

# Program for 2008 SSA Annual Meeting

Presenter is indicated in bold.

## Wednesday, 16 April—Concurrent SSA Oral Sessions

Time	Hilton—Mesa A&B	Eldorado—Zia	Eldorado—Sunset	Hilton—Mesa C
	<b>Extensional Seismotectonics of the Rio Grande Rift and Its Margins.</b> Session Chairs: Richard Aster & Ivan Wong (see page 274)	<b>Earthquake-induced Ground Failure: From Site Specific to Regional Hazard Assessments</b> Session Chairs: Keith Knudsen & Laurie Baise (see page 276)	<b>Tunnel Seismology</b> Session Chairs: Neill Symons & David Aldridge (see page 278)	<b>Earthquakes and Society: Developing Community Resiliency through Earthquake Scenarios</b> Session Chairs: Chris Bradley & Richard Lee (see page 280)
8:30	Rio Grande Rift GPS Measurements 2006–2008. <b>Berglund, H.T.</b> , Sheehan, A.F., Szeliga, W.M., Roy, M., Nerem, R.S., Lowry, A.R., and Blume, F. <i>Student presentation.</i>	Using Microtremor Data for Hazards Assessment in Areas of Earthquake-Induced Liquefaction: A Case Study in the New Madrid Seismic Zone. Hardesty, K., <b>Wolf, L.W.</b> , and Bodin, P.	Innovative Seismic Tunnel Detection Technologies. Korneev, V.A., and <b>Gritto R.</b>	Ground Motion and Liquefaction Hazard Maps for the Central and Eastern US. <b>Cramer, C.H.</b>
8:45	Deep Structure and Dynamics of the Rio Grande Rift. <b>Ni, J.F.</b> , Wilson D., Aster R., Gao, W., Grand, S., West, M., Baldrige, W.S., and the RISTRA Team.	Retesting Liquefaction/Nonliquefaction Sites from the 1976 Tangshan Earthquake. <b>Moss, R.E.S.</b> , and Kayen, R.E.	Underground Air-Filled Voids Detection with Elastic Full Waveform Inversion in 2D. <b>Gélis, C.</b> , Virieux, J., and Grandjean, G.	Constraints from Precariously Balanced Rocks on Broadband Ground Motion Simulation for Seven Terashake Scenarios on the Southern San Andreas Fault. <b>Mena, B.</b> , Mai, P.M, Olsen, K.B., Purvance, M., and Brune, J. <i>Student presentation.</i>
9:00	Comparison of Seismicity Patterns and Uplift in the Socorro Magma Body Region, Central New Mexico. <b>Bilek, S.L.</b> , Newman, A.V., Morton, J., Aster, R.C., Rowe, C.A., Farmer, G.T.	Development of a Probabilistic Method for Regional Liquefaction Hazard Mapping Based on Liquefaction Potential Index. Holzer, T.L., and <b>Rix, G.J.</b>	Preliminary Analysis Using Surface Wave Methods to Detect Shallow Manmade Tunnels. <b>Niklas H. Putnam</b> , Oleg Kovin, Ali Nasserimoghaddam, and Neil L. Anderson. <i>Student presentation.</i>	Analysis of Fault Rupture Directivity and Heterogeneity Effects on Near-Source Ground Motions. <b>Rowshandel, Badie.</b>
9:15	Seismicity of the Rio Grande Rift and Surrounding Regions, North-Central New Mexico. <b>House, L.S.</b> , Roberts, P.M., Tencate, J.A., and Romero-Yeske, M.D.	Evaluations of Probabilistic LPI-Based Maps of Liquefaction Hazard Using Observed Liquefaction in Historical Earthquakes. <b>Holzer, T.L.</b> , Bennett, M.J., and Noce, T.E.	Seismic Refraction Tomography for Detecting Shallow Underground Tunnels. <b>Hickey, C.J.</b> , and Schmitt, D.R.	Ground Motion in the Valley of Mexico: Basin Effects. <b>Ramirez-Guzman, L.</b> , Contreras, M., Taborda, R., and Bielak, J. <i>Student presentation.</i>

Wednesday, 16 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>	<i>Hilton—Mesa C</i>
9:30	Architecture and Tertiary History of the Española Basin of the Rio Grande Rift, New Mexico, USA, Interpreted from Seismic Reflection Profiles. <b>Baldrige, W.S.</b> , Ferguson, J.F., Grauch, V.J.S.	A Liquefaction Hazard-Screening Tool That Is Based on California Case Histories. <b>Knudsen, K.L.</b> , Woods, M.O., Bott, J.D.J., McGuire, T.	Finite Element Analysis of Seismic/Acoustic Interactions with SALINAS. Walsh, T.F., Reese, G.M., and <b>Jerry Rouse</b> .	Site Specific Rock Mechanical and Slope Stability Analysis of the BSL-3 Facility, <b>Bradley, C. R.</b> , Houston, T. W., Steedman, D. W., Roberts, P. M., Coblenz, D. D., Lewis, C. L.
9:45	Paleoseismic Studies in the Rio Grande Rift, 1978–2008. <b>McCalpin, J.P.</b>	Critical Evaluation of Lateral Spread Displacement Using Support Vector Regression and Stack Generalization. <b>Oommen, T.</b> , and Baise, L.G. <i>Student presentation.</i>	Investigation of the Seismic/Acoustic Interactions of Air-Filled Tunnels Due to Excitation from Propagating Plane Waves Using SALINA. <b>Rouse, J.W.</b> , Walsh, T.F., and Reese, G.M.	Assessing the Impacts of an Ensemble of Southern California Earthquake Scenarios. <b>McPherson, T.</b> , Daniel, B., Bradley, C.R.
10:00	Break at the Eldorado			
	<b>Extensional Seismotectonics of the Rio Grande Rift and Its Margins</b> ( <i>continued</i> )	<b>Earthquake-induced Ground Failure: From Site Specific to Regional Hazard Assessments</b> ( <i>continued</i> )	<b>Tunnel Seismology</b> ( <i>continued</i> )	<b>Science Without Borders</b> Session Chairs: Susan Hough & Louie Munguia Orozco (see page 281)
10:30	Paleoseismologic Lessons Learned—A 30-Year Perspective from the Rio Grand Rift and Basin and Range Province. <b>Machette, M.N.</b>	Evaluation of the Use of High-Resolution Topographic Data as a Proxy for Seismic Site Conditions ( $V_s^{30}$ ). <b>Allen, T.I.</b> , and Wald, D.J.	Elastic Wave Radiation from a Resonating Line Source. <b>Aldridge, D.F.</b> , Gauntt, N.E., and Symons, N.P.	INVITED: Active Faults in Northern Baja California, Mexico. <b>Suarez-Vidal, F.</b>
10:45	A Longer, Wider Hubbell Spring Fault System with Footwall Backtilting: Typical or Atypical Fault in the Rio Grande Rift? <b>Zachariassen, J.A.</b> , Olig, S.S.	Spatial Inventory of Landslides Triggered by the M 6.7 October 15, 2006, Kiholo Bay Earthquake, Hawaii. <b>Harp, E.L.</b> , Jibson, R.W., and Zeng, Y.	INVITED: HPC Modeling of Surface and Subsurface Digging. <b>McKenna, J.R.</b> , McKenna, M.H., McComas, S., Anderson, T., Cudney, H. and Ketcham, S.	INVITED: Preliminary Strong Motion Attenuation Relations for Mexicali Valley, B. C., Mexico. Martinez-Miron, Y. C. and <b>Munguia, L.</b>
11:00	Paleoseismology and Geology of the Pajarito Fault System, Rio Grande Rift, New Mexico. <b>Gardner, J.N.</b> , Lewis, C.J., Reneau, S.L., and Schultz-Fellenz, E.S., Lavine, A., Olig, S.	Shallow and Deep Seismo-Gravitational Failures Adjacent to the Wasatch Fault Zone, Utah. <b>McCalpin, J.P.</b>	<i>Starting at 11:10:</i> Numerical Investigation of Seismic Resonance Phenomena in Fluid-Filled Layers. <b>Schwaiger, Hans F.</b> , and Aldridge, David F.	INVITED: Slow Aseismic Slip in the Pull-Apart Center of Cerro Prieto (Baja California, Mexico), from Geotechnical Instruments and InSAR Observations. <b>Glowacka E.</b> , Sarychikhina O., Vazquez R., Nava F.A., Munguia L., Farfan F, Diaz de Cossio B. G., Garcia Arthur M.A., and Mellors R.

