFE Project Site. **Huang, L.**, Li, D., Gao, K., Pawar, R., El-kaseeh, G., *et al.*	Earthquake Geology Inputs for the 2025 Update of the Puerto Rico-U.S. Virgin Islands Portion of the National Seismic Hazard Model. **Jobe, J. A. T.**, Briggs, R. W., ten Brink, U. S., Pratt, T. L., Hughes, K., *et al.*	Are Higher Hf Injection Rates More Prone to Triggering Seismicity? Data From Four North American Basins Say No. **Grigoratos, I.**, Savvaidis, A., Rodriguez, G., Verdon, J., Wiemer, S.
5:00 PM	Bayesian Source Mechanism Inversion and Uncertainty Quantification With Dense Array Strong Motion Data for 2022 Luding Earthquake in China's Sichuan. **Gu, C.**, Prieto, G. A., *et al.*	Adaptive Model Selection for the Maximum Magnitude Event During Injection. **McCormack, K.**, Dvory, N. Z.	A Seismic Source and Ground Motion Characterization Model Developed for a Site in Northeast Puerto Rico. **Beutel, J.**, Gregor, N., Hoeft, J., Hunt, D., LaForge, R.	Frictional and Poromechanical Properties of the Delaware Mountain Group: Implications for Seismic and Aseismic Faulting Associated With Induced Earthquakes. **Bolton, C.**, Affinito, R., Smye, K., *et al.*
5:15 PM	Insights Into Volcanic Rift-Tectonic Fault Interactions From Moment Tensor Analysis of the Seismicity Prior to the 2021 and 2022 Fagradalsfjall Eruptions in Iceland. **Rodríguez Cardozo, F.**, *et al.*	Fracture Network Geometry as Revealed by Seismicity and Distributed Temperature Sensing During Egs Collab Experiment 2. **Hopp, C.**, Rodríguez Tribaldos, V., Ajo-Franklin, J., Huang, L., Wood, T., *et al.*	Evaluating Predictive Performance of Global and Regional Ground Motion Models Using a New Caribbean Strong-Motion Dataset. **Cao, Y.**, Seyhan, E.	Probability of Statistically Unexpected Earthquakes in Different Basins in Texas. **Igonin, N.**, Savvaidis, A.
5:30 PM	Observations of the 2017 Earthquake Swarm in SW Iceland Used for Mapping Stress Prior to the 2021 Fagradalsfjall Eruption. **Hrubcova, P.**, Vavrycuk, V.	INVITED: Seismicity at the Coso Geothermal Field: Past and Present Applications. **Nale, S.**, Zimmerman, J., Blake, K., Sabin, A.	Assessing Site Characterization in Puerto Rico: Towards the 2025 Update of the Puerto Rico and Virgin Islands Portion of the USGS National Seismic Hazard Model. **Ahdi, S. K.**, Kehoe, H. L., Stephenson, W. J., Boyd, O. S., P., *et al.*	STUDENT: How Well Do We Really Know the b-Value? New Estimates of Earthquake Magnitude for the Delaware Basin and the Effect of Magnitude Uncertainty on Induced Seismic Hazard Estimates. **Gable, S.**, Huang, Y., Shelly, D. R.
6–7 PM	Plenary: The Future of Tsunami Hazards and Readiness Research (Panel Discussion)			

Time	208C	209A	209B	209C
	Future Directions in Physics-based Ground-motion Modeling in Preparation for the Fall 2023 Meeting (see page 1202)	**Single-station Passive Exploration Methods: Status and Perspectives (see page 1261)**	**Emerging Developments in Operational Monitoring Systems and Products (see page 1182)**	**Advancing Science With Global Seismological and Geophysical Networks (see page 1128)**
4:30 PM	Updated Broadband Cybershake PSHA Model for Southern California. **Callaghan, S. A.**, Maechling, P. J., Silva, F., Milner, K. R., Su, M., *et al.*	Modeling Noise Hvsr in Media With Lateral Irregularity Using the Diffuse Field Assumption and Ibem for an Irregular Soft Layer. **Sánchez-Sesma, F. J.**, Weaver, R. L., Perton, M., Rodriguez-Zosayas, D. A., *et al.*	Utilizing the Cloud to Modernize Delivery of Earthquake Information and Products. **Hunsinger, H.**, Brown, J., Haynie, K. L., Hearne, M., Hunter, E., *et al.*	Continuing Detection and Location Using Continuous Long Period Data Recorded at Global Seismic Networks. **Poli, P.**
4:45 PM	Virtual Earthquake Analysis of Future Alpine Fault Earthquakes and Ground-Shaking Using the Southern Alps Long Skinny Array (SALSA). **Townend, J.**, Holden, C., Chamberlain, C. J., Warren-Smith, E., Juarez-Garfias, I., *et al.*	Single-Station Microtremor HVSR Curve Inversion and Ambient Noise Tomography of the Three-Component Seismic Data From a Nodal Array in Downtown Reno, Nevada. **Mirzanejad, M.**, Seylabi, E.	Integrated Seismic Program (ISP): A New Python GUI-based Software for Earthquake Seismology and Seismic Signal Processing. **Cabieces, R.**, Olivar-Castaño, A., C. Junqueira, T., Relinque, J., Vackár, J., *et al.*	Global Trends in Microseism Amplitude on a Warming Planet. **Aster, R. C.**
5:00 PM	Prediction of Near-Field Time-Histories Using Machine Learning and a Hybrid Dataset (Calibrated Physics-Based Ground-Motion Simulations and Observations). Esfahani, R., **Cotton, F.**, Scherbaum, F., Ohrnberger, M.	Directional Amplification and Ground Motion Polarization in Casamicciola Area (Ischia Volcanic Island) After the 21 August 2017 Md 4.0 Earthquake. **Pischiutta, M.**, Petrosino, S., nappi, R.	Using the University of Utah Messaging Passing System to Help Realize Real-Time Machine-Learning Modules in Network Operations. **Baker, B.**, Armstrong, A. D., Pankow, K. L., Koper, K. D.	Wireless Collection of Environmental and State-of-Health Data in Seismographic Networks. Steim, J. M., **Franke, M.**, Oncescu, L. C.
5:15 PM	STUDENT: The i-FSC Proxy: A Physics-Based Model for Predicting Near Field Topographic Site Effects and Studying Earthquake-Induced Landslide Distributions. **Bou Nassif, A.**, Maufroy, E., Lacroix, P., Chaljub, E., Causse, M., *et al.*	Estimating VS30 From Horizontal-to-Vertical Spectral Ratio Based on Supervised Machine Learning. **Hayashi, K.**	Using a Consistent Travel-time Framework to Compare Three-dimensional Seismic Velocity Models for Location Accuracy. **Begnaud, M.**, Davenport, K., Conley, A. C., Porritt, R. W., Gammans, C. N. L., *et al.*	The Minimus Digitizer Platform: A User-Friendly Ecosystem for Efficient Network Management and Seismic Station Configuration. **Lindsey, J. C.**, Watkiss, N., Reis, W., Whealing, D.
5:30 PM	INVITED: Evaluation of the Impacts on Risk Assessments for Distributed Infrastructure Systems from Ground Motion Median, Variability, and Spatial Correlation in CyberShake Simulations. **Lee, Y.**, Goulet, C. A., Hu, Z., Callaghan, S. A.	Detecting and Locating Underground Cavities by the Finite-Interval Spectral Power of Seismic Ambient Noise. Kristekova, M., **Kristek, J.**, Moczo, P., Galis, M.	Rapid Delivery of Earthquake Catalog With Azure. **Antolik, L.**, Cooke, A., Lisowski, S., Friberg, P., Branum, D., *et al.*	Reviewing How the Management and Operation of the Global Seismographic Network Has Evolved, With a Look Into the Future: A Partnership Between the Community, NSF, and the USGS. **Frassetto, A. M.**, Dalton, C. A., *et al.*
6–7 PM	Plenary: The Future of Tsunami Hazards and Readiness Research (Panel Discussion)			

Poster Sessions

The 2020-2021 Southwest Puerto Rico Seismic Sequence: Current State of Knowledge and Implications [Poster] (see page 1103)

109. Student: Determining First Motion Focal Mechanisms for Small Magnitude Earthquakes in the Southwestern Puerto Rico Seismic Sequence From January 6th and 7th, 2020. **Rivera Ramos, J.**, Vanacore, E. A.
111. Diffuse Transtensional Deformation in the 2020 Puerto Rico Earthquake Sequence. **Nobile, A.**, Viltres, R., Vasyura-Bathke, H., Trippanera, D., Xu, W., *et al.*
113. Operational Response of the PRSN for the Southwest Puerto Rico Seismic Sequence. **Báez-Sánchez, G.**, Colón-Rodríguez, B.
112. Student: Post-Seismic Relaxation of 2020 Southwestern Puerto Rico Seismic Complex From New Gnss Network. **Justiniano, C.**, López, A., Mattioli, G., Jansma, P.
108. Student: The M6.4 Mainshock in the 2020 Southwestern Puerto Rico Seismic Sequence: New Insights From Joint Inversion. **Solares-Colón, M. M.**, Goldberg, D. E., Yeck, W. L., Melgar, D., Vanacore, E. A., *et al.*
110. The Puerto Rico Strong Motion Program – a State of the Art and Records Obtained During the m6.4 January 7, 2020 Earthquake. **Martinez-Cruzado, J. A.**, Martinez-Pagan, J., Santana-Torres, E. X., Hernandez-Ramirez, F. J., Suarez-Colche, L. E.

2025 Puerto Rico and the U.S. Virgin Islands National Seismic Hazard Model Update [Poster] (see page 1106)

115. Geospatial Scope of the 2025 Puerto Rico-U.S. Virgin Islands National Seismic Hazard Model Update. **Herrick, J. A.**, Shumway, A. M.
114. Student: Reviewing 4 Decades of the Puerto Rico Seismic Network Catalog: From Catalog Correction and Homogenization to Declustering. **Chacon, D. M.**
119. Student: Seismotectonic Context Update and Tsunami Numerical Modeling for the NE Region of the Caribbean Plate, Puerto Rico; Insights From Seismic Reflection and Seismicity. **Porras, H.**
116. Uprm Contributions to the 2025 Update of the Puerto Rico Seismic Hazard Map. **Lopez, A. M.**, Martinez-Cruzado, J. A., Huerfano, V. A., Vanacore, E. A.
118. Vs30 Mapping using MrVBF in Puerto Rico and Hispaniola. **Mitra, D.**, Sethi, S.
117. Student: Vs30 Measurements at Puerto Rico Seismic Sites. **Toro Acosta, C.**, Vanacore, E. A.

Advances in Characterizing Seismic Hazard and Forecasting Risk in Hydrocarbon Systems [Poster] (see page 1118)

79. Student: Ambient Noise Monitoring in a Region of Disposal-induced Seismicity, Central Alberta. **Rojas-Parra, J.**
77. Characteristics of Seismogenic Zones Associated With the m5.2 Range Hill Event Near Midland, Texas. **Huang, D.**, Chen, Y., Breton, C., Dommisse, R., Savvaidis, A.
78. Fault Stability and Pore Pressure Thresholds for Seismogenic Rupture in the Midland Basin. **Hennings, P.**, Ge, J., Horne, E., Nicot, J., Smye, K.
76. Seismic Hazard and Risk Forecasting for the Groningen Gas Field: Case Study for Gas Year 2022/2023. **Osinga, S.**, Kraaijpoel, D. A., Aben, F. M., Pluymaekers, M. P. D., Vogelaar, B. B. S., *et al.*
75. Widespread Anthropogenic Uplift, Subsidence, Co-Seismic Faulting and Earthquakes in the Delaware Basin of Texas and New Mexico. **Hennings, P.**, Staniewicz, S., Smye, K., Chen, J., Horne, E., *et al.*

Advances in Marine Seismoacoustics [Poster] (see page 1120)

1. Student: Impacts of Oceanographic and Geologic Factors on Ocean-Bottom Seismic Noise. **Niklasson, S.**, Rowe, C. A., Bilek, S.
2. Novel Autonomous and Cabled Obs Solutions for Offshore Seismic Research. **Lindsey, J. C.**, Watkiss, N., Reis, W., Whealing, D.
3. Novel Longer-Term Ocean Bottom Station Concepts Enabled by Advancements in Low Power Equipment. **Perlin, M.**

Advancing Science With Global Seismological and Geophysical Networks [Poster] (see page 1129)

49. A Truly Very Broad Band Borehole Seismometer With Flat Response Over 5 Decades of Frequency. Guralp, C. M., **Rademacher, H.**
50. Student: Ambient Seismic Noise Studies of the Alpine Fault, New Zealand. **Juarez Garfias, I. C.**, Townend, J., Chamberlain, C. J., Francois-Holden, C.
48. Current Issues and Difficulties Being Faced by the Ukrainian Seismic Network. **Amashukeli, T.**, Malatesta, L., Farfuliak, L., Gaviev, O., Petrenko, K.

Collective Impact in Earthquake Science [Poster] (see page 1131)

84. Student: A New Approach for Assessing Fragility Curves in Seismic Vulnerability and Risk Studies. an Application to Costa Rica. Jiménez Martínez, M., Navas Sánchez, L. A., González-Rodrigo, B., Hernández-Rubio, O., Dávila Migoya, L., **Benito Oterino, M.** *et al.*
85. Center for Collective Impact in Earthquake Science (C-CIES). **Velasco, A. A.**, Weidner, J., Karplus, M. S., Bilek, S., Bolton Valencius, C., *et al.*
81. Student: New Seismic Exposure Model for Guatemala City, a New Seismic Risk Approach. Dávila Migoya, L., **Benito Oterino, M.**, Flores, O., Cabrero, J. M.
80. Social Science and Education Research for ShakeAlert, the Earthquake Early Warning System for the West Coast of the United States. **McBride, S. K.**, Sumy, D. F., de Groot, R.
83. The Launch of Seismica: From Early Career Researchers' Perspective. **Karasözen, E.**, Agostinetti, N. P., Convers, J., Hicks, S., Mark, H., *et al.*
82. Visualization of Aftershock Forecasts Driven by User Needs. **Schneider, M.**, Wein, A., van der Elst, N., McBride, S. K., Becker, J., *et al.*

De-risking Deep Geothermal Projects: Geophysical Monitoring and Forecast Modeling Advances [Poster] (see page 1150)

72. Student: Applying Waveform Correlation Analysis to Microseismicity at the Forge Sites to Detect and Characterize Fractures. **Asirifi, R.**
73. Bidirectional Displacement Waveforms of Hhz Induced Microearthquakes - Evidence for Volumetric Shear-Slip Distributions in Ambient Crust Hydraulic Stimulation. **Hofstetter, R.**, Leary, P. C., Malin, P. E.
71. Developing a Machine Learning Model to Pick Phase Arrivals on DAS Data at the Forge Site. **Chen, X.**, Ratre, P., Zhu, W., Xiao, C., Asirifi, R., *et al.*
74. Time-Lapse Changes in Velocities at Patua Geothermal Fields Using Seismic Ambient Noise. **Qiu, H.**, Nakata, N., Qin, L.

Earth's Structure From the Crust to the Core [Poster] (see page 1164)

99. Crust and Upper Mantle Velocity Structure Beneath the Chhotanagpur Plateau, India Using Waveform Modeling of Shear-Coupled Pl Waves and Other Phases. **Das, M. K.**, Agrawal, M., Patel, A.
107. Deep Crustal Imaging in Binchuan, China Based on a Wavefield Decomposition Analysis Using Wavelets on the Dense Array Datasets. **Zhang, J.**, Yang, H.
100. Student: Lateral Variations of Crustal Lg-Wave Attenuation in the Scandinavia Peninsula and Its Vicinity. **Liu, Z.**, Zhao, L., Xie, X., Yao, Z.
96. Student: Lithospheric Structure of the Sabine Uplift From Joint Modeling of Receiver Functions and P Autocorrelations. **Sadler, B.**, Pulliam, J.
98. Student: Mapping the Mantle Transition Zone Using the Coda Correlation Wavefield. **Liu, M.**, Ritsema, J., Spica, Z.
97. Student: On the Detection of Sharp Upper Mantle Discontinuities across North America: Silencing Echoes in the Crust with Sparse Non-linear Radon Filters. **Carr, S. A. B.**, Olugboji, T., Ziqi, Z.
105. Student: Seismic Autocorrelation to Explore Subglacial Crustal Structure. **Chandra, R.**, DellaGiustina, D. N.
106. Student: Seismic Waves Attenuation in Georgia. **Buzaladze, A.**, Sandvol, E. A.
104. SItomo – a New Matlab Toolbox for SKS Splitting Intensity Tomography and Application to the Dense SWATH-D Seismic Array in the European Alps. **Link, F.**, Mondal, P., Long, M. D.
103. Student: Towards Using Mermaid Waveforms in Seismic Tomography. **Willis, R. M.**, Bozdag, E., Snieder, R.
102. Student: Unraveling the Iceland Plume Track Through Greenland's Mantle Transition Zone. **Hariharan, A.**, Nathan, E. M., Fischer, K. M.
101. Updated SALSA3D Tomographic Velocity Models for Improved Travel-Time Prediction and Uncertainty. **Conley, A. C.**, Porritt, R. W., Davenport, K., Begnaud, M., Rowe, C. A., *et al.*

Earthquake Source Parameters: Theory, Observations and Interpretations [Poster] (see page 1179)

16. Student: A Relative Moment Tensor Inversion Scheme for Local Earthquakes: Application to San Juan Cluster. **Drolet, D.**, Bostock, M. G., Plourde, A. P.
17. Adjoint Earthquake Source Inversion Method Using P-Wave Spectra and Focal Mechanism Solutions. **Cheng, Y.**, Allen, R. M.
6. An Improved Estimation of Stress Drop and its Application on Induced Earthquakes in the Weiyuan Shale Gas Field in China. **Zhang, J.**, Yang, H., Zi, J., Su, J.
11. Brune Stress Drop, b-Value, and Modeling Through Finite Element Models (FEM) of Earthquakes that Occurred close to the 30 October 2016, Mw 6.3 Norcia Earthquake. **Calderoni, G.**, Megna, A., Mele, G., Rovelli, A., Lombardi, A.
15. Student: Characterization of the 2020 Mw 5.7 Magna, Utah Seismic Sequence Full Wavefield Decay. **Trahan, K. M.**, Vanacore, E. A., Lecocq, T.
14. Student: Characterization of the Southwestern Puerto Rico Seismic Sequence Full Wavefield Decay. **Friedman-Álvarez, C. D.**, Vanacore, E. A.