Wednesday, 16 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>	<i>Hilton—Mesa C</i>
11:15	Seismic Hazard at the Los Alamos National Laboratory. <b>Wong, I.</b> , Silva, W., Olig, S., Dober, M., Gregor, N., Gardner, J., Lewis C., Terra, F., Stokoe, K., and Salmon, M.	Application of Probabilistic Methods for Mapping Earthquake-Induced Landslide Potential. <b>Saygili, G.</b> , and Rathje, E. <i>Student presentation.</i>	<i>Starting at 11:25:</i> High Resolution Imaging of Potash Mines Using Exploration-Scale Reflection Seismic Measurements. Kelly, C., <b>Perz, M.J.</b> , and Hargreaves, B.,	INVITED: Seismic Hazard across the California-Baja California Border: New Evidence from Precariously Balanced Rocks and Recent Strong Motion Records Compared with Draft 2008 Hazard Maps for California. <b>Brune, J.N.</b> , Suarez, F., Munguia, L., Purvance, M.D.
11:30	Surficial Geologic Mapping and Integration with Borehole and Shallow Crustal Geophysical Data in the Northern Rio Grande Rift of New Mexico: Implications for Late Quaternary Rift Tectonics. <b>Kelson, K.I.</b> , and Bauer, P.W.	Site-Specific Seismic Hazard Evaluation for a Marine Site in Southern California. <b>Zhai, E.</b>	<i>Starting at 11:40:</i> Seismic Monitoring of Temperature Changes in the Proposed Radio-Active Waste Repository at Yucca Mountain, NV. <b>Smith, Steven</b> , and Snieder, Roel. <i>Student presentation.</i>	Body-Wave Attenuation in Northeastern Sonora, Mexico, Near the Rupture of the 1887 Earthquake ( $M_w$ 7.5). <b>Castro, R.R.</b> , Condori, S.C., and Huerta, C., Romero, O., Jacques, C., and Suter, M.
11:45				Microseismicity of the Agua Blanca Fault, Northern Baja California, Mexico. <b>Frez, J.</b> , Acosta, J., Nava, F, Suarez, F., and Gonzalez, J.
12:00	Lunch at the Eldorado			
	<b>Extreme Ground Motions</b> Session Chairs: Thomas Hanks & Norm Abrahamson (see page 282)	<b>Complexity, Statistics, and Physics of Seismicity and Earthquakes</b> Session Chairs: Robert Shcherbakov & Karin Dahmen (see page 285)	<b>New Methods, Instrumental and Network Reports</b> Session Chairs: Paul Spudich & Natalia Ruppert (see page 287)	<b>Archaeoseismological Methodologies: Principles and Practices</b> Session Chairs: Manuel Sintubin & Tina Niemi (see page 288)
1:30	A Brief History of Extreme Ground Motions. <b>Hanks, T.C.</b> , and Abrahamson, N.A.	Implications of the BASS Model. <b>Van Aalsburg, J.</b> , Turcotte, D.L., Holliday, J.R., and Rundle, J.B.	Directivity in NGA Earthquake Ground Motions: Analysis Using Isochrone Theory. <b>Spudich, P.</b> , and Chiou, B.S.J.	The Catastrophic End of the Bronze Age: Earthquakes or Sea People? <b>Nur, Amoss.</b>
1:45	Establishing Physical Limits on Ground Motion. <b>Andrews, D. J.</b>	Rate-State Modeling of Stress Relaxation in Geometrically Complex Fault Systems. <b>Smith, D.E.</b> , and Dieterich, J.H.	A New Method for Locating Induced Earthquakes in Petroleum Reservoirs. <b>Sarkar, S.</b> , Toksoz, M.N., and Rodi, W.L.	<i>Starting at 1:50:</i> Historical Earthquake Catalogues and Archaeological Data: Avoiding Circular Reasoning. <b>Niemi, Tina M.</b>
2:00	Dynamic Rupture Through a Branched Fault Configuration at Yucca Mountain, NV. <b>Templeton, E.L.</b> , Bhat, H.S., Dmowska, R., and Rice, J.R. <i>Student presentation.</i>	Time-Dependent Seismic Hazard Maps for the New Madrid Seismic Zone and Charleston, South Carolina Areas. Hebden, J. S., and <b>Stein, S.</b>	QuakeML: Community-Driven Development of an XML-Based Data Exchange Format for Seismology. <b>Euchner, F.</b> , and Schorlemmer, D.	<i>Starting at 2:10:</i> Earthquake Archaeology in Japan: An Overview. <b>Barnes, G.L.</b>

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2:15	The SCEC-USGS 3D Rupture Dynamics Code Comparison Exercise. <b>Harris, R.A.</b> , Barall, M., Aagaard, B., Andrews, D.J., Archuleta, R., Dalguer, L., Day, S., Olsen, K., Ma, S., Lapusta, N., Liu, Y., Ampuero, J.P., Dunham, E., Templeton, E., Bhat, H., Kase, Y., Oglesby, D., Duan, B., Ely, G., Pitarka, A., Song, S., and Cruz-Atienza, V.	Forecasting the Locations of Future Earthquakes: An Analysis and Verification. <b>Shcherbakov, R.</b> , Holliday, J.R., Rundle, J.B., and Turcotte, D.L.	Scanning for Strain Transients along the Cascadia Subduction Zone Using Plate Boundary Observatory Borehole Strainmeters. <b>McCausland, W.A.</b> , and Roeloffs, E.R.	
2:30	An Overview of the Constraints on Unexceeded Ground Motions Based on Precariously Balanced Rocks and Unstable Precipitous Cliffs at Yucca Mountain, and Unfractured Sandstones along the San Andreas Fault. Brune, J. N., Whitney, J., <b>Anderson, J. G.</b> , Purvance, M., Anooshehpour, A.	Rigorous Observational Tests Contradict the Accelerating Moment Release Hypothesis. <b>Hardebeck, J.L.</b> , Felzer, K.R., Michael, A.J.	The NEPTUNE Canada Seismograph Network, <b>Rogers, G.C.</b> and Meldrum, R.D.	Archaeology and Earthquakes: A Proposal for a Shared Protocol. Guidoboni, E., <b>Ebel, J.E.</b>
2:45	Preservation of Extreme Ground-Motion Surface Effects from Underground Nuclear Detonations at Pahute Mesa, Nevada Test Site, Nevada. <b>Whitney, J.W.</b> , Rood, D.H. Finkel, R.C., Buckingham, S.E., and Magner, J.E.	Effect of 3D Stress Heterogeneity on Aftershock Sequences. <b>Smith, D.E.</b> , and Dieterich, J.H.	Experience with EarthScope's Transportable Array in the Western United States, Busby, R., Vernon, F., <b>Woodward, R.</b>	<i>Starting at 2:50:</i> A "Logical" Methodology for Archaeoseismology. A Proof of Concept at the Archaeological Site of Sagalassos (SW Turkey), <b>Sintubin, M.</b> , and Stewart, I.
3:00	Break at the Eldorado			
	<b>Extreme Ground Motions</b> <i>(continued)</i>	<b>Complexity, Statistics, and Physics of Seismicity and Earthquakes</b> <i>(continued)</i> Session Chairs: Yehuda Ben Zion & Deborah Smith	<b>Seismicity and Seismic Signals</b> Session Chairs: Justin Brown & Rachel Abercrombie (see page 290)	<b>Archaeoseismological Methodologies: Principles and Practices</b> <i>(continued)</i>
3:30	Use of <i>mb</i> vs. <i>Mw</i> in the Search for High Stress-Parameter Earthquakes in Regions of Tectonic Extension. <b>Dewey, J.W.</b> , and Boore, D.M.	Collective Behavior of Earthquakes and Faults: Continuum-Discrete Transitions, Progressive Evolutionary Changes and Different Dynamic Regimes. <b>Ben-Zion, Y.</b>	Dynamic Triggering of Nonvolcanic Tremor, Earthquakes, and ETS on Vancouver Island, <b>Rubinstein, J.L.</b> , Gomberg, J.G., Vidale, J.E., Wech, A.G., Creager, K.C., Kao, H., and Rogers, G.	Archaeoseismology of the Hittite Age in the Central Anatolia at Kaman, Turkey. <b>Okumura, K.</b>

Wednesday, 16 April—Concurrent SSA Oral Sessions

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3:45	Revisiting Energy Estimates Using the Seismic Coda and Empirical Green's Function Corrections. <b>Baltay, A.</b> , Prieto, G.A., and Beroza, G.C. <i>Student presentation.</i>	A Simple Model of Damage Rheology with Discrete Slip Patches in Surrounding Elastic Solid. <b>Dahmen, K.</b> , and Ben Zion, Y.,	Repeating Nature and Relative Location of San Andreas Fault Tremors Near Cholame, CA. <b>Shelly, D.R.</b> , Nadeau, R.M., Burgmann, R., Ellsworth, W.L., Murphy, J.M., Ryberg, T.F., Haberland, C.	<i>Starting at 3:50:</i> Can Ruins Indicate a Backazimuth? <b>Hinzen, K.-G.</b>
4:00	Exceptional Ground Accelerations and Velocities Caused by Earthquakes. <b>Anderson, J. G.</b>	The Role of Space and Time Correlations on the Next Earthquake Magnitude. <b>Lippiello, E.</b> , De Arcangelis, L., and Godano, C.	Evidence for Laterally Distributed Tremor Activity Across the San Andreas Fault Zone at Cholame CA. <b>Nadeau, R.M.</b> and Guilhem, A.	<i>Starting at 4:10:</i> The Earthquake of <i>Carnuntum</i> in the 4th Century AD—Seismologic Scenario and Seismotectonic Implications for the Vienna Basin Fault, Austria. <b>Decker, K.</b> , Gangl, G., Kandler, M., Beidinger, A.
4:15	Maximum Fault-Rupture Displacements in Extensional Regimes: A Geologic Perspective. <b>Hecker, S.</b> , Dawson, T.E., and Schwartz, D.P.	Applications of BASS to Foreshocks. <b>Turcotte, D.L.</b> , Van Aalsburg, J., Holliday, J.R., and Rundle, J.B.	Verifying Low Frequency Earthquake Detections from Tremor. <b>Brown, J.R.</b> , Beroza, G.C., and Shelly, D.R. <i>Student presentation.</i>	
4:30	Simplified Probabilistic Seismic Hazard Model for Yucca Mountain. <b>Stirling, M.W.</b> , Gupta, V., and Field, N.	Spatio-Temporal Complexity of Continental Intraplate Seismicity: Observation and Physical Simulation. <b>Li, Q.</b> , Liu, M., and Stein, S.	The Role of Fluids in Triggering Earthquakes: Observations from Reservoir Induced Earthquakes. <b>El Hariri, M.</b> , Abercrombie, R. E., Rowe, C. A., Nascimento, A. F. <i>Student presentation.</i>	The Vienna Basin Fault System as a Potential Source of the Earthquake of <i>Carnuntum</i> in the 4th Century AD. <b>Beidinger, A.</b> , Decker, K., Roch, K.H.
4:45	Points in Hazard Space: A New View of PSHA. <b>Abrahamson, N. A.</b> , and Hanks, T. C.	Earthquake Statistics and Seismic Hazard and Risk Assessments. <b>Wang, Z.</b>	Stick-and-Slip Tremor During Iceberg Collisions in the Ross Sea. Macayeal, D.R., <b>Okal, E.A.</b> , Aster, R.C., and Bassis, J.N.	<i>Starting at 4:50:</i> Earthquakes and Civilizations of the Indus Valley: A Challenge for Archaeoseismology. <b>Kovach, R.L.</b> , Grijalva, K., Nur, A.
5:15– 6:15	Joyner Memorial Lecture. Transparent Seismic Mitigation for Community Resilience. <b>Chris D. Poland</b> , Degenkolb Engineers. (See page 292)			

## Wednesday, 16 April—Morning Poster Sessions

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### Complexity, Statistics, and Physics of Seismicity and Earthquakes (Eldorado—Anasazi. See page 292)

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A1. An Inverse BASS Model for Fracture. Abaimov, S.G., Rundle, J.B., and **Turcotte, D.L.**

A2. Earthquake Simulation Algorithm and Cycle Characteristics in the Vrancea (Romania) Area. Carbutar, F.O., and **Radulian, M.**

A3. Stress Evolution Following the 1906 San Francisco Earthquake from Geofest Finite Element Simulation. **Glasscoe, M.T.**, Lyzenga, G.A., Norton, C.D., Parker, J.W., Donnellan, A. and Kellogg, L.H.

A4. Comparisons Between Observed Properties of Aftershock Sequences in Southern California and Predictions of a Damage Rheology Model. **Yang, W.**, Ben-Zion, Y.

A5. Strong Sunspot Cycle Correlation of Large Shallow Earthquakes. **Shirley, J.H.**

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### Seismicity and Seismic Signals (Eldorado—Anasazi. See page 293)

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B1. Array Analysis of Short-Period Seismic Noise Recorded in Central Australia. **D'Amico, S.**, Koper, K., Herrmann, R.B.

B2. Analysis of Long-Period Noise at the Farallon Islands Broadband Seismic Station FARB. **Dolenc, D.**, Uhrhammer, R., Romanowicz, B.

B3. Ambient Seismic Noise Analysis of ANSS Data, **Duret, F.**, Mooney, W.D., and Detweiler, S.

B4. Analysis of Seismic Noise at the Ocean-Bottom Broadband Seismic Station Offshore Taiwan. **Chi, Wu-Cheng.** Chen, Wanrou, Kuo, Ban-Yuan, Lin, Ching-Ren, Dolenc, David, Collins, John.

B5. Tracking the Evolution of the 2005–2008 Matata Earthquake Swarm, New Zealand. **Bannister, S.**, Reyners, M., Scott, B., Ristau, J.

B6. Triggered Seismicity in the Nicoya Peninsula Region of Costa Rica Due to the 1990 Nicoya Gulf Earthquake. **Bilek, S.L.**, Elliott, C.E., Lithgow-Bertelloni, C.

B7. The May 8, 2007 Sheridan, Montana Earthquake. **Stickney, M.C.**

B8. Earthquake Relocation Studies in Southeastern Alaska. **Rodriguez, H.**, Doser, D.

B9. Possible Triggering of Large Sakhalin Island Earthquakes by Great Kurile-Kamchatka Events. **Bufe, C.G.**

B10. Mapping Faults and Studying Volcanoes: Applications of Double-Difference Relocations in British Columbia. **Balfour, N.J.**, Cassidy, J., and Dosso, S.

B11. Dynamic Triggering Seismicity in Hawaii. **Gonzalez-Huizar, H.**, and Velasco, A. A.

B12. Improved Hypocenter Determinations Using the Cepstral Stacking Method (CSM) with a Dense Regional Network of Stations. **Alexander, S.S.**, and Cakir, R.

B13. Microseism Noise Observed by Earthscope USArray Transportable Array. **Eakins, J.A.**, and Vernon, F.L.

B14. Directivity Effects of Fault Velocity Contrast on Triggered Seismicity. **Schorlemmer, D.**, Ben-Zion, Y.

B15. January 2008 Revere-Dellwood Fault Earthquake Sequence Offshore British Columbia. **Bird, A.L.**, Rogers, G.C., Cassidy, J.F., Kao, H., Dragert, H., and Bentkowski, W.

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### Extreme Ground Motions (Eldorado—Anasazi. See page 295)

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C1. Interaction Between Dynamic Rupture and Off-Fault Damage. **Ampuero, J.P.**, Ben-Zion, Y., Lyakhovsky, V.

C2. Effects of a Low-Velocity Fault Zone on a Dynamic Rupture with Off-Fault Yielding and Near-Field Ground Motion. **Duan, B.**

C3. On the Spatial Correlation of Earthquake Source Parameters. **Schmedes, J.**, Archuleta, R.J., and Lavallée, D.

C4. Observed Relations Among Fault Strength Loss, Slip Velocity, and Near-Fault Particle Velocity During Rupture Propagation, and Implications for Limits on Ground Motion. **Beeler, N.**, Kilgore, B., Boettcher, M., McGarr, A., Fletcher, J., Evans, J., and Baker, S.

C5. Fragile Geomorphic Features on Yucca Mountain, Nevada. **Purvance, M.D.** and Brune, J.N.

C6. INVITED: Unfractured Sandstones along the San Andreas Fault: Constraints on Extreme Ground Motion and Absolute Stress. **Brune, J.N.**, Purvance, M.D., Daemen, J.K., Scott, J., and Louie, J.N.

C7. Simulations of Stress Drops for Evolving Seismicity on a Heterogeneous Fault in an Elastic Half-Space. **Bailey, I.W.**, and Ben-Zion, Y.

Wednesday, 16 April—Afternoon Poster Sessions

C8. Quantifying Properties of Large-Slip Asperities in Earthquake Source Models. **Mai, P.M.**

C9. Extreme Ground Motion at Yucca Mountain: A Statistical Result. **Wang, Z.**

**Wednesday, 16 April—Afternoon Poster Sessions**

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**Extensional Seismotectonics of the Rio Grande Rift and Its Margins** (Hilton—Ortiz. See page 297)

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K1. Small-Scale Convection Beneath Continental Rifts: Evidence from the Rio Grande Rift. **Van Wijk, J.W.**, Van Hunen, J., and Goes, S.

K2. Quaternary Tectonics of the Central and Southern Sangre De Cristo Fault System, Southern Colorado and Northern New Mexico. **Ruleman, C.A.**, Crone, A.J., and Machette, M.N.

K3. Seismic Anisotropy Beneath the Colorado Plateau and Great Basin Transition. **Wang, X.**, Ni, J.F., Aster, R., and Grand, S.

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**Methods for Travel Time Calculation Through Complex Earth Structure** (Hilton—Ortiz. See page 298)

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L1. Short-Period Synthetics for 3D Models; Numerical vs. Analytical. **Ni, S.**, Pitarka, A., and Helmberger, D.

L2. Robust, Extensible Representation of Complex Earth Models for Use in Seismological Software Systems. **Ballard, S.**, and Hipp, J.R.

L3. Implementation of a Pseudo-Bending Seismic Travel Time Calculator in a Distributed Parallel Computing Environment. **Ballard, S.**, Barker, G.T., Hipp, J.R., and Chang, M.

L4. 1-D Velocity Structure and Crustal Structure of the Himalayan Collision Region Relocated by GA-mhypo Using himnt Earthquake Data. **Kim, Woohan**, Rowe, Charlotte A.

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**Models, Methods, and Measurements: Seismic Monitoring Research** (Hilton—Ortiz. See page 299)

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M1. Seasonal Anisotropy of Short-Period Seismic Noise in South Asia. **Koper, Keith D.**, and De Foy, Benjamin

M2. Testing Community Velocity Models of Southern California Using Ambient Seismic Noise. **Ma, S.**, Prieto G., and Beroza, G.C.

M3. Crustal Structure of the Southern Korean Peninsula from 3D Travel Time Tomography. **Gritto, R.**, Siegel, J.E., and Chan, W.W.

M4. Crustal Structure of the Kura Depression, Azerbaijan. **Mellors, R.J.**, Takedatsu, R., Gok, R., Yetirmishli, G., Gasanov, A., and Sandvol, E.

M5. Evaluation of Regional Travel-Time and Location Improvement along the Tethyan Margin Using a New Three-Dimensional Velocity Model. **Flanagan, M. P.**, Van Der Lee, S., Chang, S. J., and Matzel, E.

M6. Nuclear-Test Yield Determination of NTS Events Using Data from the Leo Brady Seismic Network. **Schramm, K.A.**, Bilek, S.L., and Abbott, R.E.

M7. Yield Estimates of the North Korea Nuclear Explosion using Whole Waveforms. **Salzberg, D.H.**

M8. Comparative Study of Rg Attenuation in Different Tectonic Settings. **Bonner, J.L.**, and Leidig, M.

M9. Reliable Rayleigh-Wave Amplitude Measurement for Attenuation Estimations. **Yang, X.**, Levshin, A.L., and Barmin, M.R.

M10. Lg Propagation and Amplitude Tomography Using the USArray. **Phillips, W.S.**, Stead, R.J., and Rowe, C.A.

M11. A New 3D Model of Mantle Wave Speeds and Density from Simultaneous S-P-Geodynamic Inversions. **Simmons, N.A.**, Forte, A.M., and Grand, S.P.

M12. The 2006 Kiholo Bay, Hawaii Earthquake: Observations Using Local S-Wave Coda. **Linnell, L.C.**, Murphy, K.R., and Mayeda, K.

M13. Discrimination of Earthquakes, Single-Charge Chemical Explosions, and Mining Explosions at Local to Near-Regional Distances in Eastern Kazakhstan. **Hartse, H.E.**, Arrowsmith, S.J., and Randall, G.E.

M14. Network-Averaged Magnitude Distance Amplitude Correction (MDAC) Discriminants Versus Best Single Station. **Mercier, T.M.**, Anderson, D.N., Fagan, D.K.

M15. Satellite Earth Observations Support CTBT Monitoring: A Case Study of the Nuclear Test in North Korea of Oct. 6, 2006 and Comparison with Seismic Results. **Schlittenhardt, J.**, Cong, X., Canty, M., Gutjahr, K., Soergel, U.