18. Estimating Faulting Mechanisms From Single-Station Seismic Data. **van der Lee, S.**, Sita, M., Agaba, V., Braunmiller, J.
21. Estimating Magnitudes of the 1868 and 1877 Earthquakes Using Tsunami Records. **Barrientos, S. E.**, Zelaya, C., Díaz-Naveas, J.
4. Extension of Aseismic Slip Propagation Theory to Slow Earthquake Migration. **Ariyoshi, K.**
20. FocMecDR: A Cross-Correlation-Based Double-Ratio Earthquake Focal Mechanism Inversion Algorithm. **Zhang, M.**
8. Student: Global Evaluation of Large Strike-Slip Ruptures Using a Bayesian Estimation of Stress Glut Second Moments. **Atterholt, J.**, Ross, Z. E.
12. MTUQ: A High-Performance Python Package for Moment Tensor Estimation and Uncertainty Quantification. **Thurin, J.**, Braunmiller, J., Rodriguez Cardozo, F. R., Ding, L., Liu, Q., *et al.*
5. Student: Not So Planar Faults – On the Impact of Faulting Complexity and Type on Earthquake Rupture Dynamics. **Zaccagnino, D.**, Doglioni, C.
9. Student: Regional Alaska Earthquake Moment Tensors Inverted Using 3D Green's Functions. **McPherson, A.**, Tape, C., Thurin, J.
13. Robust Explosion Screening Based on Moment Tensor Angular Distance. **Modrak, R.**, Kintner, J., Thurin, J., Tape, C.
10. Student: Seismic Moment Tensors Evaluation of Earthquakes in Central Zagros (Iran). **Abbasi Hafshejani, Z.**
7. Student: Source Parameter Analysis Indicates Both Hydrous Phase Breakdown and Thermal Shear Runaway Drive Unusual Subduction Seismicity in Central Colombia. **Aravena, P.**, Warren, L. M., Abercrombie, R. E., Bishop, B., Cho, S., *et al.*
19. Source Stress Drop for Continental Collision Zones: Deviation From "Textbook" Earthquake Models. **Salaree, A.**, Saloor, N.

Emerging Developments in Operational Monitoring Systems and Products [Poster] (see page 1184)

62. Developing International Standards and Guidelines for Curating, Disseminating, and Validating Simulated Ground-Motion Data. **Aagaard, B. T.**, Askan, A., Rezaeian, S., Ahdi, S. K., Yong, A. K.
59. Edge Continuous Waveform Buffer Enhanced Station Monitoring Using a Web Interface and Containerized Deployment. Mielke, B. E., **Guy, M. R.**
61. Modern Tools and Approaches to Earthquake Monitoring and Product Generation at the Southern California Seismic Network (SCSN). **Yu, E.**, Bhaskaran, A., Chen, S., Tam, R., Tepp, G., *et al.*
60. Motus: The U.S. Geological Survey National Earthquake Information Center's New Earthquake Monitoring System. **Patton, J.**, Guy, M. R.
58. Near Real-Time Repeating Earthquake Monitoring System. **Dominguez, L. A.**, Taira, T., Cruz-Atienza, V. M., De la Luz, V., Kostoglodov, V.
57. Pysolate: A Python-Based Thresholding Tool to De-Noise or De-Signal Seismic Waveforms Based on the Continuous Wavelet Transform. **Aguiar, A. C.**, Chiang, A., Myers, S. C.

From Sensors and Networks to Site Characterization and Site Response: Coming Full Circle [Poster] (see page 1200)

37. A Rugged, Portable and Intelligent Analogue Seismometer for Future and Pre-Existing Arrays – Güralp Certis. **Lindsey, J. C.**, Watkiss, N., Reis, W., Whealing, D.
35. Student: Application of Parametric and Non-Parametric Git in Low to Moderate Seismic Context: Case of Mainland France Earthquake Ground Motion for 1996-2021 Period. **Buscetti, M.**, Traversa, P., Perron, V., Hollender, F.
39. Framework for Incorporating Site Characteristic Information at Advanced National Seismic System Sites into the Center for Engineering Strong Motion Data. **Schleicher, L. S.**, Huddleston, G. J., Ahdi, S. K., Steidl, J., Hagos, L., *et al.*
33. Invited: On the Study of Amplification in the Cerro Prieto Volcano, Mexicali Valley, Mexico Using Cross- and Auto-Power Spectrum Technique. Huerta-López, C. I., **Vidal-Villegas, J. A.**
38. Site Characterizations and Linear Site Responses at Selected Borehole Strong-Motion Arrays From the United States and Japan. **Wang, Z.**, Carpenter, S.
36. Vs30 at Two Seismic Stations in the Central Valley of California Using S-Wave Refraction Tomography and Masw. **Chan, J. H.**, Catchings, R. D., Taira, T., Goldman, M., Criley, C. J., *et al.*
34. Student: Vs30 Site Characterization in the City of St. Helena, Napa County, California Using Active-Source Refraction Tomography. **Samuel, D. A.**, Catchings, R. D., Goldman, M., Sickler, R. R., Chan, J. H.

Future Directions in Physics-based Ground-motion Modeling in Preparation for the Fall 2023 Meeting [Poster] (see page 1204)

29. Averaged S-Wave Site Amplification Factors for Sites With Vs30 ≥ 760 M/s Derived From Git Analysis of K-Net and KiK-Net Ground Motions and Its Consequence for Ground Motion Modeling. **Kawase, H.**, Nakano, K., Ito, E.
31. Basin Effects From 3D Simulations in Southern California: Basin-Depth Scaling and Nonergodic Site Adjustments. **Moschetti, M. P.**, Thompson, E. M., Withers, K. B., Shumway, A. M., Powers, P. M.
30. Strong-Motion Simulation of the 1944 Tonankai Earthquake Along the Philippine Sea Plate Based on the Damage Ratios of Wooden Houses With In-Situ Measurements of Microtremors at the Population Centers of Heavily-Damaged Villages and Towns. **Ito, E.**, Nakano, K., Kawase, H.
32. The Impact of the Three-Dimensional Structure of a Subduction Zone on Time-Dependent Crustal Deformation Measured by HR-GNSS. **Fadugba, O. I.**, Sahakian, V. J., Melgar, D., Rodgers, A. J., Shimony, R.

General Seismology (see page 1209)

130. Insight, 2018–2022: Results From the First Mission With a Primary Focus on the Interior of Mars. **Panning, M. P.**, Banerdt, W. B., Smrekar, S., Le Maistre, S., Lognonné, P., *et al.*
132. Pn Wave Attenuation Beneath the Caribbean Plate. **Zhao, L.**, Xie, X., Yang, S., Yao, Z.
129. Variations of the System Properties of a High-Rise Building Over 1 Year Using a Single Station 6c Approach. Rossi, Y., Tatsis, K., Reuland, Y., **Clinton, J.**, Chatzi, E., *et al.*
131. Vertical Component Impulse Response Functions in a High-Rise From Earthquake and Ambient Vibration Data. **Kohler, M.**, Prieto, G. A.

Geophysical Data Analysis in Cloud Computing Environments [Poster] (see page 1210)

51. Invited: A Cloud Ecosystem for Data and Software Developed by SCOPED. Denolle, M. A., Wang, Y., **Tape, C.**, Ni, Y., Waldhauser, F., *et al.*
52. Student: Constructing Cloud Resources for the Individual Researcher From the Ground Up: An Example of Earthquake Detection in the Cloud. **Krauss, Z.**, Ni, Y., Henderson, S., Denolle, M. A., Wang, I.
54. Leveraging Cloud Services for the Earthscope Data Repositories. Trabant, C., **Berglund, H.**, Mencin, D., Carter, J., Casey, R., *et al.*
53. Seismic Networks in the Cloud. **Franke, M.**, Capitani, G., Radman, S. M.

High-frequency Ground Motion Measurements, Assessments and Predictions [Poster] (see page 1214)

22. Combined Effect of Brittle Off-Fault Damage and Fault Roughness on Earthquake Rupture Dynamics. **Thomas, M. Y.**, Bhat, H. S.
23. Estimation of Kappa (κ_0) and Associated Uncertainties in Iran Using Broadband Inversion Method. **Davatgari Tafreshi, M.**, Pezeshk, S.
27. How Well We Are Predicting High-Frequency Response Spectra for the CEUS? **Graizer, V.**
24. Student: Lateral Variations of Attenuation in the Crust of Alaska Using Lg Q Tomography. **Mahanama, A.**, Cramer, C. H.
28. Separating Broad-Band Site Response From Single-Station Seismograms. **Zhu, C.**, Cotton, F., Kawase, H., Bradley, B. A.
25. Stochastic Finite-fault Ground Motion Simulation of the 2021 Mw5.9 Woods Point Earthquake: Facilitating Local Probabilistic Seismic Hazard Assessment. **Tang, Y.**, Mai, P.
26. Student: Understanding the Origin of High-Frequency Ground Motions of Earthquakes in California and Nevada. **Chatterjee, A.**, Trugman, D. T., Lee, J., Hirth, G., Tsai, V. C.

Legacy Seismic Data Collections: The Present State of and Future Outlook for Data from the Past [Poster] (see page 1219)

55. Historical Nuclear Event and Collapse Data From the Livermore Nevada Network Between 1979- 1992. **Price, A.**, Rodd, R. L.
56. Revisiting Earth's Inner Core: Historical Data Using Modern Approaches. **Ringler, A.**, Lee, T. A., Anthony, R. E., Wilson, D. C.

Monitoring Climate Change With Seismology [Poster] (see page 1221)

65. Student: Changing Climate and Microseismic Noise in Alaska. **John, S.**, West, M. E.
63. Estimation of First-Year Sea Ice Thickness With Seafloor Distributed Acoustic Sensing Using Flexural-Gravity Waves From Environmental and Anthropogenic Sources. **Baker, M. G.**, Abbott, R. E.
66. Student: Ross Ice Shelf Micro-Icequakes and Ocean Swell Induced Seismicity. **McGhee, E. A.**, Aster, R. C.
64. Using Distributed Acoustic and Temperature Sensing to Characterize the Rapidly Changing Nearshore Arctic Ocean (PEMDATS). **Stanciu, A.**, Frederick, J. M., Baker, M. G., Abbott, R. E., Conley, E. W., *et al.*

Normal Faults: From Source to Surface [Poster] (see page 1233)

89. Student: A Semi-Automated Algorithm for Fault Displacement Profile Extraction. **Quintana, M.**, Rodriguez, A., Chadly, D., Oskin, M. E.

90. Student: Across-Scales Co-Seismic Deformation and Fault Scarp Morphology From the 1954 Dixie Valley-Fairview Peak Earthquake Sequence. **Andreuttiova, L.**, Hollingsworth, J., Vermeesch, P., Mitchell, T.
88. The Rocks That Did Not Fall: A Multidisciplinary Analysis of Near-Source Ground Motions From an Active Normal Fault. **Trugman, D. T.**, Brune, J., Kent, G., Smith, K., Louie, J., *et al.*

Seismology for the Energy Transition [Poster] (see page 1252)

69. Baseline Seismic Monitoring Survey for UKGEOS Glasgow Geothermal Production Using DAS. **Holmgren, J. M.**, Werner, M. J., Butcher, A., Kendall, J., Chambers, J., *et al.*
70. Seismic Imaging, Full-Waveform Inversion and Inverse-Scattering. **Wu, R.**, Zheng, Y.
68. Simulating Time-Lapse Seismic Monitoring of Geologic Carbon and Hydrogen Storage With a Stress-Dependent Rock Physics Model. **Creasy, N.**, Gao, K., Huang, L., Gross, M., Gasperikova, E., *et al.*
67. Vector Double-Beam Characterization for Discrete Fractures in Geological Carbon Storage Sites. **Zheng, Y.**, Parsons, J., Hu, H., Huang, L.

Seismology's Role in Assessing Volcanic Hazard at Multiple Time Scales [Poster] (see page 1255)

46. 20-Year Seismic Run-Up to the 2015-2016 Eruption of Volcan Momotombo, Nicaragua, and Final Acceleration by Adjacent 2014 m6.1 Tectonic Earthquake. **McCausland, W.**, Tenorio, V., Navarro, M., Strauch, W., White, R. A.
47. Anomaly Detection and Image Spectrometry in Assesing Multitemporal Activity of the Turrialva Volcano, Costa Rica, and La Palma, Spain. **Benito Oterino, M.**, Rejas, J., Marchamalo Sacristán, M., Bonatti, J.
40. Geodetic Measurements Reveal Time-Averaged Surface Deformation in the Valles Caldera. **Maier, N.**, Grapenthin, R., Newman, A., Donahue, C., Lindsey, E., *et al.*
41. Student: Linking Deep Long Period Earthquakes to Magmatic Processes Underlying Mauna Kea. **Scholz, K. J.**, Townsend, M., Thomas, A. M.
43. Repeating Low-Frequency Earthquakes Near Wrangell Volcano, Alaska. **Wech, A.**, Newton, T., Thomas, A. M.
42. The Hawai'i Magmatic System Resolved by High-Resolution Traveltime Tomography. **Biondi, E.**, Zhu, W., Li, J., Ross, Z. E., Zhan, Z.
45. Student: Two Decades of Seismicity at Mount St. Helens. **Hirao, B. W.**, Thomas, A. M., Zhang, H., Schmandt, B., Thelen, W. A.

Single-station Passive Exploration Methods: Status and Perspectives [Poster] (see page 1262)

95. Dynamic Characteristics Assessment and 3D Site Effects Analyses of Earth Dams Based on Ambient Noise Measurements. **Verret, D.**
92. High-Resolution Imaging of the Firn Layer in Antarctic Near the West Antarctic Ice Sheet Divide Camp. **Qin, L.**, Nakata, N., Zhang, Z., Qiu, H., Karplus, M. S., *et al.*
93. Seismic Energy Partition Applied to Dispersion Diagrams of Surface Waves. **Piña-Flores, J.**, Cárdenas-Soto, M., García-Jerez, A.
91. Strong Ground Motion Variation due to Local Complex Geology During the Earthquake of September 19, 2017 (Mw 7.1). **Cárdenas-Soto, M.**, Sánchez-González, J., Martínez-González, J., Cifuentes-Nava, G., Escobedo-Zenil, D., *et al.*
94. The Use of the H/V Ratio for Back-Calculation of Normalized Shear Modulus G/g0. **Karray, M.**, Gul, O., Chiaradonna, A., Sezer, A.

Transforming our Seismological Community through Inclusive Mentorship and Diverse Narratives [Poster] (see page 1283)

87. An Online "Careers Module" to Recruit Undergraduate Students Into the Geoscience Workforce With Universal Design for Learning Approaches. **Sumy, D. F.**, Houlton, H. R., Smith, J. C.
86. Three Years In: Reflections on Successes, Challenges, and Next Steps for an Employee-Led Diversity, Equity, and Inclusion Working Group at a National Lab. **Carr, C. G.**, Crumley, R. L., Creasy, N., Ranasinghe, N., Kintner, J., *et al.*

USGS National Seismic Hazard Models: 2023 and Beyond [Poster] (see page 1303)

122. Analyses and Implications of Deformation Models of the U.S. National Seismic Hazard Model 2023. **Hatem, A. E.**, Briggs, R. W., Pollitz, F. F., Field, E. H., Milner, K. R.
125. Evaluating Spatial Smoothing for the 2023 USGS National Seismic Hazard Model. **Llenos, A. L.**, Michael, A. J., Moschetti, M. P., Savran, W. H.
124. Evaluation and Integration of Seismic Directivity Models for the USGS National Seismic Hazard Model. **Withers, K. B.**, Moschetti, M. P., Powers, P. M., Petersen, M. D., Graves, R. W., *et al.*
120. Student: Ground Motion Model for Small-to-Moderate Potentially Induced Earthquakes using Machine Learning Algorithms. **Alidadi, N.**, Pezeshk, S.
121. Hybrid Empirical Ground-Motion Models with Simulation-based Site Amplification Factors for the Island of Hawaii. **Pezeshk, S.**, Haji-Soltani, A.
127. The 2023 Update of the Alaska National Seismic Hazard Model: Overview and Sensitivities. Powers, P. M., **Altekruse, J. M.**
126. Updating the Crustal Seismic Sources for the 2023 National Seismic Hazard Model for Alaska. **Haeussler, P. J.**, Bender, A., Powers, P. M., Koehler, R., Brothers, D. S.
128. USGS NSHM Hazard Tool. **Girot, D. L.**, Powers, P. M.
123. Student: Using Geodetically-Derived Strain Rates in Future US National Seismic Hazard Models. **Castro-Perdomo, N.**, Johnson, K. M., Maurer, J., Materna, K.

Presenting author is indicated in bold.

Time	*202B/C*	*203*	*204*	*208A*
	Site-specific Modeling of Seismic Ground Response: Are We Quantitative Enough to Predict? (see page 1263)	**New Methods and Models for More Informative Earthquake Forecasting (see page 1228)**	**Understanding and Managing Induced Seismicity (see page 1284)**	**Advances in Probabilistic Seismic Hazard Analysis and Applications (see page 1121)**
8:00 AM	Spectral Decomposition of Ground Motions in New Zealand using the Generalized Inversion Technique. **Zhu, C.**, Bradley, B. A., Bora, S.	The Roles of Coseismic Slip and Afterslip in Driving On-fault Aftershock Distributions: An Analysis of Behaviourally-varied Continental Case Studies. **Churchill, R. M.**, Wermer, M., Biggs, J., Fagereng, A.	Early Oil Production in Oklahoma and California and Its Possible Relationship to Local Earthquake Activity. **Ebel, J. E.**, Valencius, C. B., Krones, J. S.	STUDENT: 2020 National Seismic Hazard Model of Norway. Ghione, F., **Oye, V.**
8:15 AM	Obtaining Site Effect-Free Hard-Rock Time Series in Japan From Surface Recordings based on the Generalized Inversion Technique. **Pilz, M.**, Cotton, F., Zhu, C., Nakano, K., Kawase, H.	A-Positive: An Improved Estimator of the Earthquake Rate That Is Robust Against Catalog Incompleteness. **van der Elst, N.**	INVITED: Integrating High Resolution Crustal Stress Maps and Seismicity Catalogs to Study Injection-Induced Earthquake Sequences in Oklahoma. **Lundstern (Lund Snee), J.**, Zoback, M. D.	INVITED: The 2022 New Zealand National Seismic Hazard Model. **Gerstenberger, M. C.**, Bora, S., Bradley, B. A., Kaiser, A. E., Nicol, A., *et al.*
8:30 AM	STUDENT: Ground Motion Model for Predicting Significant Duration Constrained by Seismological Simulations. **Pinilla-Ramos, C.**, Abrahamson, N. A., Kayen, R. E., Phung, V., Castellanos-Nash, P.	A Decade of Prospective Evaluations of 1-Day Seismicity Forecasts for California: First Results. **Bayona, J. A.**, Herrmann, M., Savran, W. H., Maechling, P. J., Marzocchi, W., *et al.*	Cooperative Seismic Monitoring & Earthquake Response for Saltwater Injection Operations in Texas. **Pascale, A.**, Reynolds, T.	A Comprehensive Probabilistic Seismic Hazard Assessment for Mexico. **Kraner, M. L.**, Yang, W., Shabestari, K., Mahdyiar, M., Shen-Tu, B., *et al.*
8:45 AM	STUDENT: Searching for Empirical Nonlinear Site Response Applicable to Greater Vancouver, British Columbia. **Gomez Jaramillo, N.**, Molnar, S., Ghofrani, H.	Question-driven Ensembles of Flexible ETAS Models. **Mizrahi, L.**, Nandan, S., Savran, W. H., Wiemer, S., Ben-Zion, Y.	En Echelon Faults Reactivated by Wastewater Disposal Near Musreau Lake, Alberta. **Schultz, R.**, Park, Y., Aguilar Suarez, A., Ellsworth, W. L., Beroza, G. C.	Probabilistic Analysis of Seismic Hazard in the Dominican Republic Considering Hybrid Models of Zones and Faults and Including the Local Effect on the Expected Motion. **Germoso, C.**, Aracena, J., *et al.*
9:00 AM	STUDENT: Characterization of Nonlinear Soil Behavior in a Systematic Manner at Japanese KiK-Net Sites and Correlation With Geological and Geotechnical Parameters. **Loviknes, K.**, Bergamo, P., Fäh, D., Cotton, F.	INVITED: Overcoming the Achilles' Heel of the Foreshock Traffic Light System. **Gulia, L.**, Wiemer, S., Biondini, E., Vannucci, G., Enescu, B.	Causative Fault and Seismogenic Mechanism of the 2010 Suining M5.0 Earthquake in Sichuan Basin (China) from Joint Modeling of Seismic and InSAR Data. **Ni, S.**, Gu, W.	The GEM Global Mosaic of Hazard Models: Improvements Since Its First Release and Challenges Ahead. **Pagani, M.**, Johnson, K., Villani, M., Chandrasekhar, S., Styron, R. H., *et al.*
9:15–10:30 AM	Poster Break			