M16. Improved Ground Truth in Southern Asia Using In-Country Data, Analyst Waveform Review, and Advanced

Wednesday, 16 April—Afternoon Poster Sessions

Algorithms. **Engdahl, E.R.**, Bergman, E.A., Myers, S.C., and Ryall, F.

M17. Physically Based Depth Priors for Bayesian Single Event Location. **Fagan, D.K.**, Taylor, S.R., Anderson, D.N., and Mercier, T.M.

M18. Seismogram Picking Error from Analyst Review (SPEAR). **Zeiler, C.P.**, and Velasco, A.A.

M19. The Humble Redwood Seismic/Acoustic Coupling Experiment. **Foxall, B.**, Reinke, R., Snelson, C.M., Seastrand, D.R., Marrs, R.E., Walton, O.R., and Ramirez, A.L.

M20. Observations of Seismo-Acoustic Energy Propagation from Rocket Motor Detonations in Northern Utah. **Burlacu, R.**, Pankow, K., Kim, T.S., Hayward, C., and Stump, B.

M21. The F-Detector Revisited: Improved Strategies for Detecting Signals at Single Stations and Arrays. **Arrowsmith, S.J.**, Whitaker, R., Randall, G., Taylor, S.R., Anderson, D.

M22. An Automatic Method for Seismo-Acoustic Monitoring: Application to a Regional Network in Utah. **Arrowsmith, S.J.**, Burlacu, R., Randall, G., Whitaker, R., Hayward, C., Stump, B.W.

M23. Early Aftershocks of the 2004 Parkfield Earthquake Detected by a Matched Filter Technique. **Peng, Z.** and Zhao, P.

M24. The North Anatolian Fault Zone in the Broader Istanbul/Marmara Region: Monitoring a Seismic Gap. **Bohnhoff, M.**, Bulut, F., Aktar, M., Childs, D.M., Dresen, G.

M25. Comparison of Antarctic Seismic Station Quality Performance to Aggregate Gsn Network Power Spectral Density Probability Density Functions. **Anderson, K.R.**, Butler, R., and Aster, R.C.

M26. Anisotropic Velocity and Attenuation for Shear Waves in a Layered Soil by Resonant Column Tests. **Nguyen, Thanh Loc**, Semblat, Jean-François, Reiffsteck, Philippe, and Lenti, Luca.

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**Science Without Borders** (Hilton—Ortiz. See page 304)

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N1. Historical Earthquakes in Northern Mexico. **Hough, S.E.**, Suarez, G., and Elliot, A.

N2. Fourier Earthquake Forecasting in Mexicali Valley, Mexico. **Nava, F.**, Glowacka, E., and Frez, J.

N3. Near-Fault Strong Ground Motions Recorded for the Cerro Prieto Earthquake Series of 22–28 May 2006. **Munguia, L.**, Suárez-Vidal, F., Lira, H., Glowacka, E., Navarro, M., Valdez, T., Luna, M., and Sarychikhina, O.

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**Earthquakes and Society: Developing Community Resiliency through Earthquake Scenarios** (Hilton—Ortiz. See page 304)

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O1. ShakeCast: Improving the Use of ShakeMap for Earthquake Scenarios and Post-Earthquake Response. **Lin, K.W.** and Wald, D.J.

O2. Seismic Risk Assessment for Dams in Southern California. **Lee, R.C.**, Salmon, M., Bradley, C., Davidson, R., and Osmun, D.

## Thursday, 17 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>
	<b>Models, Methods, and Measurements: Seismic Monitoring Research</b> Session Chairs: Shane Detweiler & Megan Flanagan (see page 305)	<b>The Heritage of F. Anthony Dahlen</b> Session Chairs: Jeroen Tromp & Guust Nolet (see page 307)	<b>Very Near-field Earthquake Source Observations</b> Session Chairs: Malcolm Johnston & Arthur McGarr (see page 311)
8:30	Toward a Comprehensive Three-Dimensional Earth Model. <b>Woods, M.T.</b>	INVITED: Spectral Estimation on a Sphere in Geophysics and Cosmology. <b>Simons, F.J.</b>	Strong Ground Motion and Site Response Recorded Underground in Deep Level Gold Mines in South Africa, <b>Milev, A.M.</b> , and Spottiswoode, S.M.
8:45	Seismic Tomography of Pg and Lg and Its Use for Average Upper Crustal Structure in Eurasia. <b>Steck, L.K.</b> , Phillips, W.S., Begnaud, M.L., Stead, R.J., and Rowe, C.A.	INVITED: Towards Multi-mode Diffractive Tomography in Radially Anisotropic Media. <b>Zhou, Y.</b>	Rock Mass Deformations Around Deep Level Mining by Quasi-Static and Dynamic Measurements. <b>Milev, A.M.</b> , and Spottiswoode, S.M.
9:00	A Global Model and Methods for Accurate Real-Time Calculation of Regional Travel Times. <b>Myers, S.C.</b> , Pasyanos, M.P., Ramirez, A., Dodge, D.A., Ballard, S., Rowe, C., Phillips, S., Begnaud, M., Antolik, M., Hutchenson, K., Wagner, G., Dwyer, J., and Russell, D.	INVITED: Banana-Doughnut Sensitivity Kernels: Applications and New Developments. <b>Shen, Y.</b> , Zhang, Z., Ren, Y., Zhang, W., and Zhao, L.	Acoustic Emission Measurements in a Deep Gold Mine in South Africa—Project Overview and Some Typical Waveforms. <b>Nakatani, M.</b> , Yabe, Y., Philipp, J., Morema, G., Stanchits, S. and Dresen, G., JAGUARS (Japanese-German Underground Acoustic emission Research in South Africa) group.
9:15	Validating P Wave Travel Times for a 3D Model of East Asia Using a Pseudo-Bending Travel Time Calculation and a Large GT Data Set. <b>Young, C.J.</b> , Ballard, S., and Barker, G.T., Begnaud, M.L., Rowe, C.A., Phillips, W.S., and Steck, L.K.	INVITED: Full-Wave Spherical-Earth Sensitivity Kernels at Arbitrary Resolution: Methodology, Examples, and Applications. <b>Nissen-Meyer, T.</b> , Fournier, A., Dahlen, F. A.	Some Preliminary Results from Analyses of Broadband Records of Earthquakes in Deep South African Gold Mines. <b>McGarr, A.</b> , Boettcher, M., Sell, R.W., Johnston, M.J.S., Durrheim, R., Spottiswoode, S., and Milev, A.
9:30	Earthquake Ground Motion Prediction Using the Ambient Seismic Field. <b>Prieto, G. A.</b> , and Beroza, G. C.	INVITED: Long-Period Mantle Anelasticity from Geodetic Observations, and Its Relation to Seismic Q. <b>Wahr, John,</b> O'Connell, Richard J., Benjamin, David, Desai, Shailen, Ray, Richard, and Egbert, Gary.	A Broadband, Wide Dynamic Range Investigation of Earthquakes in Deep South African Gold Mines. <b>Boettcher, M.S.</b> , McGarr, A., Durrheim, R.J., Spottiswoode, S., Milev, A., Linzer, L., Johnston, M.J.S., and Sell, R.W.
9:45	Ground Motion Modeling for Nuclear Explosion Monitoring: Advances in One-Dimensional and Three-Dimensional Modeling. <b>Rodgers, A.</b> , Helmberger, D. V., and Tromp, J.	INVITED: Global Observations of Mantle Discontinuities, and Comparison with Tomographic Models and Mineral Physics. <b>Deuss, A.</b> , and Andrews, J.	Near-Field Earthquake Source Nucleation at 3.5 km Deep in the Tautona Mine, South Africa, <b>Johnston, M.J.S.</b> , Lockner, D., Boettcher, M.S., Heesakkers, V., Reches, Z., McGarr, A., and Van Aswegen, G.
10:00	Break at the Eldorado		

Thursday, 17 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>
	<b>Models, Methods, and Measurements: Seismic Monitoring Research</b> ( <i>continued</i> ) Session Chairs: Stephen Myers & Lee Steck	<b>The Heritage of F. Anthony Dahlen</b> ( <i>continued</i> )	<b>Very Near-field Earthquake Source Observations</b> ( <i>continued</i> )
10:30	Implications of the CLVD on Long-Period Seismic Waves from Nuclear Explosions. <b>Patton, H.J.</b>	INVITED: Convective Interactions beneath North America. <b>Allen, R.M.</b> , Xue, M., and Hung, S.-H.	Fault Zone Micro-Events Observed from Crossing Fault 7-Level TCDP Borehole Seismometers. <b>Ma, K.F.</b> , Tanaka, H., Lin, Y.Y.
10:45	High-Frequency Source Radiation in Lg Waves: A Long Standing Controversy and the Effort to Resolve It. <b>Xie, J.</b>	INVITED: A Complex, Two-Phase Subduction History of the Farallon Plate Revealed by Finite-Frequency Tomography. Sigloch, K., McQuarrie, N., and <b>Nolet, G.</b> <i>Student presentation.</i>	Near-Fault Ground Motions in the 1999 Chi-Chi, Taiwan Earthquake and Its Implication in Source Rupture Inversion. <b>Chiu, H.C.</b>
11:00	Historical Materials Characterizing Activities at the Semipalatinsk Nuclear Test Site, 1949 to 1989. Khalturin, V.I.; Rautian, T.G; <b>Richards, P.G.</b>	INVITED: Adjoint Tomography of Southern California. <b>Tape, C.</b> , Liu, Q., Maggi, A., Tromp, J.	Fault Rupture Directivity Effects in the Next Generation Attenuation Relations. <b>Rowshandel, Badie</b>
11:15	“Middle-Earthscope”—An Update on the Geonet Project and Earthquake Research in New Zealand. <b>Cowan, H.A.</b> , Townend, J., Bannister, S., Beavan, J., Gledhill, K., Reyners, M., Ristau, J., and Wallace, L.	INVITED: Lateral Variations in Elastic and Anelastic Structure beneath Japan. <b>Ishii, Miaki.</b>	A Novel Approach to Strong Ground Motion Attenuation Modeling. <b>Graizer, V.</b> , and Kalkan, E.
11:30	A Simple and Rapid Earthquake Detection and Discrimination System for ELARMS. <b>Olivieri, M.</b> , and Allen, R.M.	INVITED: Investigating Seismic Surface Wave Amplitudes: From Asymptotic to Numerical Wavefield Calculations. <b>Ferreira, A.M.G.</b> , Woodhouse, J.H., McManus, E.	Repeating Ruptures in Laboratory Experiments as a Possible Mechanism for Earthquake Sequences at Asperities. <b>Rubinstein, S.M.</b> , Cohen, G., Reches, Z., and Fineberg, J. <i>Student presentation.</i>
11:45	Microseism-Based Climate Monitoring. <b>Aster, R.</b> , McNamara, D., Bromirski, P., Gee, L., and Hutt, C.R.	Finite- and Infinite-Frequency Approximations in Context of Characteristic Equations. <b>Slawinski, M.A.</b>	
12:00	SSA Annual Luncheon at the Eldorado Many of the Facets of Seismology, a Gem of a Profession. <b>Gilbert, J. Freeman.</b>		
	<b>Advances in Treating Macroseismic Intensity Data Quantitatively</b> Session Chairs: Livio Sirovich & David Wald (see page 312)	<b>The Heritage of F. Anthony Dahlen</b> ( <i>continued</i> )	<b>Active-Source Seismic Imaging—Geology in Three Dimensions</b> Session Chairs: Michael Rymer & Rufus Catchings (see page 314)
2:15	Macroseismic Data at the U.S. Geological Survey/National Earthquake Information Center. <b>Dewey, J.W.</b> , Wald, D., and Hopper, M.G.	Banana-Split Theory and Multi-Path Analysis. <b>Helmberger, D. V.</b> , and Sun, D.	Converted Phases Migration Using Active Seismic Data at the Campi Flegrei Caldera, Italy. <b>Blacic, T. M.</b> , Latorre, D., and Virieux, J.

Thursday, 17 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>
2:30	USGS “Did You Feel It?” Internet Intensity Maps: Macroseismic Data Collection and Analysis in the Internet Age. <b>Wald, D.J.</b> , Quitariano, V., and Dewey, J. W.	An Efficient Approach to Short-Period Waveform and Fréchet Kernel Calculations Based on Normal-Mode Theory. <b>Zhao, L.</b> , Yang, H.-Y., and Hung, S.-H.	Significant Mesozoic-Cenozoic Faulting Imaged at the Epicenter of the 1886 Charleston, South Carolina Earthquake. <b>Chapman, M.C.</b> , and Beale, J.N.
2:45	Use of “Did You Feel It?” Intensity Data as a Stand-In for Instrumental Ground-Motion Data. <b>Atkinson, G.M.</b> , and Wald, D.J.	Global Structure of the D” Region Using Diffracted Waves and Finite Frequency Kernels. Manners, U., <b>Masters, G.</b> , Liu, Q., and Tromp, J.	Three-Dimensional Structural and Hydrogeological Characterization of the Central Nevada Test Area: Implications for Contaminant Migration Monitoring. <b>Liberty, L.M.</b> , and Hodges, R.
3:00	Earthquake Parameter Estimation from Historical Macroseismic Data. <b>Musson, R.M.W.</b> , Jiménez, M.-J., and Gomez Capera, A.A.	Refined Observations of the Earth’s Radial Modes. <b>Davis, P.</b> and Masters, G.	Active and Passive Seismic Imaging in Utah Valley, Utah, for Earthquake Hazards. <b>Stephenson, W.J.</b> , Odum, J.K., Williams R.A., and Worley, D.M., McBride, J.H.
3:15	Achievements and Doubts on the New Use of Intensity: Inversion for Unknown Sources, Future Scenarios, Hazard, Rapid Information. <b>Livio Sirovich</b> and Franco Pettenati.	Split Modes and Beachfront Hotels. <b>Stein, S.</b> , and Okal, E. A.	Near-Surface Images of the Santa Monica Fault Zone, Los Angeles, California. <b>Catchings, R.D.</b> , Rymer, M.J., Goldman, M.R., Gandhok, G., Okaya, D.A., and Bawden, G.W.
3:30	An Overview of the USGS PAGER (Prompt Assessment of Global Earthquakes for Response) System. <b>Earle, P.S.</b> , Wald, D.J., Porter, K.A., Jaiswal, J.S., and Allen, T.I.	Of Landslides, Quadrupoles, Fully Integrated Terms, and Other “Uninteresting Algebraic Details”: The Perspective of a BSSA Reviewer. <b>Okal, E.A.</b>	
3:45	Break at the Eldorado		
4:15	An Empirical Relationship Between Fatalities and Instrumental MMI for Pager. <b>Porter, K.A.</b> , Wald, D.J., Allen, T.I., Jaiswal, K., and Earle, P.S.		Seismic Reflection and Refraction Profiles and Gravity Studies of the Eagle Rock and Raymond Faults in Arroyo Seco, Los Angeles County, California. <b>Rymer, M.J.</b> , Fuis, G.S., Catchings, R.D., Goldman, M.R., Scheirer, D.S,
4:30	Development of a Global, Semi-Empirical Approach for Rapid Estimation of Human Casualties Due to Earthquakes. <b>Jaiswal, Kishor S.</b> , Wald, David J., Porter, Keith.		Near-Surface Geophysical Investigations of the Hayward and Green Valley Faults Using Seismic and Ground-Penetrating Radar Methods. <b>Craig, M.S.</b> , Kimball, M.A., and Fay, R., and Lienkaemper, J.J.
4:45	Accounting for Data and Modelling Uncertainties in Intensity-Magnitude Attenuation Models: Example for Metropolitan France and Neighbouring Countries. <b>Baumont, D.</b> , and Scotti, O.		The Structure and Evolution of the Lithosphere in Central Europe Based on Controlled Source Seismology Experiments. <b>Keller, G. R.</b> , Grad, Marek, Guterch, Aleksander, and Brueckl, Ewald.

## Thursday, 17 April—Morning Poster Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>
5:00	Using Online Felt Report Data to Derive a Probabilistic Relationship Between MMI and Ground Shaking Amplitude. <b>Gerstenberger, M.C.</b> , Worden, C.B., and Wald, D.J.		Joint and Interactive Interpretation of Crustal Datasets in Two and Three Dimensions. <b>Morozov, I.B.</b>
5:15	Macroseismic Data Analysis of Deep and Shallow Earthquakes in the Peloponnese (Greece). <b>Kouskouna, V.</b> , Sakellariou N., Sakkas G., Makropoulos K.		Advantages of Combined, Full-Wavefield P- and S-Wave Imaging of Fault Zones. <b>Catchings, R.D.</b> , Rymer, M.J., and Goldman, M.R.
5:30	Comparison of PSHA in Italy Using Intensity Data. <b>Mucciarelli, M.</b> , Albarello, D., and D'Amico, V.		

## Thursday, 17 April—Morning Poster Sessions

### Active-Source Seismic Imaging—Geology in Three Dimensions (Eldorado—Anasazi. See page 317)

E1. Very High-Resolution Reflection Profiles Across the San Mateo Fault Zone with Implications for Earthquake and Tsunami Hazards Associated with the Oceanside Blind Thrust. **Ryan, H. F.**, Covault, J. A., Normark, W. R., and Sliter, R. S.

E2. Seismic Reflection Profiles Image the Rodgers Creek Fault and Trenton Ridge beneath Urban Santa Rosa, California. **Williams, R.A.**, Langenheim, V.E., McLaughlin, R.J., Odum, J.K., Worley, D.M., Stephenson, W.J., Kent, R.L., McCullough, S.M., Knepprath, N.E., and Leslie, S.R.

E3. Shallow Seismic Velocity Structure Across the San Andreas near Palmdale, California. **Lewis, M.A.**, Fischer, A.D., Shi, Z., Wechsler, N., Xu, S., Yang, W., Zechar, J., Bailey, I.W., and Ben-Zion, Y.L.

E4. New View of the San Gregorio Fault. **Ross, S.L.**, Ryan, H.F., Chin, J.L., Conrad, J.E., Dartnell, P., Edwards, B.D., Phillips, E.L., Sliter, R.W., Wong, F.L.

E5. Imaging the Geometry of Great Basin Normal Faults by Combining Seismic Reflection with Refraction Tomography. **Louie, J.N.**, Pullammanappallil, S., and Honjas, B.

E6. Three-Dimensional Caribbean-South America Plate Boundary Structure Imaged with Seismic Reflection and Wide-Angle Seismic Data from the BOLIVAR Experiment. Zelt, C.A., **Magnani, M.B.**, Miller, M.S., Levander, A., Clark, S.A., Bezada, M., Guedez, M., Mann, P., Christeson, G.L., Schmitz, M.

E7. Multiple-Source High-Resolution Seismic-Reflection Imaging Profiles Across the Meeman Shelby Fault 25 km

North of Memphis, Tennessee. **Odum, J.K.**, Stephenson, W.J., Williams, R.A., and Worley, D.M.

### Volcano Seismology (Eldorado—Anasazi. See page 318)

G1. Twenty Years of Seismic Monitoring by the Alaska Volcano Observatory. **Dixon, J.P.**, McNutt, S.R., Power, J.A., West, M.E.

G2. Seismological and Related Research at Erebus Volcano, Antarctica. Chaput, J., Jones, K., Yarbrough, H., Zandomeneghi, D., **Aster, R.**, Johnson, J.B., Kyle, P., McIntosh, W., Snelson, C., Oppenheimer, C., and Gerst, A.

G3. Source Characterization of Impulsive Strombolian Explosions at Mount Erebus Using an Infrasound Network. **Jones, K.**, Johnson, J.B., Aster, R., McIntosh, W., Kyle, P.

G4. Source Process of Colima Volcano 2005 Explosions. **Nunez-Cornu, F.J.**, Vargas-Bracamontes, D., Sanchez, J.J., Suarez-Plascencia, C.