Time	*208B*	*208C*	*209C*
	Subduction Zone Structure From Trench to Arc (see page 1272)	**Understanding Earth Systems with Fiber-optic Cables (see page 1293)**	**Detecting, Locating, Characterizing and Monitoring Non-earthquake Seismoacoustic Sources (see page 1155)**
8:00 AM	INVITED: Improved Quantification of the Volume and Distribution of Water in Incoming Upper Oceanic Crust of Subduction Zones Using Long Offset Streamer Data. **Becel, A.**, Acquisto, T., Shillington, D. J., Cruz Atienza, V., Hagemeier, A., *et al.*	INVITED: Temperature Sensing With DAS for Fiber-Optic Oceanography. **Williams, E. F.**, Ugalde, A., Martins, H. F., Becerril, C. E., Callies, J., *et al.*	Using Seismic Methods to Monitor Bedload Transport Along a Desert Environment Ephemeral Tributary. **Bilek, S.**, McLaughlin, J., Cadol, D., Laronne, J.
8:15 AM	Structural Variations and Seismogenic Character of the Hikurangi Margin, New Zealand. **Van Avendonk, H. J.**, Gase, A. C., Bangs, N. L.	Potential of Ocean Bottom Distributed Acoustic Sensing for Seismic Ocean Thermometry. **Shen, Z.**, Wu, W.	STUDENT: Generating Green's Functions for Use in Seismic Monitoring of Debris Flows Using the Ambient Seismic Field. **Conner, A. E.**, Thomas, A. M., Allstadt, K., Collins, E., Thelen, W. A.
8:30 AM	INVITED: STUDENT: Fluids Control Along-Strike Variations in the Alaska Seismogenic Zone. **Wang, F.**, Wei, S., Elliott, J., Freymueller, J. T., Drooff, C., *et al.*	STUDENT: High-Resolution Imaging of Submarine Structures and Ocean Microseism Sources With Distributed Acoustic Sensing. **Fang, J.**, Yang, Y., Williams, E. F., Biondi, E., Zhan, Z.	Incorporating Numerical Landslide Models Into Broadband Synthetic Seismogram Simulations of Large, Rapid Landslides. **Allstadt, K.**, Collins, E., Mangeney, A., George, D., Peruzzetto, M., *et al.*
8:45 AM	Imaging the Taltal Segment in Northern Chile: Tectonic Implications Inferred from Seismicity Distribution, Local Earthquake Tomography and Moment Tensor Calculations. **Leon-Rios, S.**, Reyes-Wagner, V., Calle-Gardella, D., Comte, D., Roecker, S., *et al.*	Observing Slow-Slip Fault-Activation Processes Using DAS. **Eaton, D. W.**, Wang, C., Ma, Y., Maji, V.	Classifying Landslide Seismic Signals With Unsupervised Machine Learning From Multiple Locations. **Smith, K.**, Huang, H.
9:00 AM	STUDENT: P-Wave Attenuation Structure and Melting Processes of the Tonga-Lau Mantle Wedge. **Zhang, Y.**, Wei, S., Byrnes, J. S. S., Tian, D., Wang, F., *et al.*	Measuring Instrument Response and Self-Noise Level of Telecommunication-Fiber-Optic DAS Arrays. **Zhai, Q.**, Zhan, Z.	Rapid Seismic Assessment of Potentially Tsunamigenic Landslides. **Karasözen, E.**, West, M. E.
9:15–10:30 AM	Poster Break		

Time	*202B/C*	*203*	*204*	*208A*
	Site-specific Modeling of Seismic Ground Response: Are We Quantitative Enough to Predict? (see page 1263)	**New Methods and Models for More Informative Earthquake Forecasting (see page 1228)**	**Understanding and Managing Induced Seismicity (see page 1284)**	**Advances in Probabilistic Seismic Hazard Analysis and Applications (see page 1121)**
10:30 AM	STUDENT: Evaluating Alternative Approaches to Model Local Site Effects in Physics-Based Ground-Motion Simulations: Insights From Small-Magnitude Earthquakes Recorded in Canterbury, New Zealand. **Kuncar, F.**, Bradley, B. A., de la Torre, C. A., Lee, R. L.	STUDENT: Earthquake Magnitude Prediction Using a Machine Learning Model. **Berman, N.**, Zlydenko, O., Gilon, O., Bar Sinai, Y.	Seismogenic Fault Characterization of the Quinton Sequence in East Oklahoma. **Ogwari, P. O.**, Walter, J., Xiaowei, C., Woelfel, I., Thiel, A., *et al.*	The 2022 Revision of National Seismic Hazard Model (NSHM) for New Zealand: Candidate Ground-Motion Models (GMMs) and Associated Hazard Sensitivities. **Bora, S.**, Bradley, B. A., Manea, E., Gerstenberger, M. C., Lee, R. L., *et al.*
10:45 AM	Are There Unique Parameters and Proxies for Predicting Site Response? Examples From Selected Borehole Strong Motion Arrays. **Wang, Z.**, Carpenter, S.	INVITED: Are Earthquake Sizes Correlated? Insight From Neural Temporal Point Process Models. **Cousineau, K. D.**, Brodsky, E. E., Shchur, O., Günnemann, S.	How Comparable Are Frequency-Magnitude Variations of Natural and Induced Seismic Sequences? A Comparison for the Tectonic Gyeongju and Induced Pohang Earthquake Sequences. **Muntendam-Bos, A. G.**, Woo, J., Ellsworth, W. L.	Correlation of Non-Ergodic Path Effects for Intensity and Ground- Motion Data. Abrahamson, N. A., **Sung, C.**
11:00 AM	Estimating the Earthquake Site Response From Ambient Noise Using the SSRh Approach: Overview, Application and Comparison With Other Techniques. **Perron, V.**, Rischette, P., Buscetti, M., Hollender, F.	Modelling and Model Performance Assessment of the Spatiotemporal Development of Event Rates and Event Clustering for Induced Seismicity in the Groningen Gas Field. **Kraaijpoel, D. A.**, Weits, R. N., Osinga, S., Aben, F. M., Pluymaekers, M. P. D., *et al.*	Annual Seismic Hazard and Risk Forecasting for the Groningen Gas Field: Public Domain SHRA by the Geological Survey of the Netherlands. **Osinga, S.**, Kraaijpoel, D. A., Aben, F. M., Pluymaekers, M. P. D., Vogelaar, B. B. S., *et al.*	Regionally Adaptable Ground-Motion Models for Subduction Seismicity in New Zealand. **Manea, E.**, Bora, S., Kaiser, A. E., Gerstenberger, M. C., Hutchinson, J.
11:15 AM	Using Microtremor-Based Horizontal-to-Vertical Spectral Ratios to Improve Linear Site Response Predictions in the Sacramento-San Joaquin Delta Region of California. **Buckreis, T. E.**, Wang, P., Brandenberg, S. J., Stewart, J. P.	A Test of the Earthquake Gap Hypothesis in Mexico: The Case of the Guerrero Gap. **Husker, A.**, Werner, M. J., Bayona, J. A., Santoyo, M. A., Corona-Fernandez, R.	Evolution of Short-Term Seismic Hazard in Alberta, Canada, From Induced and Natural Earthquakes: 2011–2022. **Reyes Canales, M.**, Yusifbayov, J., van der Baan, M.	A Nonergodic Ground-Motion Model for Japan. **Zengin, E.**, Abrahamson, N. A.
11:30 AM	Quantifying Site Amplification for Seismic Hazard in a Complex Shallow Basin: Case Study of the Wellington Basin, New Zealand. **Kaiser, A. E.**, Manea, E., de la Torre, C. A., Hill, M., Wotherspoon, L., *et al.*	STUDENT: Using Multi-Resolution Grids and MCC-F1 Curve to Improve Aftershock Forecast Testability. **Khawaja, M.**, Asayesh, B. M., Hainzl, S.	Lessons Learned From Monitoring of Reservoir Triggered Seismicity in Tectonically Stable and Seismically Active Areas of Vietnam. **Lizurek, G.**, Leptokaropoulos, K., Staszek, M., Nowaczyńska, I., Tymińska, A.	Development of Non-ergodic Ground-Motions Model for Induced Seismicity by Considering Field-Specific Source and Site Effects. **Lavrentiadis, G.**, Oral, E., Asimaki, D.
12:30–2:00 PM	Awards Luncheon and Presidential Address			

Time	*208B*	*208C*	*209A*	*209B*	*209C*
	Subduction Zone Structure From Trench to Arc (see page 1272)	**Understanding Earth Systems with Fiber-optic Cables (see page 1293)**	**Tectonics and Seismicity of Stable Continental Interiors (see page 1277)**	**Opportunities and Challenges for Machine Learning Applications in Seismology (see page 1239)**	**Detecting, Locating, Characterizing and Monitoring Non-earthquake Seismoacoustic Sources (see page 1155)**
10:30 AM	Converted-Wave Reverse Time Migration Imaging in Subduction Zone Settings. **Langer, L.**, Pollitz, F. F., McGuire, J. J.	INVITED: Strategies for Passive DAS Data Analysis at the Edge. **Martin, E. R.**, Issah, A., Tourei, A., Paulus, S., Pearl, B., *et al.*	Seismicity Triggering by Stress Transfer of Recent Strong (M>6.0) Earthquakes in Greece. **Papadimitriou, E.**, Karakostas, V.	Pickblue: Seismic Phase Picking for Ocean Bottom Seismometers With Deep Learning. Bornstein, T., Lange, D., Münchmeyer, J., Woollam, J., **Rietbrock, A.**, *et al.*	Landslide Monitoring with a Local Infrasound Array in Barry Arm, Alaska. **Lyons, J. J.**, Collins, B., Haney, M., Staley, D., Toney, L.
10:45 AM	Multi-Resolution Imaging the Downdip Extent of the Subduction Megathrust. **Abers, G. A.**, Daly, K. A., Mann, M. E.	STUDENT: Fiber-Optic Monitoring of the Vadose Zone. **Yang, Y.**, Shen, Z., Fu, X., Adams, K. H., Zhan, Z.	Seismicity and Seismotectonics in the Kefalonia Transform Fault Zone (KTFZ), Greece. **Karakostas, V.**, Papadimitriou, E.	STUDENT: Phasehunter: Seismic Wave Onset Time Determination Through Probabilistic Deep Learning Regression. **Novoselov, A.**, Williams, J., Beroza, G. C., Pace, J.	The Land, Air, and Water Signature of Large Calving Events at Barry Glacier, Alaska. **West, M. E.**, Davy, G., Gridley, J., Haney, M., Johnson, P., *et al.*
11:00 AM	STUDENT: The Comparison of Depth-Dependent Seismic Azimuthal Anisotropy Beneath Alaska-Aleutian and Cascadia Subduction Systems. **Liu, C.**, Wu, M., Zhang, S., Sheehan, A. F., Ritzwoller, M. H.	Lighting Up Down Under: Passive Imaging of Urban Melbourne Shallow Subsurface Using Distributed Acoustic Sensing. **Lai, V.**, Miller, M. S., Jiang, C., McQueen, H.	Did You Feel It 50 Years Ago? the 1969 M7.9 Cape Saint Vincent Earthquake. Marreiros, C., Alves, P., Carrilho, F., Oliveira, C. S., **Custodio, S.**	INVITED: STUDENT: Calibrated Uncertainty Estimates for Deep Learning-Based Phase Arrival Time Estimates. **Armstrong, A. D.**, Baker, B., Koper, K. D.	STUDENT: An Unsupervised Machine-Learning Approach to Understanding Seismicity at an Alpine Glacier. **Sawi, T. M.**, Holtzman, B. K., Walter, F., Paisley, J.
11:15 AM	Imaging the Rivera and Cocos Plates Shape in Western Mexico From Local Seismicity Studies. **Nunez-Cornu, F. J.**, Suarez-Plascencia, C., Nuñez, D.	STUDENT: Near-Surface Characterization Using Distributed Acoustic Sensing and Ambient Seismic Noise in an Urban Area: Granada, Spain. **Li, Y.**, Spica, Z., Perton, M., Gaite, B., Ruiz-Barajas, S.	STUDENT: Revealing Activate Fault Structures in the Slow-Deforming Region of Iberia by Applying Deep Learning Techniques to Dense Seismic Recordings. **Neves, M.**, Peng, Z., Custódio, S., Chai, C., Maceira, M.	Ditingtools and Ditingbox: Seismic Big Data Processing via Edge and Cloud Computing. Zhao, M., Xiao, Z., Chen, S., **Zhang, M.**, Zhang, B.	Using Seismoacoustic Modeling to Infer Source Parameters of the 2020 Beirut Explosion. **Burgos, G.**, Guillot, L., Gainville, O., Vergoz, J.
11:30 AM	Physical Properties of the Mantle Beneath Patagonia From Surface and Body Wave Tomography. **Ben Mansour, W.**, Wiens, D. A.	STUDENT: Love Wave Ambient-Noise Imaging of Urban Subsurface Velocity Structures: Exploiting the Potential of Horizontally Orthogonal DAS Array. **Ji, Q.**, Luo, B., Biondi, B.	The 2022-23 Reno, Northern Alberta Earthquake Sequence. Kao, H., **Bent, A. L.**, Mayeda, K., Roman-Nieves, J. I., Cassidy, J. F.	Neural Mixture Model Association of Seismic Phases. Ross, Z. E., **Zhu, W.**, Azizzadenesheli, K.	Single-Channel Infrasound Detection Using Machine Learning. **Albert, S. A.**, Hale, J., Pankow, K. L.
12:30–2:00 PM	Awards Luncheon and Presidential Address				

Time	*202B/C*	*203*	*204*	*208A*
	ShakeMap-related Research, Development, Operations, Applications and Uses (see page 1257)	**Exploiting Explosion Sources: Advancements in Seismic Source Physics (see page 1185)**	**Understanding and Managing Induced Seismicity (see page 1284)**	**Advances in Probabilistic Seismic Hazard Analysis and Applications (see page 1121)**
2:00 PM	ShakeMap: An Update. **Worden, C. B.**, Engler, D. T., Thompson, E. M., Wald, D. J.	STUDENT: Joint Regional Waveform, First Motion Polarity, and Surface Displacement Inversion Using a Layered Elastic Model With Topography for North Korean Nuclear Explosions. **Chi-Duran, R.**, Dreger, D. S., Rodgers, A. J.	INVITED: Fluid Injection Induced Seismic and Aseismic Slip From a Coupled Poroelastic Stress Change and Rate-State Fault Model. **Liu, Y.**, Deng, K., Verdecchia, A., Harrington, R.	Why Does PSHA Overpredict Historically Observed Shaking Data? **Salditch, L.**, Gallahue, M., Neely, J. S., Stein, S., Abrahamson, N. A., *et al.*
2:15 PM	Dynamic Generation of Shaking Maps for Post-Event Response in New Zealand. **Kaiser, A. E.**, Horpool, N., Goded, T., Chadwick, M., Charlton, D., *et al.*	An Overview of the Rock Valley Direct Comparison Project. **Walter, W. R.**, Snelson, C. M., Abbott, R. E., Zeiler, C.	Combining 3D Dynamic Rupture Modeling and Thermo-Hydro-Geomechanical Modeling Towards Physics-Based Induced Earthquake Simulations. **Ulrich, T.**, Habibi, R., Gabriel, A., *et al.*	INVITED: The First National Earthquake Risk Model for Switzerland. **Wiemer, S.**, Marti, M., Papadopoulos, A., Danciu, L.
2:30 PM	Shakemap-Eu: A European Seismological Service and a Laboratory for Collaborative Research and Capacity Building. **Faenza, L.**, Cauzzi, C., Michelini, A., Lauciani, V., Clinton, J., *et al.*	Evaluating the Efficacy of Inverting Local-Scale, High Frequency Seismograms for Effective Source Mechanisms Using Various Source Assumptions. **Poppeliers, C.**	STUDENT: Modelling Induced Seismicity in the Hengill Geothermal Field. **Ritz, V. A.**, Rinaldi, A. P., Mizrahi, L., Kristjánsdóttir, S., Castilla, R., *et al.*	Characterizing Seismic Risk Across Canada. **Hobbs, T. E.**, LeSueur, P., Journeay, J. M.
2:45 PM	ShakeMap4-Web: Visualizing the ShakeMap4 Products Using a Web App. **Jozinović, D.**, Lauciani, V., Bruni, S., Faenza, L., Michelini, A.	Implications of Local Wave Propagation Effects on the Performance of P/S Source Discriminants Using High-Frequency Simulations of a Chemical Explosion and Small Earthquake. **Pitarka, A.**, Walter, W. R., Pyle, M. L.	STUDENT: Deep Learning Phase Pickers: How Well Can They Detect Induced Seismicity? **Lim, C.**, Lapins, S., Segou, M., Werner, M. J.	Uses and Misuses of the Frequency-magnitude Distribution of Earthquakes. **Wyss, M.**
3:00 PM	INVITED: Migrating Global ShakeMap to the Cloud. **Haynie, K. L.**, Hunsinger, H., Hearne, M., Worden, B.	Shallow Soil Response to an Explosion With Geophones and Distributed Acoustic Sensing. **Viens, L.**, Delbridge, B. G.	Shake, Squeeze, and Rumble: Geophone, Hydrophone, and Microphone Observations and Physics of Engineered Geothermal System-Induced Hhz Microearthquakes. **Malin, P. E.**, Leary, P. C., Heikkinen, P. J.	Does the Logic Tree Hide the Forest? Quantifying Uncertainties in Predicted Risk for Individual Model Settings in the Induced-Seismicity Hazard and Risk Analysis of the Groningen Gas Field. **Aben, F. M.**, Osinga, S., Kraaijpoel, D. A., Pluymaekers, M. P. D.
3:15 PM–4:30 PM	Poster Break			

Time	*208B*	*209A*	*209B*	*209C*
	Structure and Properties of Subducting Slabs and Deep Earthquakes (see page 1269)	**Tectonics and Seismicity of Stable Continental Interiors (see page 1277)**	**Opportunities and Challenges for Machine Learning Applications in Seismology (see page 1239)**	**Detecting, Locating, Characterizing and Monitoring Non-earthquake Seismoacoustic Sources (see page 1155)**
2:00 PM	INVITED: From the Lab to the Slab: Transformational Faulting at High Pressure and Temperature in Fe-Rich Olivine and Implications for Deep-Focus Earthquakes. **Officer, T.**, Xu, M., Yu, T., Dillman, A. M., Kohlstedt, D. L., *et al.*	INVITED: Exploring the Relationship Between Subsurface Structure and Seismicity for the Eastern United States. **Chai, C.**, Ammon, C. J., Maceira, M., Herrmann, R. B.	Semiai Seismic Detection and Picking: An Application to Active and Passive Seismic Data for the Tomography of the Stromboli Volcano Island. **Gammaldi, S.**, Zhuowei, X., Barberi, G., Yang, W., Patanè, D.	Infrasonic Noise From Lava Eruptions at Nyiragongo Volcano, D.R. Congo. Barrière, J., **Oth, A.**, Subira, J., Smets, B., d'Oreye, N.
2:15 PM	STUDENT: Numerical Study on Phase Transformation Induced Material Fracture. **Sindhusuta, S.**, Chi, S., Foster, C.	Fault Reactivation Potential in Intraplate North America, From Major Seismic Zones to 3D Gravity Imaging of the Sparta, NC Epicentral Zone. **Levandowski, W.**	STUDENT: Developing a Seismicity Catalog at Mayotte With Deep-Learning-Based Picking and Phase Association. **McBrearty, I. W.**, Retailleau, L., Beroza, G. C.	End-to-End Numerical Simulation of a Bolide's Reentry, Impact, Cratering, Fireball and Cloud Generation: Local and Global Consequences. **Ezzedine, S. M.**, Syal, M., Dearborn, D., Miller, P.
2:30 PM	INVITED: A Weak Subducting Slab at Intermediate Depths Below Northeast Japan. **Delbridge, B. G.**, Houston, H., Burgmann, R., Kita, S., Asano, Y.	INVITED: The 2020 Mw 5.1 Sparta, North Carolina, USA Earthquake: Surface Deformation and Paleoseismicity of the Little River Fault. **Figueiredo, P. M.**, Bohnenstiehl, D. R., Merschat, A. J., *et al.*	Magma Movement Revealed by Unsupervised Spectral Feature Characterization of Seismicity at Axial Seamount. **Wang, K.**, Waldhauser, F., Tolstoy, M., Wilcock, W., Sawi, T. M., *et al.*	The Upcoming Re-Entry of the Osiris-Rex Return Capsule: Plans for a Coordinated Seismo-Acoustic Observational Campaign. Silber, E. A., **Albert, S. A.**, Berg, E. M., Bowman, D. C., Dannemann Dugick, F. K.
2:45 PM	Subduction Zone Events Around Japan and Wavefield Anomalies - Structure Beyond Tomography. **Kennett, B. L. N.**, Furumura, T.	Seismic Quiescence in the Rome Trough: Implications for Earthquake Potential and Crustal Structure. **Carpenter, S.**, Bubeck, A., Hickman, J. B., Schmidt, J. P., Wang, Z., *et al.*	Medium Changes and Source Diversity Revealed by Unsupervised Machine Learning. Steinmann, R., Seydoux, L., Shapiro, N., **Campillo, M.**	STUDENT: Feature Engineering and Clustering for Single-Station Seismic Waveform Classification in an Urban Environment. **Thomas, A.**, Ranadive, O., van der Lee, S.
3:00 PM	STUDENT: Influence of a Dipping Anisotropic Slab on Shear Wave Splitting in Japan. **Appini, S.**, Creasy, N., Thomsen, L., Zheng, Y.	Analyses of Balanced Rocks to Constrain Ground Motions in the Eastern U.S. **Pratt, T. L.**, McPhillips, D., Lindberg, N. S.	Mutual Information Between Seismic and Geodetic Data Revealed with Machine Learning in Mexico. **Seydoux, L.**, Steinmann, R., de Hoop, M. V., Campillo, M.	Development of a Cots-Based Platform for Real-Time Seismic and Acoustic Vehicle Detection and Characterization. **Marcillo, O.**, Chai, C., Maceira, M.
3:15 PM–4:30 PM	Poster Break			

Time	*202B/C*	*203*	*208A*
	ShakeMap-related Research, Development, Operations, Applications and Uses (see page 1257)	**Exploiting Explosion Sources: Advancements in Seismic Source Physics (see page 1185)**	**New Observations and Modeling of Triggered Seismicity (see page 1231)**
4:30 PM	INVITED: STUDENT: Aggregate Behavior Analysis of Ground Motion Distributions and Their Effects on Loss Estimation. **Engler, D. T.**, Jaiswal, K., Ganesh, M.	Seismic Source Characterization and Screening for Three Large Mining Events in Sweden, Northwest Russia, and the Eastern United States. **Alvizuri, C. R.**, Kvaerna, T., Dando, B.	Observations of Triggering of Earthquakes and Tremor in Mexico by Remote Earthquakes. **Gonzalez-Huizar, H.**, Velasco, A. A.
4:45 PM	Developing and Implementing an International Macroseismic Scale (IMS) for Earthquake Engineering, Earthquake Science, and Rapid Damage Assessment. **Wald, D. J.**, Goded, T., Hortacsu, A., Loos, S., Spence, R.	Seismic Characterization of the Explosive Subevents in the 2022 Hunga-Tonga Volcanic Eruption Using Joint Moment Tensor Inversion. **Thurin, J.**, Tape, C.	Earthquake Triggering in the Context of 2019 Ridgecrest Earthquake Sequence. **Ghosh, A.**, Zhou, Y.
5:00 PM	STUDENT: Real-Time Ground Shaking Maps Reconstructions With a Hybrid ShakeMap Implementation. **Fornasari, S.**, Pazzi, V., Costa, G.	Examination of the Debate on the 12 May 2010 Low-Yield Nuclear Test. **Zhang, M.**, Wen, L.	Sea level Changes Affect Seismicity Rates in a Hydrothermal System Near Istanbul. **Martínez-Garzón, P.**, Beroza, G. C., Bocchini, G., Bohnhoff, M.
5:15 PM	Ground Motion Processing Software at the U.S. Geological Survey: New Collaborations and Contributions. **Thompson, E. M.**, Aagaard, B. T., Hearne, M., Ferragut, G., Parker, G. A., *et al.*	Theoretical Investigations of Earth- and Sea-Earth Coupled Very-Long Period Atmospheric Waves. **Okal, E. A.**	STUDENT: New Insights From Two 2022 Large Magnitude Earthquake Events Occurring Closely in Space and Time in Abra, Northern Philippines. Aurelio, M. A., **Catugas, S. A.**, Dianala, J. B., Ramirez, A. G., Lagmay, A. A.
5:30 PM	U.S. Geological Survey's ShakeMap Atlas 4.0 and AtlasCat. **Marano, K. D.**, Hearne, M., Jaiswal, K., Thompson, E. M., Worden, C. B., *et al.*	Influence of Model Perturbation on Regional Ground Motions – a Numerical Experiment. **Saikia, C. K.**, Zhou, R., Whittaker, S., Antolik, M., Modrak, R., *et al.*	Earthquakes in the Shadows: Why Aftershocks Occur in Surprising Locations. **Hardebeck, J. L.**, Harris, R.
6–7 PM	Joyner Lecture		
7–8 PM	Joyner Reception		

Time	*208B*	*208C*	*209A*	*209B*
	The Future of Tsunami Science, Preparedness and Response (see page 1205)	**Above the Seismogenic Zone: Fault Damage and Healing in the Shallow Crust (see page 1107)**	**Tectonics and Seismicity of Stable Continental Interiors (see page 1277)**	**Opportunities and Challenges for Machine Learning Applications in Seismology (see page 1239)**
4:30 PM	The Potential for Sediment Transport During Earthquake-Tsunami Multi-Hazards. **Mason, B.**, Qiu, Y.	INVITED: Modeling the Viscoplastic Deformation of Damaged Rocks Using a Perzyna Viscoplasticity Law. **Sone, H.**, Talukdar, M.	Long-Lived Aftershocks in the New Madrid Seismic Zone and the Rest of the Stable North America. **Liu, M.**, Chen, Y.	STUDENT: Pisgan: Physics-Informed Seismic Waveform Generator Trained With a Large-Scale Seismic Benchmark Dataset of China. **Kang, B.**, Gu, C., Zhong, Y., Wu, P., Lu, X.
4:45 PM	History and Future of Tsunami Warning System: Toward Timely, Accurate and Reliable Systems. **Satake, K.**	STUDENT: Spatiotemporal Variations in Shallow Damage Zone Mechanisms Along the Southern Elsinore Fault. **Fullriede, A.**, Gaston, H., Griffith, A., Rockwell, T.	Machine-Learning Detection and Waveform Correlation to Probe New Madrid Seismogenesis. **DeShon, H. R.**, Walter, J., Nuepane, P., Ng, R.	INVITED: Rapid 3D Seismic Waveform Modeling using U-Shaped Neural Operators (U-NO). **Kong, Q.**, Rodgers, A. J., Yan, Y., Ross, Z. E., Azizzadenesheli, K., *et al.*
5:00 PM	Sensor Monitoring and Reliable Telecommunications (SMART) Cables: Integration of Environmental Sensors Into Submarine Telecommunications Cables for Improved Tsunami Science and Response. **Fouch, M. J.**, Lentz, S., Avenson, B.	INVITED: STUDENT: High-Resolution Fault Zone Imaging With Distributed Acoustic Sensing. **Atterholt, J.**, Zhan, Z., Yang, Y., Zhu, W.	Update on the Seismicity and Tectonics of the 2021-2022 Elgin-Lugoff, South Carolina Earthquake Sequence. **Jaume, S.**, Howard, S., White, S.	Ground Motion Models: Comparison Between Traditional Regression-based Techniques and Machine Learning Approaches. **Luzi, L.**, Felicetta, C., Lanzano, G.
5:15 PM	Caribe Wave: A Decade of Tsunami Exercises for Validating the Tsunami Warning System for the Caribbean and Adjacent Regions. **Soto, S.**, von Hillebrandt-Andrade, C., Vanacore, E. A., *et al.*	STUDENT: Inferring Fault Zone Structure from the Azimuthal Variation in the Stacked P-spectra of Earthquake Clusters. **Neo, J.**, Huang, Y., Yao, D.	High-Resolution Imaging of the Elgin-Lugoff Earthquake Swarm Sequence in South Carolina Using a Dense Seismic Nodal Array. **Peng, Z.**, Chuang, L. Y., Mach, P., Frost, D., *et al.*	Applications of Machine Learning to Earthquake Early Warning and Ground Motion Prediction Equations. **Chan, C.**, Chang, C., Chang, C.
5:30 PM	Analyzing Behavioral Responses Caught on Video to the Hunga Tonga–Hunga Ha'apai Eruption, Atmospheric Shockwaves, and Tsunami. **McBride, S. K.**, Sumy, D. F., Krippner, J., Santos Hernandez, J., Damby, D., *et al.*	Do Faults Localize as They Mature? Insight From 17 Continental Strike-slip Surface Rupturing Events (Mw > 6.1) Measured by Optical and Radar Imaging Data. **Milliner, C. W. D.**, Avouac, J., Aati, S., Dolan, J., Hollingsworth, J.	Exploring Rupture Models for the 1 September, 1886, Charleston, South Carolina, Earthquake. Bilham, R., **Hough, S. E.**	Fully Automated DAS Signal Denoising Using Weakly Supervised Machine Learning and Spliced Optical Fibers. Lapins, S., Butcher, A., **Werner, M. J.**, Kendall, J., Hudson, T., *et al.*
6–7 PM	Joyner Lecture			
7–8 PM	Joyner Reception			

Poster Sessions

Above the Seismogenic Zone: Fault Damage and Healing in the Shallow Crust [Poster] (see page 1108)

71. Student: A New 3-D Model of the Newport-Inglewood Fault at Long Beach, California, and Its Implication for Earthquake Rupture Propagation and Hazards. **Toghramadjian, N.**, Shaw, J. H.
70. An Experimental Perspective on the Formation of Pulverized Rocks During Transient Coseismic Dilatancy. **Griffith, A.**, Smith, Z. D.
72. Combining Dark Fiber and Seismic Interferometry to Measure Physical Properties of Faults in the Imperial Valley. **Matzel, E.**, Templeton, D., Morency, C., Ajo-Franklin, J.
74. Investigating the Causative Mechanisms of Widely Distributed Fracturing Around the 2020 m6.5 Monte Cristo Range Earthquake Rupture, Nevada USA. **Elliott, A. J.**, Hatem, A. E., Trexler, C., Koehler, R., Dee, S., *et al.*
73. Seismic Identification and Location of Blind, Near-Vertical Faults in Granitic Rocks With Application to Wide-Ranging Geologic Settings. **Catchings, R. D.**, Goldman, M., Chan, J. H., Sickler, R. R., Samuel, D. A.
68. Student: The Competitive Effects of On-fault Normal Stress and Off-fault Seismic Velocity Change on Seismic Cycles. **Zhai, P.**, Huang, Y.
67. The Healing Process and Healing Time Estimate of the Longmenshan Fault After the Wenchuan Earthquake. **Zhao, J.**, Niu, A.
69. Student: The Palos Verdes Fault Damage Zone From the Seafloor to the Basement: Revealed Using Multi-Resolution Controlled Source Seismic Reflection Datasets. **Alongi, T.**, Brodsky, E. E., Kluesner, J. W., Brothers, D. S.

Detecting, Locating, Characterizing and Monitoring Non-earthquake Seismoacoustic Sources [Poster] (see page 1158)

78. Explosive Energy Release of Gas Emission Craters in the Russian Arctic and Their Associated Seismic Magnitudes: Estimates and Implications. **Carr, C. G.**, Carmichael, J. D.
80. Full Moment Tensor and Source Characteristic of Remote Nuclear Explosions at the Lop Nor Test Site, China. **Kintner, J.**, Modrak, R., Nelson, P., Saikia, C. K.
77. Monitoring Vehicle Traffic With Seismoacoustic Data Using Machine Learning. **Chai, C.**, Marcillo, O., Maceira, M., Park, J., Arrowsmith, S., *et al.*
82. Near-regional to Local Event Location Using Infrasound Arrival Times From Single Sensors. **Koch, C.**, Dannemann, F. K., Berg, E. M.
83. Nonlinear Infrasound Propagation Simulation by Hydrodynamic Models. **Kim, K.**, Vorobiev, O., Vitali, E.
75. Seismic Records of Human Induced Avalanche Signals at Taos Ski Valley. **Ringler, A.**, Schlumpf, M., Anthony, R. E.
79. Seismo-acoustic Observations From the 26 September 2022 Nord Stream Events. **Heyburn, R.**, Selby, N. D., Nippress, A., Green, D. N.
76. Understanding the Relationships Between Seismic Parameters and Landslide Characteristics From the Exotic Seismic Events Catalog. **Collins, E.**, Allstadt, K.
81. Using Dynamic Time Warping to Assist Conventional Waveform Cross-correlation. **Ramos, M. D.**, Tibi, R., Young, C., Emry, E. L., Conley, A. C.

Exploiting Explosion Sources: Advancements in Seismic Source Physics [Poster] (see page 1188)

99. Bayesian Optimal Experimental Design for Seismic and Infrasound Monitoring Networks. **Catanach, T. A.**, Callahan, J. P., Villarreal, R.
87. Comparing Near and Far Field DAS Fiber Response for Monitoring Applications. **Stanciu, A.**, Young, B. A., Poppeliers, C.
88. Developing a Predictive Capability for P-to-S Discriminants. **Alfaro-Diaz, R. A.**
94. Discriminating S-Wave Polarization Angles of Explosive and Earthquake Sources With 2D and 3D Simulations. **Nelson, P.**, Creasy, N.
93. End-to-end Numerical Simulation of Explosion Cavity Creation, Cavity Circulation Processes, Subsurface Gas Transport, and Prompt Atmospheric Releases. **Ezzedine, S. M.**, Velsko, C., Vorobiev, O., Antoun, T., Walter, W. R.
89. Evolution of the Seismic Source From Underground Explosions With Depth-of-burial. **Larmat, C.**, Lei, Z., Euser, B., Rougier, E.
96. Gopher 2022: Close-in Signatures From Shallow Explosions in Unconsolidated Environments. **Euler, G. G.**, Baca, E. V., Beardslee, L. B., Boukhalfa, H., Bourret, M., *et al.*
97. High Resolution Imagery of the Source Physics Experiment at Rock Valley. **Matzel, E.**, Pitarka, A., Walter, W. R.
86. Identifying and Characterizing Local Seismicity With a Dynamic Correlation Processor. **Pyle, M. L.**, Aguiar, A. C.
85. Joint Inversion of Seismic and Acoustic Time Series for Time-Variable Source Parameters of the Buried Chemical Explosion at the Source Physics Experiment Phases II: Dry Alluvium Geology. **Berg, E. M.**, Poppeliers, C.
98. Quantifying the Impact of Modeling Uncertainty on the Performance of Waveform-Based Bayesian Inference for Seismic Monitoring. **Catanach, T. A.**, Villarreal, R.
92. Simulations and Predictions of the Source Physics Experiments Phase III (RVDC): Impact on Explosion Monitoring & Discrimination. **Ezzedine, S. M.**, Vorobiev, O., Walter, W. R., Wagoner, J., Antoun, T.
95. Thermochemical Modeling of a Series of Cavity-Decoupled Explosions at the Nevada National Security Site. **McClurg, M. S.**, Euler, G. G., Bradley, C. R.
84. Student: Time-Varying Source Processes of the Source Physics Experiment Explosions. **Pippin, J. E.**, Kintner, J., Cleveland, M. K., Ammon, C. J., Modrak, R., *et al.*
91. Transportable Absolute Yields of Underground Nuclear Explosions. **Delbridge, B. G.**, Phillips, S., Kintner, J., Carmichael, J. D.
90. Update on an Automated Method to Improve Seismic Array Observations. **Rowe, C. A.**, Stanbury, C. W., Webster, J. D., Gammans, C. N. L.

The Future of Tsunami Science, Preparedness and Response [Poster] (see page 1206)

1. Empowering Young People in Haiti to Play Key Roles in Disaster Risk Reduction. **Mentor-William, G.**, Previl, W., Pierre, J., Dévilmé, G., Stenner, H., *et al.*
5. Expedited Tsunami Warning Alerts Along the US West Coast Using Earthquake Early Warning Tools. **Williamson, A. L.**, Allen, R. M.
9. Implementing Tsunami Ready: An Overview of the Community Awareness and Preparedness Program in the Caribbean and Adjacent Regions. Bayouth García, D., **von Hillebrandt-Andrade, C.**, Soto, S., Brome, A., Aliaga, B.
7. Integrating Volcanic Sources into the Tsunami Warning System for the Caribbean and Adjacent Regions. **von Hillebrandt-Andrade, C.**, Clouard, V., Sostre-Cortés, J. J., Vanacore, E. A., Angove, M., *et al.*
6. Korea Meteorological Administration's Tsunami Forecast and Early-warning System Improvements for Tsunami Preparedness. **Lee, H.**, Jo, T., You, S., Lee, J., Hwang, E., *et al.*
3. Ongoing Work by a Powell Center Working Group on Tsunami Sources for Hazards Mitigation in the United States. **Ross, S. L.**, Eble, M. C., Kyriakopoulos, C., Lynett, P. J., Nicolsky, D. J., *et al.*
8. Operationalization of Koeri Tsunami Warning System in the Eastern Mediterranean and Its Connected Seas: A Decade of Achievements and Challenges. **Ozener, H.**, Cambaz, M., Turhan, F., Güneş, Y., Deniz Hisarlı, P., *et al.*
2. State of California's Third Generation Tsunami Hazard Maps for Emergency Response Planning. **Graehl, N. A.**, Bott, J., Patton, J. R., Wilson, R. I., LaDuke, Y., *et al.*
10. Transforming Research Into Resiliency: The Intersection of Science and Emergency Management in Tsunami Preparedness, Mitigation, Education, and Response Efforts in Washington State. **Tappero, E.**, DiSabatino, D., Dixon, M.
4. Tsunami Sources in the Caribbean and Eastern US. **Powell Center Working Group on Tsunami Sources**.