G5. Some Parameters of Seismicity near Ceboruco Volcano, Mexico. **Sanchez, J.J.**, Nunez-Cornu, F.J., Trejo-Gomez, E., Suarez-Plascencia, C.

G6. Seismic Precursors to Episodic Eruptive Events at Santiaguito Volcano. **Sanderson, R.W.**, Johnson, J.B., Lees, J.M.

G7. Preliminary Volcanic Modeling at San Miguel Volcano, El Salvador Using InSAR and Seismic Techniques. **Schiek, C.G.**, Theiner, T., Velasco, A.A., and Hurtado, J.M.

G8. Moment Tensors for Very Long Period Signals at Etna Volcano, Italy. **Hellweg, M.**, Cannata, A., Gresta, S., Ford, S., Di Grazia, G.

## Thursday, 17 April—Afternoon Poster Sessions

G9. Spatio-Temporal of the June 17th, 2007 Kilauea Intrusion. **Montgomery-Brown, E. Desmarais**, Sinnett, D.K., Segall, P., Miklius, A., Poland, M., and Larson, K.M.

G10. Inhomogeneous Properties of the Scattering Wavefield on Mt. Vesuvius. **Tramelli, A.**, Del Pezzo, E., Galluzzo, D., Fehler, M.C.

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### Advances in Treating Macroseismic Intensity Data Quantitatively (Hilton—Ortiz. See page 320)

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P1. The 16 May 1909 Northern Plains Earthquake. **Bakun, W.**, Rogers, G., Stickney, M.

P2. Seismic Hazard Assessment from Intensity Data. **Albarello, D.**, D'Amico, V., Mucciarelli, M.,

P3. Numerical Studies of 8000 Reports of Earthquakes Felt in India in the past Four Centuries. **Szeliga, W.**, S. Martin, S. E. Hough, R. Bilham.

P4. Intensity-Based Source Inversions of Old Earthquakes and New Parametric Scenarios. **Livio Sirovich** and Franco Pettenati.

P5. Comparison of New Madrid 1811–1812 Intensity Observations with Scenario Hazard Ground-Motion Models That Include the Effects of Site Geology. **Cramer, C.H.**, and Tuttle, M.P.

P6. The 2006 Kochkor, Kyrgyzstan Earthquake: A Moderate-Sized but Damaging Earthquake. **Aulia, A.**, Mellors, R., Kalmetyeva, Z.

P7. A Comparison of EMS and MMI Macroseismic Intensity Assignments from Online Questionnaires. Gilles, S., **Musson, R.**, Bossu, R., Wald, D.J., Quitoriano, V.

P8. Estimating Earthquake Magnitude and Location from Intensity for Three Regions of Alaska. **Doser, D.I.**

P9. USGS ShakeMap Developments and Derivative Systems. **Wald, D. J.**, Lin, K., Quitoriano, V., and Allen, T. I.,

P10. Global Earthquake Casualties Due to Secondary Effects: A Quantitative Analysis. **Marano, K.D.**, Wald, D.J., and Allen, T.A.

P11. Development of Global Fatality Models Using the Atlas of ShakeMaps. **Allen, T.I.**, Earle, P.S., and Wald, D.J.

P12. A Global Building Inventory Database for Earthquake Casualty Estimation. **Jaiswal, Kishor S.**, Wald, David J., and Porter, Keith.

P13. Near-Real-Time Earthquake Risk Analysis Using HAZUS and High-Resolution ShakeMap for the Seattle Metropolitan Area, Washington. **Terra, F.** Wong, I., Bausch, D., Crawford, G., Hartog, R., Steele, B., Vidale, J., Bodin, P., Gombert, J., Pratt, T., Weaver, C., Rozelle, J., and Wald, D.

P14. Making U.S. Legacy Macroseismic Data Useful. **Hopper, M.G.**

## Thursday, 17 April—Afternoon Poster Sessions

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### The Heritage of F. Anthony Dahlen (Eldorado—Anasazi. See page 323)

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D1. Shallow Earthquake Depth Determination Using Surface Wave Amplitude Spectra. **Fox, B.D.**, Selby, N.D., Woodhouse, J.H.

D2. A New Method for the Calculation of the Eigenfunctions and Eigenfrequencies of Spherically Symmetric Anelastic Earth Models. **Al-Attar, D.**, and Woodhouse, J.H.

D3. Shallow Crustal Thermal Structures in Taiwan Region. **Chi, Wu-Cheng.**

D4. Theoretical Solution for Love-Type Surface Waves in Multilayered Viscoelastic Media. **Borcherdt, R.D.**

D5. On the Origin of Coherence of Long-Period Earthquake Ground Motions. **Olsen, K.B.**, Day, S.M., Minster, J.B., Maechling, P., and Jordan, T.

D6. Western US Upper Mantle Structure from Multiple-Frequency SH Wave Measurements and Banana-Doughnut Kernels. **Tian, Y.**, Sigloch, K., Nolet, G.

D7. The Energetics of Gravity-Driven Faulting. **Barrows, L.J.**

D8. Developing the SCEC Petascale Cyberfacility for Physics-based Seismic Hazard Analysis (PetaSHA). **Maechling, P.**, Jordan, T., Kesselman, C., Moore, R., Minster, J.B.

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### New Methods, Instrumental and Network Reports (Eldorado—Anasazi. See page 325)

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F1. Free Oscillations of the Earth Detected Using Pore Pressure Monitoring. **Yanagidani, T.**, Kano, Y.

F2. Analysis of Large Seismic Network Performance Using Spectral Probability Techniques. **Anderson, Kent**, McNamara, Daniel, Butler, Rhett, Alvarez, Marcos, Trabant, Chad.

Thursday, 17 April—Afternoon Poster Sessions

F3. Laboratory and Field Testing of Rotational Seismometers. **Nigbor, R.L.**, Evans, J.R., Hutt, C.R.

F4. Guidelines for Seismometer Testing—A Progress Report. **Hutt, C. R.**, and Evans, J. R., Nigbor, R.

F5. Source Location in Anisotropic Shale. **Bayuk, I.O.**, and Chesnokov, E.M.

F6. Automating Earthquake Locations in Near-Real-Time With an Efficient Cross-Correlation Process. **Von Seggern, D.H.** and Smith, K.D.

F7. Joint Inversion of Fault Zone Head Waves and Direct P Arrivals along the Parkfield Section of the San Andreas Fault. **Shi, Z.**, Ben-Zion, Y., Peng, Z., Lewis, M., Zhao, P.

F8. First Estimate of ICEARRAY's Performance during a Recent Earthquake Sequence in South Iceland. **Halldorsson, B.**, and Sigbjornsson, R.

F9. USArray Data and Quality Control at the IRIS DMC. **Templeton, M.E.**, Trabant, C., Johnson, P.A., Sharer, G., Benson, R.

F10. Five Years after the Denali Fault Earthquake Sequence—Data Collected, Lessons Learned: A Regional Network Operator's Perspective. **Ruppert, N.A.**, and Hansen, R.A.

F11. The Puerto Rico Seismic Network. **Von Hillebrandt-Andrade, C. G.**, Huerfano Moreno, V. and Staff

F12. Seismic Wave Forms, Background Noise Levels, and Sea-Floor Marine Sediment Characterization of the Gulf of California from Recorded Data of the Sea of Cortez Ocean Bottom Array (SCOOBA) Seismic Experiment. **Carlos I. Huerta-Lopez**, Raul R. Castro-Escamilla, Jim Gaherty, and John Collins.

F13. Small-Scale Cross-Correlation of Seismic Noise from the Calico Fault Experiment. **Zhang, J.**, Gerstoft, P., Cochran, E. S., Shearer, P. M.

F14. Nonvolcanic Tremor in Denali Surface Waves at Broadband Stations in Northern California: Instrumental Causes? **Hellweg, M.**, Uhrhammer, R.A., Ford, S., Friday, J.

F15. Analysis of the Refraction Microtremor (ReMi) Method to Determine  $V_{S30}$  and Bedrock Depth in the St. Louis Metropolitan Area. **Messmer, M.L.**, Williams, R.A., Stephenson, W.J., Odum, J.K., Worley, D.M.

F16. The Multi-Axial Perfectly Matched Layer (M-PML) for Wave Propagation in Elastic Media: Study of Its Stability. **Meza-Fajardo, Kristel C.**, and Papageorgiou, A.S.

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**Ground Motion—Observations and Models** (Hilton—Ortiz. See page 328)

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Q1. Empirical Predictive Equations of Ground Motions for the Pingtung Earthquakes. **Wu, F.R.**, and Chiu, H.C.

Q2. Prediction of Strong-Ground Motion Using Micro-Seismicity in Central Japan. **Edwards, B.** and Rietbrock, A.

Q3. Towards a Stochastic Ground-Motion Model with Optimized Generalization Error Derived from the NGA Dataset. **Kuehn, N.M.**, Scherbaum, F., and Riggelsen, C.

Q4. Stochastic Finite Fault Modeling of the September 26, 2003 M 8.1 Tokachi-Oki Earthquake; Implications for Expected Ground Motions from Mega-Thrust Events in the Cascadia Subduction Zone. **Macias, M.**, and Atkinson, G. M.

Q5. Study on the Ground Motion Characteristics and Crustal Activities in the Eastern Kanto Region. **Merghealani, T.A.**, Miyashita K., and Kawahara J.

Q6. Variation of Strong Ground Motions at the Parkfield Turkey Flat Array and the Blind Prediction Test. **Haddadi, H.R.**, and Shakal, A. F.

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**Rupture Characteristics** (Hilton—Ortiz. See page 329)

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R1. Passive and Primary Surface Ruptures along the Camp Rock Fault, Eastern California Shear Zone. **Kaneda, H.**, and Rockwell, T.K.