New Methods and Models for More Informative Earthquake Forecasting [Poster] (see page 1230)

106. Investigating the Fault Slip Behavior of an Extensional Faults System Through the Use of a Novel 3D Stochastic Declustering Algorithm: The Alto Tiberina Fault Case Study. **Murru, M.**, Console, R., Montuori, C., *et al.*
104. Real Time Gutenberg-Richter b-Value Estimation for an Ongoing Seismic Sequence: An Application to the 2022 Marche Offshore Earthquake Sequence (Ml 5.7 Central Italy). **Spassiani, I.**, Taroni, M., Murru, M., Falcone, G.
105. Time Series Analysis From a High-Definition Italian Catalog: Seismicity Rates and Gutenberg-Richter b-Value Evaluation. **Falcone, G.**, Pastoressa, A., Murru, M., Taroni, M., Console, R., *et al.*

New Observations and Modeling of Triggered Seismicity [Poster] (see page 1232)

101. Instantaneous and Delayed Triggering of Tremor Along the Parkfield-Cholame Section of San Andreas Fault. **Peng, Z.**, Shelly, D. R., Taira, T., Meng, H., Aiken, C., *et al.*
102. Remote Dynamic Triggering of Intermediate-Depth Earthquakes in the Mariana Subduction Zone Following the 2012 Indian Ocean Earthquakes. **Price, A.**, Wiens, D. A.
100. Step-Like Motion Associated With Near-Source ScS Phase From the 2011 Tohoku-Oki Earthquake: Potential Triggering by ScS. **Park, S.**, Kanamori, H., Rivera, L.
103. Strong-Motion Records of the M6.4 Ferndale Earthquake on 20 December 2022 and Its Aftershocks. **Haddadi, H.**, Hagos, L., Schleicher, L. S., Dhar, M., Steidl, J., *et al.*

Opportunities and Challenges for Machine Learning Applications in Seismology [Poster] (see page 1242)

125. A Curated Pacific Northwest Seismic Dataset. Ni, Y., Hutko, A., Skene, F., **Hartog, R.**, Denolle, M. A., *et al.*
133. Student: A Dataset of Regional Earthquake Waveforms. **Aguilar, A. L.**, Beroza, G. C.
126. Automatic Seismic Monitoring Using Regional and Local Temporary Networks in Colombia. Castillo, E., **Prieto, G. A.**
129. Classifying Central and Eastern U.S. Seismic Events in the Earthscope Database Using Machine Learning and Lg-Wave Spectral Ratios. **Schmidt, J. P.**, Carpenter, S., Wang, Z.

119. Comparative Study of the Performance of Seismic Waveform Denoising Methods. **Tibi, R.**, Young, *. J., Porritt, R. W.
128. Earthquake Detection in Subduction Zones: Transfer Learning With Amphibious Data From the Alaska Amphibious Community Seismic Experiment. **Barcheck, G.**, Abers, G. A., Roland, E., Schwartz, S. Y.
124. Effective U.S. Event Classification Through Model Ensembling. **Linville, L.**
130. Employing Machine Learning Pickers for Routine Global Earthquake Monitoring With SeisComP: What are the Benefits and How Can We Quantify the Uncertainty of Picks? Saul, J., **Tilmann, F.**, Bornstein, T., Münchmeyer, J., Beutel, M.
121. Student: Ensemble Learning for Earthquake Detection and Phase Picking: Methodology and Application. **Yuan, C.**, Ni, Y., Lin, Y., Denolle, M. A.
123. Expanding Wavelet-Transform-Based Neural Network Denoiser Performance Using Utah Regional Data. **Quinones, L. A.**, Tibi, R.
127. Student: Exploring Generalized Relationships Between Rockfalls and Seismograms. **Kharita, A.**
132. Student: Implementation and Testing of EQTransformer to Detect Microseismicity Near the Alpine Fault, South Island, New Zealand. **Pita-Sllim, O. D.**, Townend, J., Chamberlain, C. J., Warren-Smith, E.
131. Latent Representations of Seismic Waves With Self-Supervised Learning. **Clements, T.**, Cochran, E. S., Yoon, C. E., Baltay, A. S., Minson, S.
134. Machine Learning Models for Urban Image Analysis: Building Height Estimation. Ureña-Pliego, M., Martínez-Marín, R., González-Rodrigo, B., **Benito Oterino, M.**, Marchamalo-Sacristán, M.
122. Student: Reconstructing Seismograms via Self-Supervised Learning: Methodology and Applications. **Yuan, C.**, Lin, Y., Denolle, M. A., Shaw, J. H.
120. Seismicity Behavior Within Rock Valley Illuminated by a Dense Nodal Deployment and Machine-Learning Methods. **Pennington, C. N.**, Kong, Q., Walter, W. R.

ShakeMap-related Research, Development, Operations, Applications and Uses [Poster] (see page 1259)

62. Proposed Updates to the Finite-Fault Model Depiction for Shakemap Computations. **Goldberg, D. E.**, Wald, D. J., Thompson, E. M., Worden, C. B.
64. Re-Computation of the Mw6.4 on January 7, 2020 Shakemap Using Fault Characterization. Huerfano, V. A., **Rivera, J.**, Torres, M.
63. Shakemap Implementation and Daily Operations in the Puerto Rico Seismic Network (PRSN). Huerfano, V. A., **Torres, M.**, Rivera, J.
65. Shakemap's Sensitivity to Origin Parameters in the Presence of Dense Instrumental Data. **Hutko, A.**, Hartog, R.
66. The USGS Shakecast Application: An Update on Shakemap's Sibling. **Lin, K.**, Wald, D. J.
61. Waveform Benchmarking Comparisons for Selected Earthquake Records Processed With Prism, Sara, and Gmprocess. **Schleicher, L. S.**, Thompson, E. M., Hagos, L., Brody, J., Steidl, J., *et al.*

Site-specific Modeling of Seismic Ground Response: Are We Quantitative Enough to Predict? [Poster] (see page 1265)

46. A Bayesian Kriging Approach for Site Period Mapping of Santiago Basin, Chile. **Mitra, D.**
45. Student: Classification of Aleatory Variability and Epistemic Uncertainty for Probabilistic Seismic Hazard Analyses. **Liou, I. Y.**, Abrahamson, N. A.
55. Delineating Shallow Sedimentary Structure of Matanuska and Eagle River Areas, Alaska, by Inversion of Horizontal-Vertical Spectral Ratio From Local Earthquakes. **Dutta, U.**, Zhao, Y., Yang, Z., Holland, J.
54. Determining Shear Wave Velocities at a Deep Sediment Site in the Mississippi Embayment Using Rayleigh Wave Dispersion From Active and Passive Sources. **Farajpour, Z.**, Langston, C. A., Islam, S., Opara, C., Kaip, G. M.
56. Examining Differences in Basin Amplification Between Interface and Intraslab Subduction Sources From the Kanto Region in Japan. **Smith, J.**, Moschetti, M. P., Thompson, E. M.
57. Local Eikonal Tomography Using Ambient Noise Records From a Dense Array of Seismic Nodes Deployed in a Sediment-Filled, Deeply Incised Valley With an Extreme Subsurface Topography (Rhône Valley, Southern France). **Olivar-Castaño, A.**, Ohrnberger, M., Pilz, M., Händel, A., Boué, P., *et al.*
52. mHVSR-Based 3D Modeling of a Late Quaternary Paleovalley System From Italy: Influence of Internal Facies Architecture on Resonance Frequencies and Shear Wave Velocities. **Di Martino, A.**, Sgattoni, G., Amorosi, A.
47. Student: Seismic Hazard Potential in Punjab Province of India Through Site Response Analysis and Its Liquefaction Assessment. **Srivastava, A.**, Nath, S., Madan, J.
53. Site Effects and Soil-Structure Resonance Study in Santo Domingo (East) and Santiago De Los Caballeros (Dominican Republic) Using Microtremors and Active Seismic Sources. **Cordoba, D.**, Germoso, C., Sandoval, S., Montoya, T., Gonzalez, O., *et al.*
50. Student: Site Specific Seismic Hazard, Vulnerability, Risk and Damage Potential Modelling of Bangladesh With Seismic Hazard Microzonation for the Cities of Dhaka and Chittagong. **Biswas, A.**, Nath, S.
51. Student: Site-Specific Seismic Hazard Assessment of Northeast India Including Bhutan With Special Emphasis on Microzonation Studies of Imphal City. **Madan, J.**, Nath, S., Srivastava, A.
58. Statistical Green's Function Method Based on Spectral and Phase Characteristics Estimated by Generalized Inversion Technique for Japanese Data -Case Simulations for the 2011 Ibaraki-Oki Earthquake and Hypothesized Nankai-Trough Megathrust Event. **Nakano, K.**, Kawase, H.
48. Student: Towards a 3D Geotechnical Model of the Greater Beirut Area for Seismic Ground Motion Prediction. **Safa, M.**, Bertrand, E., Brax, M.
49. What Constitutes Knowledge of "Site Response"? the Embayment Seismic Excitation Experiment 2022 (ESEE2022). **Langston, C. A.**, Kaip, G. M., Farajpour, Z., Islam, S., Opara, C.
59. WUS and CEUS Graizer's Ground Motion Models and Anelastic Attenuation of Response Spectral Accelerations. **Graizer, V.**

Structure and Properties of Subducting Slabs and Deep Earthquakes [Poster] (see page 1270)

28. A Micro-Mechanism for the Nucleation of High-Pressure Phases During Transformational Faulting in Olivine. **Wang, Y.**, Shi, F., Officer, T., Yu, T., Xu, M., *et al.*
29. Along-Strike Variation in Aftershock Productivity of Intermediate-Depth Earthquakes in Japan. **Chu, S.**, Beroza, G. C.
27. Complex Martinique Intermediate Depth Earthquake Hints at Early Atlantic Break-Up. Lindner, M., **Rietbrock, A.**, Bie, L., Goes, S.
23. Student: Exploring Remote Triggering of Intermediate-depth Earthquakes in Japan following the 2004 M9.1 Sumatra and 2012 M8.6 Indian Ocean Earthquakes. **Mach, P.**, Zhai, Q., Neves, M., Peng, Z., Obara, K., *et al.*
25. Faulting in Deforming Natural Lherzolite at High Pressure and Temperature: Implications for Intermediate-Depth Earthquakes Generation in the Lower Seismic Zone. **Xu, M.**, Officer, T., Yu, T., Wang, Y.
26. Imaging Ore-Forming Fluids in Porphyry Copper Deposits Using Local Earthquake Tomography. **Comte, D.**, Palma, G., Vargas, J., Calle, D., Peña, M., *et al.*
22. Student: The Magnitude Difference Between Mainshocks and Their Largest Aftershock Increases With Depth for Shallow and Intermediate-Depth Earthquakes Within the Japan Subduction Zone. **Macy, K. P.**, Warren, L. M.
24. Volume Collapse Instabilities in a Phase Transformation Under High Pressure Yield a Double Couple Deep Earthquake Driven by the Pressure. **Markenscoff, X.**

Subduction Zone Structure From Trench to Arc [Poster] (see page 1274)

13. Student: Along-Strike Variations in Sub-Arc Melting Beneath the Alaska Peninsula. **Zhang, Z.**, Wei, S.
14. Student: Earthquake clustering and statistics at the Alaska Peninsula. **Jie, Y.**, Wei, S., Zhu, W.
18. Imaging the Marine Forearc Structure of the 2014 Iquique Earthquake Rupture Area Using Passive and Active Sources. **Reyes-Wagner, V.**, Leon-Rios, S., Calle-Gardella, D., Comte, D., Roecker, S., *et al.*
12. Student: Investigating Plate Interface Structure and Potential Splay Fault Geometry in the Southern Mw 9.2 1964 Great Alaska Earthquake Rupture Area Using a Dense Node Array. **Osasona, J. O.**, Worthington, L. L., Barcheck, G., Abers, G. A., Daly, K. A.
21. Student: Mantle Deformation in a Young Mountain Belt: Insights From Shear Wave Splitting in the Greater Caucasus. **Singh, A.**, Sandvol, E. A., Mackey, K., Martinetti, L., Nabelek, J., *et al.*
15. Receiver Function Imaging of the Complex Plumbing System Feeding Mount St. Helens, Washington. **Portner, D. E.**, Delph, J., Kiser, E., Abers, G. A., Levander, A.
20. Student: Seismic Attenuation Imaging in the Central Andes Using Local and Teleseismic Earthquake Spectra: Insights Into Fluid Migration in the South Amerian Lithosphere Above the Pampean Flat Slab. **Navarro-Aranguiz, A. P.**, Comte, D., Roecker, S., Maharaj, A.
16. Seismic Images of the Crustal Structure Beneath Cordillera Central and Cordillera Oriental, Dominican Republic. Núñez, D., **Córdoba, D.**
19. Seismological and Geodetic Investigations in the Atacama Region of Chile: Investigations of Links Between Plate Interface and Intermediate Depth Processes. González-Vidal, D., Moreno, M., **Tilmann, F.**, Baez, J., Ortega-Culaciati, F., *et al.*
11. Student: Subduction Segmentation Revealed by Full-Wave Ambient Noise Tomography of the Aacse Data. **Sassard, V.**, Yang, X.
17. The HIPER Project: An International Collaboration on the Ecuadorian Margin. Galve, A., **Rietbrock, A.**, Segovia, M., Ruiz, M., Meltzer, A., *et al.*

Tectonics and Seismicity of Stable Continental Interiors [Poster] (see page 1280)

36. Australia's AUS8 Seismotectonic Model – A Product of 30 Years of Continuous Improvements of Earthquake Hazard Data, Concepts and Techniques. **Borleis, E.**, Peck, W., Ninis, D.
33. Student: Detection of Seismic Events Near the Southern Anninghe Fault Using a Local Dense Array. **Song, J.**, Yang, H., Zi, J.

30. Student: Investigating the Seismicity of Yucatan, Mexico, Using Machine Learning Techniques. **Castro, J.**, Ortega, R., Gonzalez-Huizar, H., Carciumaru, D. D.
31. Mapping b-Values Based on Background Seismicity in the Korean Peninsula. **Jung, S.**, Son, M.
34. Southwest Australia Seismic Network (SWAN): Recording Earthquakes in Australia's Most Active Seismic Zone. **Miller, M. S.**, Pickle, R., Yuan, H., Zhang, P., Murdie, R., *et al.*
32. Student: Structural Setting and Seismogenesis Mechanism of the 16th September 2021 Luxian Ms6.0 in the Southern Sichuan Basin, China. **Zhang, W.**, He, D.
35. Student: Understanding the Focal Mechanism Distribution of Microseismicity in the Source Region of the 1886 M 7 South Carolina Earthquake. **Adeboboye, O. E.**, Peng, Z., Neves, M., Zhai, Q., Chen, W., *et al.*

Understanding and Managing Induced Seismicity [Poster] (see page 1287)

107. Student: Adaptive Spectrum Analysis for a Precise Attenuation Parameter Estimation on the Induced Seismicity Recorded at Puerto Gaitán (Colombia). **Guzmán, E.**, Molina, I., Prieto, G. A.
108. Student: Controlled-source Seismic Imaging of McMurdo Ice Shelf Near Williams Airfield. **Seldon, Y.**, Karplus, M. S., May, D., Young, T. J., Summers, P., *et al.*
109. Student: Data Mining Microseismicity Associated to the Blue Mountain Geothermal Site. **Gonzalez, L. F.**
110. High-Resolution Induced Earthquake Catalogs Reveal Non-Planar Faults Near Hydraulic Fracturing Wells in Canada and China. **Wang, R.**, Zhang, F., Chen, Y., Yang, D.
111. Induced Seismicity in Southeastern New Mexico. **Rubinstein, J.**, Woo, J.
112. Student: Investigating Complex Triggering in the Midland Basin, Texas, Using Converted Phases. **Rosenblit, J. M.**, De Shon, H., Savvaidis, A.
113. Student: Investigating the Triggering Mechanism of the 2019 Mw 5.0 Earthquake in the Weiyuan Shale Gas Field, China. **Zi, J.**, Yang, H., Su, J.
114. OhioNET: A Decade of Induced Seismicity Monitoring in Ohio. **Dade, S. L.**
115. Optimising Earthquake Detection Methods in Delaware Basin, Southeastern New Mexico. **Basu, U.**, Bilek, S., Litherland, M.
116. Student: Signatures of Congregated Injected Fluid in Weiyuan Shale Gas Field, Sichuan, China. **Abbas, A.**, Hongfeng, Y., Zi, J.
117. Time-Space Evolution of the Groningen Gas Field in Terms of b-Value: Insights and Implications for Seismic Hazard. **Gulia, L.**
118. Student: Variation of Earthquake Nucleation Length of Injection-induced Seismicity Under the (Aging) Rate and State Friction Law. **Tan, X.**, Lui, S.

Understanding Earth Systems with Fiber-optic Cables [Poster] (see page 1295)

43. Student: Constraining Antarctic Ice Sheet Properties using Distributed Acoustic Sensing Data from the South Pole. **Reid-McLaughlin, A. M.**, Karrenbach, M., Zhan, Z., Atterholt, J., Zhai, Q., *et al.*
39. Student: Earthquake Detection Using a Submarine DAS Array in Monterey Bay, California. **Gou, Y.**, Allen, R. M., Chen, L., Taira, T., Henson, I., *et al.*
40. Focal Mechanism Inversion With Distributed Acoustic Sensing. **Li, J.**, Zhu, W., Biondi, E., Zhan, Z.
41. How Close Are We to Integrating Fiber-Optic Distributed Acoustic Sensing in Earthquake Early Warning Systems? **Farghal, N. S.**, Saunders, J. K., Parker, G. A.
37. Student: Imaging Near-Coast Subsurface With Distributed Acoustic Sensing and Double Beamforming. **Miao, Y.**, Spica, Z.
42. Student: Imaging the Subsurface of Long Valley Caldera Through Converted Phases Recorded on a Distributed Acoustic Sensing Network. **Bird, E.**, Zhan, Z., Biondi, E., Zhu, W.
38. Laboratory Study of Coupling and Sensitivity of Optical Fiber Distributed Acoustic Sensing. **Donahue, C.**, Gao, K., Beardslee, L. B.
44. Synthetics for Stress, Strain and Rotation. **Herrmann, R. B.**

Thursday, 21 April 2022—Oral Sessions

Presenting author is indicated in bold.

Time	*202B/C*	*204*	*208A*	*208B*
	Network Seismology: Recent Developments, Challenges and Lessons Learned (see page 1223)	**Crustal Deformation and Seismic Hazard in Western Canada, Cascadia and Alaska (see page 1141)**	**Opportunities and Challenges in Source Modeling for Seismic Hazard Analysis (see page 1246)**	**Coseismic Ground Failure: Advances in Modeling, Impacts and Communication (see page 1138)**
8:00 AM	An Overview and Update on the Advanced National Seismic System (ANSS). **Barnhart, W.**, Wolfe, C.	STUDENT: Examining Possible Links Between Tectonic Tremor and Crustal Earthquakes on the Leech River Fault System in Northern Cascadia. **Bombardier, M.**, Cassidy, J. F., Dosso, S. E.	A New Earthquake Recurrence Model That Better Reflects the Strain Accumulation and Release Processes That Produce Earthquakes. **Neely, J. S.**, Salditch, L., Spencer, B. D., Stein, S.	Post-Earthquake Response Application: A New and Improved Method for Data Collection Using Arcgis Field Maps. **Thomas, K.**, Blair, J., Young, E., Dawson, T.
8:15 AM	ISC: Collaborating with ~150 Seismic Networks. **Storchak, D. A.**, Harris, H., Di Giacomo, D.	Geologic-Geodetic Block Modeling of Northwestern North America for Seismic Hazard Assessment of Western Canada. **Styron, R. H.**, Hobbs, T. E., Journeay, M., Lifton, Z. M., Bennett, S. E. K., *et al.*	Towards Objective Models of Locking on Partially Creeping Faults and Subduction Zones. **Funning, G. J.**	Insights From a New Global Coseismic Landslide Runout Length Dataset. Culhane, N., **Grant, A.**
8:30 AM	Error Estimates for Seismic Body Wave Delay Times in the International Seismological Centre's Bulletin. Nolet, G., **van der Lee, S.**	Geologic Evolution of the Denali Fault System and Associated Crustal Structure. **Miller, M. S.**, Waldien, T., Roeske, S. M.	INVITED: STUDENT: Augmenting Near-Source Probabilistic Seismic Hazard Analysis (PSHA) With North American Crustal Stress Field Data. **Frantzis, C.**, Lundstern, J., Schleicher, L. S., Bensi, M. T.	Updating Global Geospatial Liquefaction Models With a Focus on Feature Engineering. **Zhan, W.**, Baise, L. G., Moaveni, B.
8:45 AM	A One-Stop Shop for Network Status? Developing an Application for a Diverse Set of Users. **Ulberg, C. W.**, Marczewski, K., Hutko, A., Hartog, R.	STUDENT: Distribution and Focal Mechanisms of Incoming Plate Earthquakes Along the Alaska Subduction Zone. **Matulka, P.**, Wiens, D. A.	Accuracy of Finite Fault Slip Estimates in Subduction Zones with Topographic Green's Functions and Seafloor Geodesy. **Langer, L.**, Ragon, T.	STUDENT: Global Geospatial Modeling of Earthquake-Induced Soil Liquefaction Using a System of Voting Machine Learning Classifiers. **Asadi, A.**, Baise, L. G., Chatterjee, S., Zhan, W., Chansky, A., *et al.*
9:00 AM	The Effects of Seismic Network Modernization on Earthquake Detection and Analysis in Southern California. **Tepp, G.**, Stubailo, I., Yu, E., Alvarez, M. G.	Towards Adjoint Tomography of Northern Alaska. **Chow, B.**, Tape, C.	Dynamic Rupture Simulations on the Alpine Fault: Investigating the Role of Fault Geometry on Rupture Size and Behavior. **Lozos, J.**, Warren-Smith, E., Townend, J.	STUDENT: Integrating Regionalized Geotechnical Information Into the U.S. Geological Survey's Liquefaction Product Within a Bayesian Framework. **Engler, D. T.**, Thompson, E. M., Geyin, M., Maurer, B. W., Burgi, P. M., *et al.*
9:15–10:00 AM	Poster Break			

Time	*208C*	*209B*	*209C*
	Active Faults in the Caribbean and Central America (see page 1110)	**Crustal Imaging of High Seismic Hazard Regions (see page 1143)**	**Earthquake Preparation Across Scales: Reconciling Geophysical Observations With Laboratory and Theory (see page 1172)**
8:00 AM	INVITED: Earthquake Magnitude-Frequency Distributions in the Northern Caribbean Plate Boundary Using Combinatorial Optimization. Geist, E. L., **ten Brink, U. S.**	INVITED: Subduction Zone Interface Structure Within the Southern M9.2 1964 Great Alaska Earthquake Asperity: Constraints From Receiver Functions Across a Spatially Dense Node Array. **Onyango, E. A.**, Worthington, L. L., Schmandt, B., Abers, G. A.	What Controls the Characteristics of Compressive Failure and Accelerated Seismic Release? **Davidsen, J.**, Patton, A., Goebel, T. H. W., Kwiatek, G.
8:15 AM	Strain Partitioning Within the Caribbean-North America Transform Plate Boundary in Southern Haiti, Tectonic and Hazard Implications. **Calais, E.**, Symithe, S. J., de Lépinay, B.	3D Crust and Upper Mantle Velocity Structure of India and Surrounding Regions Using Rayleigh Wave Dispersion Analysis. **Dey, S.**, Ghosh, M., Mitra, S.	Complex Multi-Scale Preparatory Processes of Large Stick-Slip Events in Laboratory Experiments. **Kwiatek, G.**, Goebel, T. H. W., Martinez-Garzon, P., Ben-Zion, Y., Dresen, G.
8:30 AM	Earthquake Ruptures on Complex Fault Systems: Insights From Recent and Historical Earthquakes in Haiti. **Hough, S. E.**, Martin, S. S., Symithe, S. J., Briggs, R. W.	Ambient Seismic Noise for Imaging and Monitoring Volcán De Colima. **De Plaen, R. S. M.**, Márquez-Ramírez, V., Arámbula-Mendoza, R., Vargas-Bracamontes, D.	Towards Identifying Fault Heterogeneity Based on Nucleation of Large and Small Events: Insight From Simulations of Earthquake Sequences on Rate-and-State Faults. **Lapusta, N.**, Sudhir, K., Agajanian, M.
8:45 AM	INVITED: Rupture Segmentation of the August 14, 2021 Mw7.2 Nippes, Haiti, Earthquake Using Aftershock Relocation From a Local Seismic Deployment. **Douilly, R.**, Paul, S., Monfret, T., Deschamps, A., Ambrois, D., *et al.*	In Situ Vp/Vs Ratios During the 2019 Ridgecrest Earthquake Sequence. **Lin, G.**, Fan, W.	INVITED: Precursory Deformation in the Lab – Effects of Roughness, Loading Rate and Effective Pressure. **Dresen, G.**, Kwiatek, G., Wang, L., Guerin-Marthe, S., Ji, Y., *et al.*
9:00 AM	Postseismic Response to the 2021 Haiti Earthquake: Advanced Insar Analysis and Implications for the Triggered Fault Creep. **Vajedian, S.**, Maurer, J.	STUDENT: Site Amplification Variability in Yangon, Myanmar Tracked by Regional and Local Seismic Phases From a Dense Nodal Array. **Islam, M.**, Persaud, P., Thant, M., Win, K., Sandvol, E. A.	INVITED: The Seismological Signature of Earthquake Nucleation. **Cattania, C.**
9:15–10:00 AM	Poster Break		

Time	*202B/C*	*204*	*208A*	*208B*
	Network Seismology: Recent Developments, Challenges and Lessons Learned (see page 1223)	**Understanding and Modeling the Uncertainties in Earthquake Ground Motions (see page 1290)**	**Opportunities and Challenges in Source Modeling for Seismic Hazard Analysis (see page 1246)**	**Coseismic Ground Failure: Advances in Modeling, Impacts and Communication (see page 1141)**
10:00 AM	STUDENT: Evaluation of Machine Learning Assisted Earthquake Phase Detection Performance in Different Tectonic Regions and Environmental Noise on the Alaska Seismic Network. **Noel, S.**, West, M. E.	Between and Within-Site Variabilities: How Large Are They? How Far Can We Reduce Them? **Cotton, F.**, Zhu, C., Pilz, M., Haendel, A.	INVITED: Frequency-size Parameters as a Function of Dynamic Range - The Gutenberg-Richter b-Value for Earthquakes. **Geffers, G.**, Main, I. G., Naylor, M.	Determining Coseismic Landslide Hazard Using Regional-Scale Physics-Based Ground-Motion Simulation. **Castro-Cruz, D.**, Dahal, A., Lombardo, L., Tanyas, H., Mai, P.
10:15 AM	Deep Learning-based Detection of Explosions and Earthquakes in South Korea. **Woo, J.**, Park, Y., Ellsworth, W. L.	The Influence of Impedance-Ratio Distributions on 1D Linear Site Response Proxies. **Carpenter, S.**, Wang, Z.	Investigation of Spatiotemporal Variations in the Magnitude Distribution of Induced Seismicity Due to Natural Gas Production in the Groningen Field. **Kraaijpoel, D. A.**, Esteves Martíns, J. C., Osinga, S., *et al.*	STUDENT: Macro-Level Study of Seismically Induced Slope Stability in Kashmir Himalaya. **Sengupta, A.**, Nath, S.
10:30 AM	Routine $M_{w,\,coda}$ Calculation for Small Earthquakes in Utah. **Whidden, K. M.**, Cordova, A. G., Baker, B., Pankow, K. L., Mayeda, K., *et al.*	Constraining Between-Event Variability of Kinematic Rupture Scenarios: A Case Study of an Mw6.2 Earthquake in Central Italy. **Pacor, F.**, Cejka, F., Sgobba, S., Chiara, F., Valentova, L., *et al.*	Virtual Faults for PSHA. **LaForge, R.**	The Application of a Liquefaction Probabilistic Models to South Italy: A Case Study. **Faenza, L.**, Amoroso, S., Cianflone, G., Cinti, F. R., Dominici, R., *et al.*
10:45 AM	STUDENT: Improving the Detection of Microearthquakes Without Prior Events: Application to Large-N Arrays. **Singha Roy, K.**, Arrowsmith, S.	Physics-Based Broadband Ground Motion Simulations of M6.5 Scenario Earthquakes in Central and Eastern US, Including Surface Topography: Ground Motion Variability Related to Earthquake Rupture Characteristics. **Pitarka, A.**, Rodgers, A. J., *et al.*	STUDENT: PSHA for Lebanon Relying on an Interconnected Fault System. **El Kadri, S.**, Beauval, C., Brax, M., Klinger, Y.	How Do Creeping Landslides Respond to Earthquake Shaking? **Xu, Y.**, Lindsay, D., Burgmann, R., Fielding, E. J.
11:00 AM	The Marsquake Service: Facing Off-World Challenges for Seismic Networks. **Horleston, A. C.**, Clinton, J., Stähler, S. C., Ceylan, S., Giardini, D., *et al.*	STUDENT: Epistemic Uncertainty in Ground-Motion Prediction in the Indian Context: Evaluation of Ground-Motion Models (GMMs) for the Himalayan Region. **Sharma, S.**, Mannu, U., Bora, S.	Revisiting Seismic Hazard in Iran: Role of Stress Drop in Peak Ground Acceleration in a Zone of Immature Faulting. Kamalpour, M., **Salaree, A.**	The Great Alaska Inventory: A Digital Compilation of Ground Failures Triggered by the 1964 Great Alaska Earthquake. **Ellison, S. M.**, Allstadt, K., Thompson, E. M., Martinez, S., Baxstrom, K.
11:30 AM–12:30 PM	Plenary: Machine Learning for Real-time Monitoring (Panel Discussion)			
12:30–2:00 PM	Lunch Break			

Time	*208C*	*209A*	*209B*	*209C*
	Active Faults in the Caribbean and Central America (see page 1110)	**From Earthquakes to Plate Boundaries: Insights Into Fault Behavior Spanning Seconds to Millennia (see page 1191)**	**Crustal Imaging of High Seismic Hazard Regions (see page 1143)**	**Earthquake Preparation Across Scales: Reconciling Geophysical Observations With Laboratory and Theory (see page 1172)**
10:00 AM	The Societal Cost of Fault Uncertainties in the Caribbean Island of Hispaniola. **Farghal, N. S.**, Velasquez, J.	Strain rates in the Anatolia-Caucasus Region from Sentinel-I InSAR and GNSS, and Integration with Earthquake Catalogues. **Rollins, C.**, Wright, T. J., Maghsoudi, Y., Ou, Q., Lazecky, M., *et al.*	INVITED: Seismic Imaging of the Solfatara Volcano (Southern Italy) and Characterization of the Very Shallow Fluids Accumulation Zone. **Gammaldi, S.**, Ismail, A., Amoroso, O., D'Auria, L., Chiuso, T., *et al.*	The Complexity of Earthquake Generation in Nature: Beyond Cascade and Pre-Slip. **Martínez-Garzón, P.**, Poli, P.
10:15 AM	Towards an Updated Quaternary Fault Map of Puerto Rico. **Jobe, J. A. T.**, Briggs, R. W., Hughes, K., Joyce, J., Gold, R.	STUDENT: The Coseismic and Long-Term Roles of Earthquake Gates in Strike-Slip Faults. **Rodriguez Padilla, A. M.**, Herrera, V. F., Oskin, M. E., White, S.	3D Mapping of Scattering Attenuation for the Central Italy 2016–2017 Seismic Sequence. **Gabrielli, S.**, Akinci, A., De Siena, L., Del Pezzo, E., Buttinelli, M., *et al.*	Waveform Similarity and Differential Travel Times Illuminate a Spatial Coalescence of Foreshock Activity Prior to Fast Laboratory Earthquakes. **Bolton, C.**, Marone, C., Saffer, D., Trugman, D. T.
10:30 AM	Searching for Holocene Slip on the Cerro Goden Fault, Western Puerto Rico. **Turner, J.**, Levandowski, W.	STUDENT: Predicting Off-Fault Deformation Using Convolutional Neural Networks Trained on Experimental Strike-Slip Faults. **Ramos Sanchez, C. F.**, Cooke, M., Chaipornkaew, L., Visage, S., Elston, H., *et al.*	Tomography of Crustal Seismic Attenuation in Switzerland and Surrounding Regions: A New Input for the Next Generation of Seismic Hazard Models. **Lanza, F.**, Diehl, T. C., Eberhart-Phillips, D., Herwegh, M., *et al.*	Spatio-Temporal Localization of Seismicity in Relation to Large Earthquakes. **Zaliapin, I.**, Ben-Zion, Y.
10:45 AM	Newly Discovered Tsunami Deposit in Northwest Puerto Rico Supports a Pre-Columbian Megathrust Earthquake on the Puerto Rico Trench That Generated an Atlantic-Wide Tsunami. **Jaffe, B.**, Buckley, M., Watt, S., La Selle, S., Nasr, B. M., *et al.*	INVITED: Fault Coupling Controls Fine-Scale Fault Structure and Kinematics Along the San Andreas Fault. **Cheng, Y.**, Bürgmann, R., Allen, R. M.	3D Seismic Attenuation Model: Scattering and Absorption Imaging Beneath the Los Angeles Metropolitan Area. **Nardoni, C.**, Persaud, P.	The Evolving Tidal Sensitivity of the Seismicity Rate in the Decade Before the M7.1 Ridgecrest, California 2019 Earthquake. **Beauce, E.**, Poli, P., Waldhauser, F., Holtzman, B. K., Scholz, C.
11:00 AM	A Pre-Colombian Tsunami in Lesser Antilles ? Identification of the Source Using Sediment Deposits and Tsunami Modeling. **Cordrie, L.**, Feuillet, N., Gailler, A., Biguenet, M., *et al.*	Interplay of Seismic and Aseismic Slip on the San Andreas Fault Near San Juan Bautista, Central California. **Shaddox, H. R.**, Bürgmann, R., Bilham, R.	Attenuation of the South American Lithosphere. **Pasyanos, M. E.**, Assumpção, M.	Testing Earthquake Nucleation Length Scale in North-Central Oklahoma With Pawnee Aftershocks. **McLaskey, G.**, Wu, B. S.
11:30 AM–12:30 PM	Plenary: Machine Learning for Real-time Monitoring (Panel Discussion)			
12:30–2:00 PM	Lunch Break			

Time	202B/C	204	208A	208B
	Earthquake Early Warning Optimization and Efficacy (see page 1166)	**Understanding the Variability in Earthquake Stress Drop Measurements (see page 1297)**	**Constraining Seismic Hazard in the Cascadia Subduction Zone (see page 1133)**	**Deciphering Earthquake Clustering for the Better Understanding of Crustal Deformation Mechanisms (see page 1151)**
2:00 PM	STUDENT: False and Missed Alerts: A Performance Analysis of a Community-Engaged Earthquake Early Warning System. **Chandrakumar, C.**, Prasanna, R., Stephens, M., Tan, M., Holden, C.	Introduction and Update on the International SCEC/USGS Community Stress Drop Validation Study. **Abercrombie, R. E.**, Baltay, A. S., Chu, S., Taira, T.	A Comparison of Foraminiferal and Diatom-Based Transfer Function Estimates of Coseismic Subsidence During the 1700 Ce Earthquake Along the Oregon and California Coast. **Dura, T.**, Hemphill-Haley, E., Cahill, N., Kelsey, H. M., *et al.*	Aftershock Triggering and Spatial Aftershock Zones in Fluid-Driven Settings. **Davidsen, J.**, Karimi, K.
2:15 PM	The Use of Early Earthquake Warning in Hopsitals in Mexico: Safeguarding Vulnerable People. **Vaiciulyte, S.**, Novelo-Casanova, D., Husker, A.	Spectral Scaling Comparison and Validation Between Coda, GIT and Finite Fault Spectra for Ridgecrest, CA (3.3<Mw<6.9). Roman-Nieves, J. I., **Mayeda, K.**, Bindi, D., Morasca, P., Dreger, D. S., *et al.*	STUDENT: Investigating the Earthquake Rupture History of the Northern Cascadia Subduction Zone Using Lacustrine Diatoms, Lake Ozette, Washington, USA. **DePaolis, J.**, Dura, T., Brothers, D. S., Singleton, D., Sherrod, B.	Spatio-Temporal Dynamics of Earthquake Swarms in the Yellowstone Caldera. Angulo, M. V., **Florez, M. A.**, Sanabria-Gomez, J. D.
2:30 PM	Characterizing Earthquake Early Warning's Efficacy. **Wald, D. J.**, McBride, S. K., Reddy, E., Saunders, J. K., Vaiciulyte, S., *et al.*	Multi-scale Analyses of Ridgecrest Earthquake Stress Drop. **Chen, X.**, Yin, J., Pennington, C. N., Wu, Q., Zhan, Z.	Evaluating Turbidite Correlations for Paleoseismology. **Gomberg, J.**	INVITED: STUDENT: Ubiquitous Earthquake Dynamic Triggering in Southern California. **DeSalvio, N. D.**, Fan, W., Barbour, A. J.
2:45 PM	INVITED: Addressing Misconceptions Around Magnitude and Intensity to Inform Earthquake Early Warning Alerting Strategies. **Dolphin, G.**, de Jong, S., Droboth, J., Muturi, E.	INVITED: Assessing the Accuracy of Earthquake Stress Drop Estimation Methods for Complex Ruptures Using Synthetic Earthquakes. **Neely, J. S.**, Park, S., Baltay, A. S.	Searching for Empirical Links Between Shaking and Turbidity Current Generation in the Cascadia Subduction Zone. **Sahakian, V. J.**, Kilb, D., Chaknova, M., Cabrera De Leo, F., Ogston, A., *et al.*	STUDENT: Quantifying Space-time Earthquake Clustering on a Given Fault Network. **Bladis, N.**, Zaliapin, I.
3:00 PM	INVITED: STUDENT: Uses of the Myshake App in Earthquake Early Warning and Rapid Response. **Patel, S. C.**, Marcou, S., Allen, R. M.	Apparent Stress of Moderate Sized Earthquakes in Southern California. **Archuleta, R. J.**, Ji, C., Peyton, A.	Compilation and Assessment of Data Quality for Onshore and Offshore Paleoseismic Proxies of Great Cascadia Megathrust Rupture. **Staisch, L. M.**, Witter, R. C., Watt, J., Grant, A., Walton, M., *et al.*	Anatomy of a Fault Zone: Space-Time-Magnitude Patterns of Microseismicity in the San Jacinto Fault Zone, Southern California. **White, M. C. A.**, Ben-Zion, Y., Vernon, F. L.
3:15 PM–4:30 PM	Poster Break			