R2. Using Digital Photogrammetry to Produce Three-Dimensional Surface Rupture Maps of the 2002 M7.9 Denali Fault Earthquake. **Haeussler, P.J.**

R3. Validation on the Rate of Rupture Propagation of the 2001 Kunlun, China ( $M_s=8.1$ ) Earthquake from Seismological and Geological Observations. **Wen, Y-Y.**, Ma, K-F., Song, T.R.A., and Mooney, W.D.

R4. Rupture Velocity of the 2001 Kunlunshan Earthquake: A Revisit. **Shao, G.**, and Ji, C.

R5. Variations of the Velocity Contrast and Rupture Properties of M6 Earthquakes along the Parkfield Section of the San Andreas Fault. **Zhao, P.**, Peng, Z., Ben-Zion, Y., Shi, Z., and Lewis, M.

R6. Inversion of Peak Ground Motions for Rupture Directivity in Moderate and Large Earthquakes in Northern California. **Seekins, L.C.**, and Boatwright, J.

**Very Near-field Earthquake Source Observations** (Hilton—Ortiz. See page 330)

S1. Very High Frequency AE (< 200kHz) and Micro Seismicity Observation in a Deep South African Gold Mine—Evaluation of the Acoustic Properties of the Site by In-Situ Transmission Test. **Naoi, M.**, Masao, N., Yabe, Y., Philipp, J., and JAGUARS (Japanese-German Underground Acoustic emission Research in South africa) group.

S2. JAGUARS-Project. Spectral Analysis of Microseismicity and Acoustic Emission in a Deep South African Gold Mine. **Plenkens, K.**, Kwiatek, G., JAGUARS(Japanese-German Underground Acoustic emission Research in South africa) group.

S3. Estimating Moment Tensor Solutions at Savuka Gold Mine, South Africa, with a Sparse 3D Network. **Julia, J.**, Nyblade, A.A., Gok, R., Walter, W.R., Linzer, L., Durrheim, R.J., Spottiswoode, S., Dirks, P.

**Best Practices for Teaching Undergraduate and Graduate Seismology Courses** (Hilton—Ortiz. See page 331)

T1. Using Earthquakes to Stimulate Student Curiosity, Analysis, and Skepticism. **Stein, S.**

T2. Using SeisMac to Teach Fundamental Seismology. **Wysession, M.E.**, Taber, J., Hubenthal, M.

T3. Achieving Broader Impacts in the K–12 Classroom with Geophysical Research. **Hall, M.K.**, Bravo, T.K., and Ortiz, A.K.

T4. Practical Earthquake Seismology: A Hands-On Graduate Course. **Michael, A.J.**

T5. Every Equation Tells a Story: The Equation Dictionary Project. **Caplan-Auerbach, J.**

**Friday, 18 April—Concurrent SSA Oral Sessions**

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>	<i>Hilton—Mesa C</i>
	<b>Next Generation of Collaborative Earthquake Predictability Research</b> Session Chairs: Danijel Schorlemmer & Matthew Gerstenberger (see page 332)	<b>Volcano Seismology</b> Session Chairs: Francisco Nunez-Cornu & Charlotte Rowe (see page 334)	<b>Scaling Aspects in Earthquake Analysis and Modeling</b> Session Chairs: Cristian Suteanu & Joern Davidsen (see page 335)	<b>Seismic Hazard and Risk</b> Session Chairs: Christopher DuRoss & William McCann (see page 337)
8:30	INVITED: A Federal Perspective on Earthquake Prediction Research. <b>Blanpied, M.L.</b>	The Upper Baezaeko River, British Columbia, Earthquake Sequence: Unusual Seismic Activity in the Anahim Volcanic Belt. <b>Cassidy, J.F.</b> , Balfour, N., Hickson, C., Kao, H., Mazzotti, S., Rogers, G.C., Bird, A., Bentkowski, W., Al-Khoubbi, I., Esteban, L., White, R., Caplan-Auerbach, J., and M. Kelman	Aftershock Identification and Clustering Analysis of Seismicity. <b>Zaliapin, I.</b> , Gabrielov, A., Keilis-Borok, V., and Wong, H.	Paleoseismology of the Northern Weber Segment at the Rice Creek Site, Wasatch Fault Zone, Utah. <b>DuRoss, C.B.</b> , McDonald, G.N., Crone, A.J., Personius, S.F., Lidke, D.J.
8:45	<i>Starting at 8:50:</i> The Collaboratory for the Study of Earthquake Predictability—Progress Report. <b>Schorlemmer, D.</b> , Jordan, T.H., CSEP Working Group	Evolution of Waveform Similarity at Augustine Volcano, Alaska, during the 2006 Eruption. <b>DeShon, H.R.</b> , Thurber, C.H., Power, J.	Long-Range Correlations Between Avalanches in a Model for Earthquakes. <b>Baiesi, M.</b> , and Maes, C.	Aggregate Hazard Analysis. <b>Malhotra, P.K.</b>

Friday, 18 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>	<i>Hilton—Mesa C</i>
9:00	<i>Starting at 9:05:</i> Earthquake Prediction: A Third round of Precursor Evaluation and Discussion. Wyss, M., <b>Schorlemmer, D.</b>	Seismic Monitoring during Recent Eruptive Episodes in Ecuador. <b>Ruiz, M.C.</b> , Yepes, H., Palacios, P., Alvarado, A., Segovia, Troncoso, L., Vaca, Kumagai, H., Johnson, J., Lees, J. Garcia, A., Molina, I., and Villagomez, D.R.	Finite Sample Effects and Fluctuations in the B-Value. <b>Naylor, M.</b> , Ian, I.G., and McCloskey, J.	Active Faults in Eastern Hispaniola: Implications for Earthquake Hazard in Hispaniola and Puerto Rico. <b>McCann, W.R.</b>
9:15	<i>Starting at 9:20:</i> Global Earthquake Forecast Testing. <b>Jackson, D.D.</b> , and Kagan, Y.Y.	Waveform Modeling of Santiaguito Volcano Explosions. <b>Lees, J. M.</b> , Johnson, J., and Nishimura, T.	Earthquake-Like Properties of Brittle Fracture down to femtoJoules. <b>Di Stefano, P.C.F.</b> , Astrom, J., Maasilta, I., Timonen, J., Proebst, F., and Stodolsky, L.	European Seismic Risk Model. <b>Williams, C.</b> , Nyst, M., Onur, T., Seneviratna, P., Tabucchi, T., and Baca, A.
9:30	<i>Starting at 9:35:</i> INVITED: New Approach in Support of Short-Term Earthquake Prediction Based on the LAIC Model. <b>Pulinets, S.A.</b> , and Ouzounov, D.	Tracking Changes in Colima Volcano through Seismic Data Mining. <b>West, M.</b> , Dominguez, T., Gardine, M.	From Earthquakes to Rock Fracture: Scaling and Universality. <b>Daidsen, J.</b>	A Revised Chronology of Late Holocene Surface-Faulting Earthquakes on the Nephi Segment, Wasatch Fault Zone, Utah. <b>Crone, A.J.</b> , Personius, S.F., Machette, M.N., Duross, C.B., McDonald, G.N., and Lund, W.R.
9:45		Co-Eruptive Earthquakes and Lava Dome Respiration Captured with Seismometers and a Video Camera. <b>Johnson, J.B.</b> , Lees, J.M., and Sanderson, R.	Scale-Sensitive Quantification of Pattern Change in Seismically Active Zones. <b>Suteanu, C.</b>	A Seismic Risk Model for Portugal. <b>Nyst, M.</b> , Williams, C., Onur, T., Seneviratna, P., and Tabucchi, T.
10:00	Break at the Eldorado			
	<b>Next Generation of Collaborative Earthquake Predictability Research</b> ( <i>continued</i> )	<b>Structure, Stress and Attenuation Modeling</b> Session Chairs: Allison Bent & Gary Chulick (see page 338)	<b>Scaling Aspects in Earthquake Analysis and Modeling</b> ( <i>continued</i> )	<b>Ground Motion—Observations and Models</b> Session Chairs: Zack Lawrence & Nicolas Kuehn (see page 339)
10:30	INVITED: Testing of Long Term Seismic Hazard Models. <b>Stirling, M.W.</b>	The Multi-Axial Perfectly Matched Layer (M-PML) for Wave Propagation in Elastic Media: Study of Its Accuracy. <b>Meza-Fajardo, K.C.</b> , Papageorgiou, A.S. <i>Student presentation.</i>	Downscaling of Elastic Properties of Sedimentary Rocks. <b>Chesnokov, E.M.</b> , Ammerman, M., and Bayuk, I.O.	Ground Motion Models for the CEUS—A User's Perspective. Bazan, E., Jarenprasert, S., <b>Rizzo, P.C.</b>