Time	208C	209A	209B	209C
	Active Faults in the Caribbean and Central America (see page 1110)	**From Earthquakes to Plate Boundaries: Insights Into Fault Behavior Spanning Seconds to Millennia (see page 1191)**	**Multi-scale Models for Seismic Hazard Analysis (see page 1222)**	**Numerical Modeling in Seismology: Developments and Applications (see page 1234)**
2:00 PM	Late Quaternary Paleoseismological Record of Large Earthquakes in the Lesser Antilles: Implications for Arc Segmentation and Long-Term Seismic Cycle of the Megathrust. **Seibert, C.**, Feuillet, N., Ratzov, G., Beck, C., Morena, P., *et al.*	Untangling Slab Geometry's Influences on the Megathrust Earthquake Cycle. **Biemiller, J.**, Staisch, L. M., Gabriel, A., May, D.	Multi-Scale Imaging of the Ridgecrest Area With Full-Wave Inversion of Regional and Dense Seismic Datasets. **Li, G.**	STUDENT: Modeling Intermittent Rupture in Fault Gouge Using Velocity-Strengthening Rate-and-State Friction with Flash Heating. **Liu, S.**, Lapusta, N., Rubino, V., Rosakis, A.
2:15 PM	20th-Century Interseismic Deformation in the Lesser Antilles Subduction Zone From Coral Microatolls. **Philibosian, B.**, Weil-Accardo, J., Feuillet, N.	Fast Crustal Slip Rates (Vertical and Horizontal) Revealed by Lidar Derived Topography Above the Subducted Chile Ridge, Patagonia. **De Pascale, G. P.**, Perroud, S.	STUDENT: Fusion of Multi-Resolution Seismic Tomography Maps Using Physics-Informed Probability Graphical Models. **Zhou, Z.**, Gerstoft, P., Olsen, K. B.	A Fundamental View on Implementation of the Material Interface in the Finite-Difference Modeling. **Moczo, P.**, Kristek, J., Kristekova, M., Valovcan, J., Galis, M., *et al.*
2:30 PM	General Subsidence of the Lesser Antilles Over a Decoupled Subduction Megathrust. Van Rijsingen, E. M., **Jolivet, R.**, Calais, E., de Chabalier, J., Robertson, R., *et al.*	Piecemeal Rupture of the Central Andes Subduction Zone Megathrust. **Carvajal, M.**, Gubler, A., Cisternas, M., Stewart, D., González, J., *et al.*	Fault Damage Zone Effects on Ground Motions During the 2019 Mw7.1 Ridgecrest, CA, Earthquake. **Olsen, K. B.**, Yeh, T.	Interactions Between Shallow Slow Slip Events and Megathrust Earthquakes Based on 3D Dynamic Earthquake-Cycle Modeling. **Meng, Q.**, Duan, B.
2:45 PM	Analysis and Proposal of Empirical Magnitude Scaling Relationships for Faults Seismic Potential in Central America. **Arroyo Solórzano, M.**, Benito Oterino, M., Alvarado, G. E., Climent, Á.	Coupling and Seismic Cycle Along the Hikurangi Subduction Zone. **Maubant, L.**, Frank, W. B., Wallace, L., Williams, C., Hamling, I., *et al.*	STUDENT: 3-D Broadband Modeling of Near-Field Ground Motions and Deformation in Dynamic Rupture Simulations of the 2019 Ridgecrest Earthquake Including Fault Zone and Fault Roughness Effects. **Schliwa, N.**, Gabriel, A., Ben-Zion, Y.	Three-Dimensional Distributional Finite-Difference Modelling of Elastic Wave Propagation in a Heterogeneous Earth. Masson, Y., **Lyu, C.**, Romanowicz, B. A.
3:00 PM	Potential Shallow Slip and Energy-Deficient Radiation During the 2022 m7.6 Coalcomán, Mexico Earthquake. **Melgar, D.**, Pérez-Campos, X., Ruiz-Angulo, A., Crowell, B. W., Bato, M. G., *et al.*	Deep Transient Deformation and Long-Distance Along-Slab Stress Interactions: The 2013 Seismic Activity and Slow Deformation Beneath Kamchatka and Okhotsk Sea. Rousset, B., Walpersdorf, A., Shapiro, N., **Campillo, M.**	3D Seismic Velocity Model for the Eel River Basin Region and Ground-Motion Simulations for the 2022 Mw6.4 Ferndale, California Earthquake. **Hirakawa, E.**, Graves, R. W., Parker, G. A., Aagaard, B. T.	Effect of Asymmetric Topography on Rupture Propagation Along Fault Stepovers. **Douilly, R.**
3:15 PM–4:30 PM	Poster Break			

Time	202B/C	208A	208B
	Earthquake Early Warning Optimization and Efficacy (see page 1166)	**Constraining Seismic Hazard in the Cascadia Subduction Zone (see page 1133)**	**Deciphering Earthquake Clustering for the Better Understanding of Crustal Deformation Mechanisms (see page 1151)**
4:30 PM	Building out the Earthquake Early Warning sites in the Pacific Northwest Seismic Network - If you build it, you can improve it. **Reusch, M.**	The Role of Transient Deformation in Interseismic Coupling in Cascadia. **Crowell, B. W.**	From Foreshock Outset to Aftershock Decay: High-resolution Analysis of a Recent Earthquake Sequence in the Ecuadorian Subduction Margin. Agurto-Detzel, H., **Rietbrock, A.**, Galve, A., Meltzer, A., Beck, S., *et al.*
4:45 PM	Optimizing Real-Time Gnss-Based Magnitude Estimation for Shakealert. **Murray, J. R.**, Ulberg, C. W., Santillan, M., Crowell, B. W., Melbourne, T. I.	USGS Tsunami Sources Powell Center Working Group on Tsunami Sources: Probabilistic Tsunami Hazard Assessment for the Cascadia Subduction Zone. **Patton, J. R.**, Eble, M. C., Kyriakopoulos, C., Lynett, P. J., Nicolsky, D. J., *et al.*	Linking Fault Roughness at Seismogenic Depths to Earthquake Behavior. **Page, M.**, Cochran, E. S., van der Elst, N., Ross, Z. E., Trugman, D. T.
5:00 PM	Real-Time Gnss Point Positioning for Shakealert. Melbourne, T. I., **Szeliga, W. M.**, Santillan, M., Scrivner, C.	STUDENT: Analyzing Recent Splay Fault Activity in the Cascadia Accretionary Wedge Using High-Resolution Seismic Reflection Data. **Ledeczi, A.**, Tobin, H., Watt, J., Lucas, M.	INVITED: Micro-Seismicity Clustering, Aftershock Decay and b-Values During Laboratory Fracture and Stick-Slip Experiments. **Goebel, T. H. W.**, Kwiatek, G., Davidsen, J., Thapa, N., Dresen, G.
5:15 PM	STUDENT: An Earthquake Early Warning System Validation Framework for Western Canada. **Nye, T.**, Sahakian, V. J., Schlesinger, A., Melgar, D., Babaeimahani, A., *et al.*	Designing or Upgrading a Seismic Network to Meet Specific Performance Criteria Using Array Modeling, a Case Study for Puget Sound Washington State. **Laporte, M.,** Perlin, M.	STUDENT: Why Do We Need New Models of Earthquake Occurrence? **Zaccagnino, D.**, Telesca, L., Doglioni, C.
5:30 PM	Combining Earthquake Early Warning Solutions From Different Algorithms: Application to Switzerland. **Jozinović, D.**, Massin, F., Böse, M., Clinton, J.	Challenges in Assessing Site-Specific Seismic Hazards in Cascadia. **Wong, I. G.**, Gray, B., Wu, Q., Zandieh, A., Bubeck, A., *et al.*	STUDENT: Seismic Magnitude Clustering Is Prevalent in Field and Laboratory Catalogs but Absent in Synthetic Catalogs. **Gossett, D. J.**, Brudzinski, M. R., Xiong, Q., Lin, Q., Hampton, J. C.

Time	208C	209A	209B	209C
	It's All About Relocation, Relocation, Relocation (see page 1215)	**From Earthquakes to Plate Boundaries: Insights Into Fault Behavior Spanning Seconds to Millennia (see page 1191)**	**Ground Truthing Multidimensional Site Response Analyses at Borehole Array Sites (see page 1211)**	**Numerical Modeling in Seismology: Developments and Applications (see page 1234)**
4:30 PM	Considerations for Optimally Combining Local, Regional, and Teleseismic Data in Single Event Locations. **Yeck, W. L.**, Shelly, D. R., Patton, J., Earle, P. S., Benz, H. M., *et al.*	INVITED: STUDENT: Assessing Distribution and Pattern of the Earthquake-Related Deformation Caused by Large Continental Normal Earthquakes Using Optical Image Correlation. **Andreuttiova, L.**, Hollingsworth, J., Vermeesch, P., Mitchell, T.	Benchmarking Multidimensional Ground Response Analyses at the Treasure Island Borehole Array Site Using Different Commercial and Open-Source Software. **Hallal, M. M.**, Cox, B., Mohammadi, K., de la Torre, C. A., Stanton, K., *et al.*	Seismic Wave Propagation Finite Difference Simulation Based on Adaptive Mesh Refinement (AMR) Grid. **Zhanng, W.**, Zhang, C., Zang, N.
4:45 PM	How Good Is Your Location? Comparing and Understanding the Uncertainties in Locations of a Sequence of Events in Nevada. **Pyle, M. L.**, Chen, T., Preston, L., Scalise, M. E., Zeiler, C.	Late Pleistocene and Holocene Paleoseismology and Deformation Rates of the Pleasant Valley Fault (Nevada, USA). **Figueiredo, P. M.**, Wesnousky, S. G., Owen, L. A.	Inherent Limitations of One-Dimensional Ground Response Analyses. **Mohammadi, K.**	Seismic Response of Nenana Basin, Central Alaska, From 3D Seismic Wavefield Simulations of Local and Regional Earthquakes. **Tian, Y.**, Tape, C., Chow, B., Smith, K.
5:00 PM	Computation of High-Precision, Deep Magnitude Earthquake Catalogs on a Massive Scale. **Waldhauser, F.**, Wang, K., Beauce, E., Sawi, T. M., Schaff, D. P., *et al.*	STUDENT: Quantifying Seismic Hazards in the Walker Lane Through Assimilation of Spaceborne InSAR Observations. **Rosas, V. G.**, Trugman, D. T., Chen, J.	Ground Truthing Multidimensional Site Response Analyses Using Ls-Dyna. **Stanton, K.**, Rong, W.	STUDENT: Modeling and Simulation of Response Spectra at Regional Distances for the September 19, 2022 (Mw 7.7) and September 22, 2022 (Mw 6.9) Michoacan, Mexico Earthquakes and Comparison With Observed Data. Quirós, L., Santoyo, M. A., **Benito Oterino, M.**, Gamboa Canté, C.
5:15 PM	Manual Correlation of Seismic Arrivals to Improve Hypocenter Locations for the 1993 Rock Valley Sequence in Nevada. **Zeiler, C.**, Scalise, M. E., Smith, K., Chen, T., Phillips, S., *et al.*	Using Dynamic Rupture Simulations to Explore Fault Segmentation and Rupture Length on the Sierra Madre Fault Zone. **Lozos, J.**, Velador Santos, D., Tepal, J.	Quantifying the Influence of Multi-Dimensional Effects in Site Response Analyses Using 2D and 3D Simulations in Sedimentary Basins of Wellington, New Zealand. **de la Torre, C. A.**, Bradley, B. A., Lee, R. L., Kuncar, F., Hill, M., *et al.*	Towards "Box Tomography" of Ultra-Low Velocity Zones at the Earth's Core-Mantle Boundary. **Lyu, C.**, Masson, Y., Zhao, L., Romanowicz, B. A.
5:30 PM	Using Dense Nodal Geophone Data to Refine Rock Valley Fault Zone Earthquake Locations. **Scalise, M. E.**	Towards Decadal Scale Global Geodynamic Models. **Moresi, L.**, Yang, H.	Seismo-Vlab: An Open-Source Finite Element Platform for Site Response Analyses of Km-Scale Features With Random Properties. **Asimaki, D.**, Kusanovic, D., Esmaeilzadeh Seylabi, E.	Crossfade Markov Chain Monte Carlo Simulation for Fault Slip Modeling. **Minson, S.**, Brooks, B., Nevitt, J.

Poster Sessions

Active Faults in the Caribbean and Central America [Poster] (see page 1114)

3. Age Dating and Sedimentology of a Pre-Colombian Tsunami Deposit, Northwest Puerto Rico. **Nasr, B. M.**
5. Student: Imaging of Tectonic Tremor Activity Along the NW Caribbean Coast and its Implication with Subduction Processes: A Study Case with Colombia-Venezuela CARMA Seismological Network. **Cubillos, S.**, Prieto, G. A.
4. Is the Source of the 1918 Puerto Rico Tsunami a Landslide or a Fault Rupture? a View From the Sea Floor. **ten Brink, U. S.**, Chaytor, J. D., Flores, C. H., Wei, Y., Detmer, S., *et al.*
2. New Airborne Magnetic and Radiometric Survey Over Puerto Rico and Surrounding Offshore Areas. **Shah, A. K.**, Pratt, T. L., ten Brink, U. S.
1. Surface Structure of the Punta Montalva Fault in Southwestern Puerto Rico Using High-Resolution Digital Elevation Models. Weilert, L. J., **Laó-Dávila, D. A.**
6. Toward a Multi-Stakeholder Socio-Seismological Observation Network for Seismic Risk Reduction in Haiti. **Calais, E.**

Advances in Probabilistic Seismic Hazard Analysis and Applications [Poster] (see page 1125)

11. A Probabilistic Seismic Hazard Model for Greenland. **Rong, Y.**, Klein, E.
15. Student: Applicability Evaluation of Ground Motion Models (GMMs) for Korean Peninsula. **Lee, H.**, Kim, B.
13. Coordinated National Seismic Hazard Assessments for Tajikistan, Kyrgyzstan and Kazakhstan. **Onur, T.**, Gok, R., Berezina, A., Ischuk, A., Silacheva, N., *et al.*
8. Student: Deterministic Seismic Hazard Scenarios in the City of Managua (Nicaragua) in the Framework of the Kuk Ahpan Project. Hernandez Rubio, O., **Benito Oterino, M.**, Gamboa Canté, C., Arroyo Solórzano, M.
9. Effects of the M6.1 Düzce (Türkiye) Earthquake of November 23, 2022 and Seismic Hazard Implications. **Celebi, M.**, Cakir, R., Sozbilir, H.
16. Evaluation of Regional High-Frequency Path Attenuation in Central Mexico Subjected to Subduction Earthquakes and the Potential Impacts on Hazard. Shabestari, K., Mahdyiar, M., **Ruhl, C. J.**, Kraner, M. L., Shen-Tu, B.
20. Geotechnical Field Observations From the 18 September 2022 Mw6.9 Chihshang, Taiwan Earthquake. Asimaki, D., **Mason, B.**, Athanasopoulos-Zekkos, A., Carey, T. J., Garcia, F. E., *et al.*
12. Student: Implementation of Distance Conversion Equations in Seismic Hazard. **Kayastha, M.**, Pezeshk, S., Tavakoli, B.
14. Student: Improving Lunar Seismic Source Models With L.R.O.C Data for Preliminary Lunar Probabilistic Seismic Hazard Assessments. **Frantzis, C.**, Bensi, M. T., Banks, M. E., Schleicher, L. S., Schmerr, N. C., *et al.*
18. Student: Methods for Unbiased Ground-Motion Intensity Conversion Equations and Implications for Hazard Map Assessment in California. **Gallahue, M.**, Abrahamson, N. A.
19. Regional Ground Motion Model Evaluation for the Southern Eastern African Rift System. **Holmgren, J. M.**, Werner, M. J., Goda, K., Villani, M., Silva, V., *et al.*
17. Regional-Scale Seismic Fragility Assessment of Buildings in Istanbul Using Simulated Ground Motions. **Zhang, W.**, Chen, P., Kurtulus, A., Crempien, J., Arduino, P., *et al.*
7. Seismic Vulnerability and Risk Assessment in Urban Areas in Dominican Republic. An Application to Santo Domingo Este. **Germoso, C.**, Gonzalez, O., Benito Oterino, M., Córdoba, D.
10. The Earthquake Fatality Load and Capacity by Country: Measures of Impact. **Wyss, M.**, Speiser, M., Tolis, S.

Constraining Seismic Hazard in the Cascadia Subduction Zone [Poster] (see page 1136)

22. Student: Ambient Noise Seismic Imaging of an Urban Fault: A Citizen Scientist-Hosted Investigation of the Seattle Fault Zone. **Toghramadjian, N.**, Ermert, L., Denolle, M. A.
21. Analysis of the Seismic Noise Using PPSD for Non-Volcanic Tremors in Cascadia Prior the Onset of SSEs. **Papin, L.**, Thomas, A. M., Hirao, B. W.
25. Characterizing Aftershock Dynamics in the Pacific Northwest Using Bayesian Etas. **Schneider, M.**, Guttorp, P., van der Elst, N., Barall, M., Michael, A. J., *et al.*
24. Student: Constraining Basin Structure and Characterizing Ground-Motions in the Oregon Willamette Valley. **Shimony, R.**, Sahakian, V. J., Fadugba, O. I.
26. The California Geological Survey Response to the 20 December 2022 Magnitude m6.4 Ferndale Earthquake Sequence. **Patton, J. R.**, Dawson, T., Falsetto, M., Gallagher, S., Oswald, J., *et al.*
23. Student: Variability in Diatom-Based Coseismic Subsidence Estimates Over Multiple Earthquake Cycles in a Southern Oregon Tidal Wetland, Cascadia Subduction Zone. **Bruce, D.**, Dura, T., Witter, R. C., Kelsey, H. M., Hemphill-Haley, E.

Coseismic Ground Failure: Advances in Modeling, Impacts and Communication [Poster] (see page 1140)

48. Student: A Machine Learning Approach for Landslide Mapping of the 2016 Kumamoto Earthquakes From Geospatial and Image Data. **Asadi, A.**, Baise, L. G., Koch, M., Moaveni, B., Chatterjee, S.
49. How to Quantify Uncertainties for Logistic-Regression-Based Geospatial Natural Hazard Models? **Zhan, W.**, Baise, L. G., Moaveni, B.
50. Liquefaction or Liquefiction? Anthropogenic Regulation and the Influence of Evaporite Dissolution on Ground Failure in the 2019 Ridgecrest Earthquake Sequence. **Burgi, P. M.**, Thompson, E. M., Allstadt, K., Murray, K. D., Mason, B., *et al.*

Crustal Deformation and Seismic Hazard in Western Canada, Cascadia and Alaska [Poster] (see page 1142)

30. Catalog of Coseismic Displacements Across Alaska. **Freymueller, J. T.**
27. Crustal Stress in Continental Alaska and the Yukon. **Levandowski, W.**, Turner, J.
29. Student: High-Resolution Seismic Catalog for Minto Flats Fault Zone, Central Alaska, Based on Waveform Cross-Correlation of Events Between 2014–2019. **Sims, N.**, Tape, C., Ruppert, N., West, M. E.
28. Shallow Deformation in the Central Seattle Fault Zone, Washington State, From Land-Based High-Resolution Seismic-Reflection Imaging. **Stephenson, W. J.**, Odum, J. K., Pratt, T. L.

Crustal Imaging of High Seismic Hazard Regions [Poster] (see page 1145)

31. Student: Ambient Noise Interferometry to Obtain Images of the Mid- and Lower Crust. **Soni, Y.**, Pulliam, J.
39. Constraining Geologic Structure of the Rock Valley Fault Zone: Dense Gravity Analysis for the Rock Valley Direct Comparison Experiment. **Bodmer, M.**, Phillips, J.
32. Student: Imaging the Deformation Belt of Western Hispaniola Using Multi-Component Ambient Noise Cross-Correlations. **Lee, H.**, Rabade, S., Lin, F., Douilly, R.
33. Student: Imaging the Oceanic Crust in Remote Areas Using Existing Datasets. **Perrin, R.**, Lauer, R.
34. Locating an Urban Fault Along the San Francisco Peninsula Using High-Resolution Active-Source Seismology. **Goldman, M.**, Catchings, R. D., Nishenko, S. P., Sickler, R. R., Chan, J. H., *et al.*
35. Preliminary Imaging Results From a Nodal Array to Investigate the Structure of the Southern Cascadia Forearc. **Delph, J.**, Herr, B., Thomas, A. M., Yang, X.
38. Student: Receiver Function Imaging of Erebus Volcano via Joint Bayesian Inversion With Spatial Weighting. **Reisinger, R.**, Chaput, J. A., Aster, R. C., Grapenthin, R.
36. Seismic Experiments in the Kumaon Himalaya: Do We Expect a Great Earthquake? **Hazra, S.**, Hazarika, D.
37. Student: The Crustal Structure of Southwestern Turkey Using Local Seismic Data. **Yalvac, O.**, Sandvol, E. A.

Deciphering Earthquake Clustering for the Better Understanding of Crustal Deformation Mechanisms [Poster] (see page 1153)

85. Student: Automated Detection and Characterization of Swarms and Mainshock-Aftershock in Southern Mexico. **Ventura-Valentin, W. A.**, Bennett, A., Brudzinski, M. R., Graham, S., Cabral-Cano, E.
83. Closing the Gap Between Local and Regional Observations of Segmented Ocean Plate Boundaries With a New 25-Year Earthquake Catalog of the European Arctic Seas. **Halpaap, F.**, Ottemöller, L., Chamberlain, C. J., Gibbons, S.
84. Student: Structural Control on the Distribution of Earthquake Clusters Along the Northern Ecuadorian Margin. **Ponce, G.**, Meltzer, A., Beck, S., Ruiz, M., Hernandez, S., *et al.*
86. Student: Intermittence of Transient Slow Slip in the Mexican Subduction Zone, as Seen by Tectonic Tremors. **El Yousfi, Z.**, Radiguet, M., Rousset, B., Husker, A., Kazachkina, E., *et al.*
80. Intraplate Omori Decay Parameters and Spatiotemporal Distribution 145 Recent Central and Eastern North American Sequences. **Levandowski, W.**
82. Temporal Clustering of Earthquakes in the Canadian Arctic on a Regional Scale. **Bent, A. L.**
81. Variation of Fault Creep Along the Overdue Istanbul-Marmara Seismic Gap in NW Turkey. **Martínez-Garzón, P.**, Becker, D., Wollin, C., Kilic, T.

Earthquake Early Warning Optimization and Efficacy [Poster] (see page 1169)

94. Student: Alaska Earthquake Early Warning Scenarios and Warning Time Estimates. **Fozkos, A.**, West, M. E., Gardine, M.
100. Earthquake Early Warning Instrumentation and Efficient Workflows. **Pigeon, S.,** Perlin, M.
95. Earthquake Science Communication of the 6.4 M Event Through Various Dissemination Products Used at the Puerto Rico Seismic Network. **Miranda Berrocales, V. M.**, Pérez Paulino, J., Báez Sánchez, G., Colón Rodriguez, B., Cordero Nieves, H.
106. Empirical Calibration of Site Amplification From Residual Analysis of Earthquake Ground Motion Spectra

and Station Magnitudes in Eastern Canada. **Perry, H.**, Crane, S. J., Pietroniro, E. R., Audet, P., Adams, J., *et al.*

103. Engagement and Outreach to Ensure the Success of Canada's Earthquake Early Warning System. **Bird, A. L.**, Seywerd, H. C. J., Crane, S. J.

96. Evaluating the Impact of Location Errors on Magnitude Estimates Through Epic. **Williamson, A. L.**, Lux, A. I., Allen, R. M., Henson, I.

93. Student: Evaluating the Performance of Long Short-Term Memory Neural Network in Predicting Peak Ground Acceleration of Earthquakes Using Shrinking P-Wave Data. **Owusu Duah, J.**

97. Expected Contribution Metrics for Earthquake Early Warning Network Telemetry. **Biasi, G.**, Stubailo, I., Alvarez, M. G.

104. Geocoding Applications for Social Science to Improve Earthquake Early Warning Systems. **Sumy, D. F.**

101. National Public Earthquake Early Warning Systems Emerging Across Central America. Massin, F., **Clinton, J.**, Burgoa, B., Böse, M., Marroquín Parada, M., *et al.*

105. Performance of a Real-Time Machine Learning Classifier in the Epic Earthquake Early Warning Algorithm. **Lux, A. I.**, Henson, I., Meier, M., Allen, R. M.

98. Redundant Telemetry, System Monitoring, and Planning Tools for a Highly Resilient and Secure Regional Seismic Network (RSN). **Stubailo, I.**, Bhadha, R., Watkins, M., Alvarez, M. G., Biasi, G., *et al.*

99. Student: Toward Implementing Earthquake Early Warning in Resource-Limited Regions: Comparing Magnitudes Predicted by Traditional Regressions and by Convolutional Neural Networks. **Gabriel, C.**, Carpenter, S., Kalinski, M.

102. Update on the Progress of California Strong Motion Instrumentation Program (CSMIP) Toward Real Time Data Acquisition. **Branum, D.**, Haddadi, H.

From Earthquakes to Plate Boundaries: Insights Into Fault Behavior Spanning Seconds to Millennia [Poster] (see page 1200)

73. A New Model for the Strike-Slip Response of Entrenched Drainages Derived From an Alluvial Terrace Sequence at the Littlerock Creek Along the Mojave Section of the San Andreas Fault. **Moulin, A.**, Cowgill, E., Scharer, K., McPhillips, D., Heimsath, A.

70. Characterizing the Transition From Diffuse to Localized Deformation Using Optical Image Correlation: The 2021 Mw7.4 Maduo, Tibet, Earthquake. **Antoine, S. L.**

77. Early Postseismic Phase of the 2011 Tohoku-Oki Megathrust Earthquake: Observations by High-Rate Gps Solutions and Deformation Mechanisms Involved. **Radiguet, M.**, Periollat, A., Weiss, J., Twardzick, C., Amitrano, D.

79. Student: Finite Fault Inversion for M6.8 Luding Earthquake: Impact of Station Configuration on Inversion Robustness. **Wu, P.**, Gu, C., Zhong, Y., Kang, B., Lu, X.

72. Geer Team Surface Fault Rupture Observations From the September 2022 Longitudinal Valley Earthquake Sequence, Eastern Taiwan. **Gray, B.**, Garcia, F. E., Asimaki, D., Chen, K., Lavrentiadis, G., *et al.*

68. Geologic Context of the 2020 Mw 6.5 Stanley, Idaho Earthquake: Preliminary Paleoseismology of the Sawtooth Fault. **DuRoss, C. B.**, Lifton, Z. M., Hatem, A. E., Briggs, R. W., Jobe, J. A. T., *et al.*

76. Geomorphology May Be a Poor Recorder of Slip Distributions From Paleo Surface Ruptures. **Reitman, N.**, Klinger, Y., Briggs, R. W., Gold, R.

78. Linking Subduction-earthquake Supercycles with Coastal Uplift in South Chile. **Melnick, D.**, Cisternas, M., Wesson, R., Nelson, A., Jara-Muñoz, J., *et al.*

74. New Evidence of Quaternary Faulting Along the Gore Range Frontal Fault, Summit County, Colorado. **Zellman, M. S.**, Ostenaa, D. A., Duckworth, W. C., Hille, M. M., Hornsby, K. T.

69. Student: Shallow Creep-Rate Variability Along on Northern California Faults From Alos-2 InSAR Time Series. **Lindsay, D.**, Burgmann, R.

75. Student: The Impact of Fault Bends and Regional Stress Fields on the Strength of Strike-Slip Faults. **Herrera, V. F.**, Rodriguez Padilla, A. M., Oskin, M. E., White, S.

71. Three-Dimensional Visualization and Implications for Reconstruction of the Chalk Hill Paleoseismic Site on the Rodgers Creek Fault Near Windsor, California. **Trexler, C.**, Vermeer, J., Hecker, S., Elliott, A. J., Hammer, M.

Ground Truthing Multidimensional Site Response Analyses at Borehole Array Sites [Poster] (see page 1212)

40. Investigating the Influence of Site-Specific Spatial Variability on Ground Motion Intensity Measures via Multidimensional Site Response Analyses at the Treasure Island Downhole Array. **Hallal, M. M.**, Cox, B.

It's All About Relocation, Relocation, Relocation [Poster] (see page 1217)

89. Student: A Comparison of High Precision Relocation Methods Applied to the June 2021 Mount Hood, Oregon Sequence. **Johnson, B. N.**, Hartog, R.

91. Student: Absolute Relocations of a Machine Learning Catalog of the Utah Magna Earthquake Sequence Using Nonlinloc-Ssst-Coherence. **Wells, D.**, Lomax, A., Baker, B., Pankow, K. L., Petersen, G.

92. Minimum 1D P- and S- Velocity Models Derived From Aftershocks of the March 31st, 2020 Stanley, Idaho Earthquake. **Bockholt, B.**

87. Relocation of Earthquakes in the Southern Korean Peninsula During 2017 and 2020 Using a 3D Velocity Model. **Sheen, D.**, Byun, A.

88. Uncertainty in Source Location Estimates Using a Single Seismic Station. **Nolt-Caraway, S. A.**, Davenport, K.

Network Seismology: Recent Developments, Challenges and Lessons Learned [Poster] (see page 1225)

113. A Rotational Seismometer for Geohazards and Scientific Monitoring in a Regional Seismic Network (RSN). **Bodin, P.**, Venkateswara, K., Hartog, R., Willcock, W., Tobin, H., *et al.*

111. An Updated Catalog of Seismicity for New Mexico. **Litherland, M.**, Record, A.

116. Coordinating Access to Seismic Waveform Data in the Euro-Mediterranean Region: Orfeus Actions, Data Services and Products. **Cauzzi, C.**, Bieńkowski, J., Crawford, W., Custódio, S., D'Amico, S., *et al.*

109. Earthquake Monitoring Capabilities in Ohio: The Evolution of a Modern State Seismic Network in the Midwest USA. **Fox, J. L.**

119. Exploring Local Seismic Detection Capabilities Using Earthquake Triggered and Continuous Dataset Recorded by the Los Alamos Seismic Network. **Kwong, K.**, Roberts, P. M., Donahue, C., Alfaro-Diaz, R. A., Carmichael, J. D.

107. Monitoring Volcano Hazards in the Cascades of Washington and Oregon: Recent and Ongoing Network Diversification and Advances. **Darold, A. P.**

114. Network Analysis of the University of Utah Seismograph Stations Regional Seismic Network. **Trow, A.**

112. Network of the Americas Borehole Strainmeter and Seismic Network: Network Highlights at 15 years plus of Continuous Operation. **VanBoskirk, E. J.**, Feaux, K., Fox, O., Gallaher, W., Gottlieb, M., *et al.*

108. Portable Volcano Monitoring Station for Rapid Response. **Meyers, B.**, Darold, A. P.

118. Science Communication, Outreach, and Community Engagement in Harmony With Real-Time Network Operations. **Ferrer, F.**, Yunker, M., Woelfel, I., Thiel, A., Walter, J., *et al.*

117. Seismic Background Noise of Italian Strong Motion Network. **Ertuncay, D.**, Fornasari, S., Costa, G.

115. Seismic Network Expansion in the Caucasus and Central Asia (SNECCA). **Chiang, A.**, Gök, R., Godoladze, T., Berezina, A., Aguiar, A. C., *et al.*

110. The Colorado Geological Survey Seismic Network, Colorado Seismicity, and Non-Earthquake Seismic Signals. **Bogolub, K. R.**, Lovekin, J., Crandall, A.

Numerical Modeling in Seismology: Developments and Applications [Poster] (see page 1236)

121. A New Method for Dissipating Energy in Dynamic Earthquake Rupture Simulations: Non-Linear Radiation Damping. **Harris, R.**, Barall, M.

127. Student: Adjoint-Based Synthetic Inversions for Recovering 3D Anisotropic Structures. **Gupta, A.**, Chow, B., Tape, C.

130. adjTomo: An Open-Source, Python Toolkit for Adjoint Tomography and Full Waveform Inversion. **Chow, B.**, Modrak, R., Tape, C.

125. Student: An Equivalent Point-Source Stochastic Simulation of the NGA-East Ground-Motion Models. **Assadollahi, C.**, Pezeshk, S.

124. Student: Computational Study of Foreshocks in the Burridge-Knopoff Earthquake Model Using Machine Learning. **Ortega, J. G.**, Ramos, R. A.

123. Student: Earthquake Ground Motion Selection for Time History Analysis of Structures Using an Evolutionary Algorithm. **Akhani Senejani, M.**, Pezeshk, S.

120. Earthquake Rupture Simulations on Faults with Different Degrees of Cementation. **Bolotskaya, E.**, Casas, N., Mollon, G., Hager, B. H.

126. Effects of Random Small-Scale Heterogeneities in 1D, 2D and 3D Modeling of Earthquake Ground Motion in a Halfspace and in a Local Sedimentary Basin. **Galis, M.**, Kristek, J., Moczo, P., Kristekova, M., Hollender, F.

128. Higher-order Finite-difference Spatial Operators Across a Material Interface. Valovcan, J., **Moczo, P.**, Kristek, J., Kristekova, M., Galis, M.

129. Nonlinear Pseudostatic Analysis of Seismic Responses to Differentially Interconnected Structures in Aggregate Masonry Structures in a High-Seismic-Risk. Torres Olivares, S., Gonzalez-Rodrigo, B., Saavedra-Flores, E., Mosquera Feijoo, J., **Benito Oterino, M.**

122. Student: Using Dynamic Rupture Simulations to Investigate the Effects of Topography on Rupture Propagation Along Branch Faults: Implications for the San Andreas and Garlock Faults. **Marschall, E.**, Douilly, R.

Opportunities and Challenges in Source Modeling for Seismic Hazard Analysis [Poster] (see page 1248)

51. Student: Advancing the SRCMOD Database. **Suhendi, C.**, Thingbaijam, K. S., Mai, P.

62. Capturing the Uncertainty of Seismicity Observations in Earthquake Rate Logic Tree Branches. **Michael, A. J.**, Llenos, A. L.

52. Complex Ruptures for Hazard and Risk: Case Studies for El Salvador and Ecuador. **Velasquez, J.**, Nyst, M.

61. Estimation of Seismic Hazard in Northern Argentina, Combining Faults and Zones Hazard Estimations (PSHA). Validation of Proximity Factors to Active Faults of the Argentine Seismic Code Inpres-Cirsoc 103. **Benito Oterino, M.**, Fernández Campos, L. M.
55. Interactions Between Megathrust and Adjacent Crustal Faults. **Crempien, J.**, Herrera, M., Álvarez-Vargas, J., Carter-Arriagada, J., Moreno, M.
56. Modeling the Seismogenic Slab Sources in New Zealand. **Thingbaijam, K. S.**, Rollins, C., Gerstenberger, M. C., Van Dissen, R. J., Ristau, J., *et al.*
54. Predicting Ongoing Induced Seismicity in the Groningen Gas Field After Shut-in Using Rate-Dependent Compaction. **Aben, F. M.**, Osinga, S., Kraaijpoel, D. A., Pluymaekers, M. P. D., Breunese, J. N.
59. Proposal of a New Method for Combining Seismological and Geological Information Aimed at Seimsic Hazard Analysis: Fams Method- Fault and Area Zone Moment Shearing. **Benito Oterino, M.**, Lindholm, C., Gamboa Canté, C., Ornales Agrela, A., Arroyo Solórzano, M.
53. Student: Recalibrating Earthquake Rupture Forecasts Using Long Catalogs From Multi-Cycle Earthquake Simulators. **Vazquez, L.**, Jordan, T. H.
60. Student: Review of Hybrid Methods for the Characterization of Seismic Hazard in Central America. Gamboa Canté, C., Ornelas Agrela, A., **Benito Oterino, M.**, Arroyo Solórzano, M., Lindholm, C.
57. The Rates of Large and Moderate Earthquakes in Aotearoa New Zealand. **Rollins, C.**, Christophersen, A., Thingbaijam, K. S., Hutchinson, J., Rhoades, D., *et al.*
58. The Rise and Fall of Earthquake-Size Distribution With Depth: Insights From the Calabrian Subduction Zone. **Taroni, M.**, Maesano, F.

Understanding and Modeling the Uncertainties in Earthquake Ground Motions [Poster] (see page 1291)

41. Student: Capturing Epistemic Uncertainty in Site Amplification Models with Different Site Proxies, Including Geomorphological Sediment Thickness. **Loviknes, K.**, Cotton, F., Weatherill, G.
45. Determination of Seismic Intensities From Seismic Microzoning Results for the Xalapa Conurbation Zone, Veracruz, México. **Torres Morales, G.**, Castillo Aguilar, S., Fox Rivera, G., Hernández Salazar, M., Dávalos Sotelo, R., *et al.*
42. Implication of Rupture Model Parameterization Uncertainty in Simulated Ground Motions From the Mw 6.2, 24 August 2016 Amatrice, Italy Earthquake. **Akinci, A.**, Pitarka, A., Artale Harris, P., Buttinelli, M., De Gori, P.
43. Long-Period Strong Ground Motion Prediction for the Mw7.2 Earthquake Set by the Nankou-Sunhe Fault in Beijing. **Chen, X.**
47. Sensitivity Analysis of Conditional Mean Spectrum Ground Motion Selection Procedure. **Farajpour, Z.**, Eftekhari, N., Kowsari, M., Pezeshk, S.
44. Spatial Changes in Earthquake Generated Ground Motion Observations: An Examination of Data From Four Small Aperture Arrays in Southern California. **Vernon, F. L.**, Kilb, D.
46. When the Acquisition Conditions and Processing Procedures of Seismic Data Increase the Ground Motion Model Uncertainties: Example of the Impact of Obspy and of the Sensor Installation Choices. Rischette, P., Hollender, F., **Perron, V.**, Buscetti, M.

Understanding the Variability in Earthquake Stress Drop Measurements [Poster] (see page 1298)

66. Between and Within Region Comparison of Source Parameters: Applications of the Coda Calibration Tool (CCT). **Mayeda, K.**, Morasca, P., Whidden, K. M., Bent, A. L., Roman-Nieves, J. I., *et al.*
63. Student: Earthquake Source Parameters and Their Uncertainties Estimated From S-Wave Maximum Amplitudes Using Amplitude Decomposition: Application to the 2019 Ridgecrest Sequence. **Vandevert, I.**, Shearer, P., Fan, W.
64. Student: Measuring Source Parameters With Filtered Peak S-Wave Amplitudes Using the Asymptotic Spectral Ratio Method. **Knudson, T.**, Ellsworth, W. L., Beroza, G. C., Shaw, B. E.
67. Spatial Variations in the Source Spectra of Southern California Earthquakes. **Chu, S.**, Baltay, A. S., Abercrombie, R. E., Tsai, V. C., Hirth, G., *et al.*
65. Stress Drop Estimates Using the Attenuation Parameter Kappa for Earthquakes in the SCEC/USGS Community Ridgecrest Dataset. **Calderoni, G.**, Abercrombie, R. E.