Friday, 18 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>	<i>Hilton—Mesa C</i>
10:45	<i>Starting at 10:50:</i> First 5 Years of the Experiment in Predicting Future Earthquakes by Reverse Tracing of Precursors (RTP): Results and Lessons. <b>Shebalin, P.N.</b> , Keilis-Borok, V.I.	Stress Parameter Distribution on an Earthquake Fault Based on a Stochastic Modeling Approach. <b>Assatourians, K.</b> , Atkinson, G.M.	The Dynamics of Scaling Aspects in Earthquake Patterns: From Characterization to Interpretation. <b>Horne, P.</b> , Suteanu, C., Cretu, E., Ioana, C. <i>Student presentation.</i>	The Effects of Surface Geology on Rotational Ground Motion. <b>Sánchez-Sesma, F.J.</b> , Cadena-Isaza, A., Flores, E., Godinho, L., Mendes, P.A., Smerzini, C.
11:00	<i>Starting at 11:05:</i> INVITED: A Plan for the New Japanese National Research Program for Prediction of Earthquake and Volcanic Eruption (2009–2013). <b>Hirata, N.</b>	Shear Strain Localization in Elastodynamic Rupture Simulations. <b>Daub, E.G.</b> , Manning, M.E., and Carlson, J.M. <i>Student presentation.</i>	Strong Coupling of Strike-Slip Faults: The Example of the San Giuliano Mainshocks (Southern Italy). <b>Malagnini, L.</b> , Mayeda, K.	Observation and Prediction of Dynamic Ground Strains, Tilts and Torsions Caused by the M6.0 2004 Parkfield, California, Earthquake and Aftershocks Derived from UPSAR Array Observations. <b>Spudich, P.</b> , Fletcher, J.B.
11:15	<i>Starting at 11:25:</i> Comparative Testing of Clustered Seismicity Models on Prominent Aftershock Sequences. <b>Woessner, J.</b> , Hainzl, S., Catalli, F., Lombardi, A. M., Gerstenberger, M. C.	Comparison of Crustal Structure Between Seismic and Aseismic Regions along the St. Lawrence River. <b>Bent, A. L.</b> , Kao, H., and Lamontagne, M.	Why the Denali Fault Rupture Went down the Totschunda. <b>Schwartz, D.P.</b> , Haeussler, P.J., Seitz, G.G., Dawson, T.E.	Active Source Strong Motion: Investigating in Situ Nonlinear Soil Dynamics. <b>Lawrence, Z.</b> , Bodin, P., Langston, C.A., Gomberg, J., Johnson, P.A. <i>Student presentation.</i>
11:30	<i>Starting at 11:40:</i> Earthquake Predictability Test of the Load Response Ratio Method. <b>Zeng, Y.</b>	Shear-Wave Velocity Profiling of the USGS Strong Motion Stations on the Island of Hawaii. <b>Wong, I.</b> , Stokoe, K., Cox, B., Menq, F-Y., Hoffpauir, C., and Okubo, P.	Complex Tools for Seismic Monitoring. <b>Gheorghiu, S.</b> and Munteanu, F.	Empirical Strong Motion Duration Relationships for the Central/Eastern US. <b>Lee, J.</b> and Green, R.A. <i>Student presentation.</i>
11:45		Surface-Wave Attenuation from ISC Bulletin Data. <b>Hearn, T.M.</b>	Earthquake Scaling for the Chi-Chi, Taiwan Sequence. <b>Mayeda, K.</b> , Malagnini, L., Walter, W.R.	NGA Ground Motion Prediction Equations for the Vertical Component of Peak and Spectral Ground Motion Parameters. <b>Yilmaz, Z.</b> , Abrahamson, N.A. <i>Student presentation.</i>
12:00	Lunch at the Eldorado			

Friday, 18 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>
	<b>The Hayward Fault: 140 Years after the 1868 Hayward Earthquake</b> Session Chairs: Thomas Brocher & Keith Knudsen (see page 341)	<b>Recent Tsunamigenic Events</b> Session Chairs: Jean Johnson & Sue Bilek (see page 343)	<b>Exploring Crust to Core: Recent Advancement &amp; Future Directions in Seismic Modeling</b> Session Chairs: Ronrong Lu & Monica Maceira (see page 344)
1:30	Accelerated Creep on the Central Hayward Fault Monitored by a Telemetered Creep-Meter Array. <b>Bilham, R.</b>	Bridging the Gap Between Seismically and Geodetically Detected Slow Earthquakes. <b>Ide, S.</b> , Imanishi, K., Yoshida, Y., Beroza, G.C., and Shelly, D.R.	INVITED: A Multi-Spectral Exploration of Earth Structure Using Surface Wave Dispersion. <b>Pasyanos, M.E.</b> , Yang, Y., Ritzwoller, M.H.
1:45	New Evidence for Twelve Southern Hayward Fault Earthquakes in past 1900 Years. <b>Lienkaemper, James, J.</b> , Williams, Patrick L., and Guilderson, Thomas P.	Are “Slow” Events Common in Regions of Tsunami Earthquakes? <b>Bilek, S.L.</b> , Deshon, H.R., Engdahl, E.R.	<i>Starting at 1:50:</i> INVITED: Joint Inversion of Receiver Functions and Dispersion Velocities in the Parana Basin (Brazil): Evidence for a Fragmented Cratonic Root. <b>Julia, J.</b> , Assumpção, M.
2:00	Recent Engineering Geologic Evaluations of Hayward Fault Displacement for Critical Infrastructures in the San Francisco Bay Region. <b>Kelson, K.I.</b> , Thompson, S.C., O’Connell, D.R.H.	Use of T-Phases for Real Time Identification of Splay Faulting. <b>Salzberg, D. H.</b>	<i>Starting at 2:10:</i> INVITED: Tomographic Imaging with Microtremor Arrays: The Application of Hilbert-Huang Transform. <b>Liu, L.</b> , Mehl, R., and Chen, Y.
2:15	The M7 1868 Hayward Earthquake, Northern California—140 Years Later. <b>Brocher, T.M.</b> , Boatwright, J., Lienkaemper, J.J., Schwartz, D.P., and Garcia, S.	W-Mm: A Quick-and-Dirty Magnitude Approach to Quantifying the <i>W</i> Phase. <b>Okal, E.A.</b>	<i>Starting at 2:25:</i> A Three-Dimensional Model of Crustal Structure in the Central and Eastern US Derived from Receiver Functions and Broadband Ambient-Noise Surface Waves. <b>Gaherty, J.B.</b> , Levin, V., Dalton, C., and Chen, P.
2:30	Scenario Earthquake Ruptures of the Hayward Fault. <b>Aagaard, B.</b> , Brocher, T., Boatwright, J., Dreger, D., Graves, R. Graymer, R. Harris, R., Larsen, S., Lienkaemper, J., Ma, S., Ponce, D., Rodgers, A., Schwartz, D., Simpson, R., and Spudich, P.	Developing Framework for Constraining the Geometry of the Seismic Rupture Plane—A Probabilistic Approach. <b>Hayes, G.P.</b> , and Wald, D.J.	<i>Starting at 2:40:</i> INVITED: Salt Dome Flank Imaging Using Acoustic and Elastodynamic Redatuming. <b>Lu, R.</b> , Willis, M., Toksöz, N. <i>Student presentation.</i>
2:45	Ground Motion Modeling of Recent Moderate ( $M_{4-5}$ ) and Large ( $M_{>6.5}$ ) Scenario Earthquakes on the Hayward Fault. <b>Rodgers, A.</b> , Xiao-Bi Xie	Rupture Characteristics of Large Earthquakes ( $M_{>7}$ ) along the Sunda Arc since 2004. <b>D. Roessler</b> , F. Krueger, and M. Ohrnberger	
3:00	Break at the Eldorado		

Friday, 18 April—Concurrent SSA Oral Sessions

<i>Time</i>	<i>Hilton—Mesa A&amp;B</i>	<i>Eldorado—Zia</i>	<i>Eldorado—Sunset</i>
	<b>The Hayward Fault: 140 Years after the 1868 Hayward Earthquake</b> <i>(continued)</i>	<b>Source Characterization and Site Characterization</b> Session Chairs: Matthew Purvance & Jon Fletcher (see page 346)	<b>Exploring Crust to Core: Recent Advancement &amp; Future Directions in Seismic Modeling</b> <i>(continued)</i> Session Chairs: Youshun Sun & Michael Begnaud
3:30	Finite-Element Simulations of Scenario Earthquakes on the Hayward Fault. <b>Aagaard, B.</b>	Characterizing the Seismic Sources and Seismic Hazard near Truckee, California. <b>Wong, I.</b> , Dawson, T., Thomas, P., Olig, S., Dober, M., and Rose, R.	INVITED: Imaging Poisson's Ratio of the Uppermost Mantle Beneath the Tibetan Plateau. <b>Pei, S.</b> , Wang, S., Sun, Y., Rowe, C., Zhao, J., Liu, H.
3:45	Preliminary 3D Spontaneous Rupture Models of the Hayward Fault. <b>Harris, R.A.</b> , Barall, M., and Simpson, R.W.	Using Resolution Information to Improve Earthquake Source Inversions. <b>Page, M.T.</b> , Custodio, S., Archuleta, R.J., Carlson, J.M.	SN Velocity, Gradient, and Anisotropic Variations in the Upper Mantle of Eurasia. <b>Begnaud, M.L.</b> , Phillips, W.S., Rowe, C.A., and Steck, L.K.
4:00	Consequences of a Future Hayward Fault Earthquake: Known, Unknown, and Plans for Better Forecasts. <b>Knudsen, K.L.</b> , Zoback, M.L., Perkins, J., Brocher, T.M., Wong, I., and Savage, W.U.	Site Conditions at Precariously Balanced Rock (PBR) Sites in the Mojave, Southern California. <b>Purvance, M.D.</b> , Anooshehpour, A., Brune J.N., and Abbott, R.E.	A Preliminary California State-Wide 3D Seismic Velocity Model Using Both Absolute and Differential Times. <b>Lin, G.</b> , Thurber, C.H., Zhang, H., Hauksson, E., Shearer, P., Waldhauser, F., Hardebeck, J., Brocher, T.
4:15	Seismicity on the Central and Southern Calaveras Fault and Earthquake Forecasts: Part I 1910–Present. <b>Oppenheimer, D.</b> , Bakun, W., Uhrhammer, R., Boatwright, J. and Simpson, R.	Parameter Uncertainty in Nonlinear Site Response for Typical Sedimentary Sites in Southern California. Li, W., and <b>Assimaki, D.</b>	The Computational Challenge of Full-3D Waveform Tomography: Progress in Southern California. <b>Chen, P.</b> , Jordan, T. H., and Allam, A.
4:30	Earthquakes on the Central and Southern Calaveras Fault and Earthquake Forecasts: Part II, 1850–1910. <b>Bakun, W.</b> , Oppenheimer, D., Boatwright, J., Simpson, R.	Toward an Understanding of Kappa for a Generic Deep Firm-Rock (NEHRP B-C) Site Profile in Eastern North America (ENA). <b>Campbell, K.W.</b>	INVITED: Modeling Rupture Dynamics and Radiation of Heterogeneous Earthquake Fault. <b>Chen, X.F.</b> , Zhang, H.M., Liu, Q.M.
4:45	A Millennial Record of Large Earthquakes on the Green Valley Fault. <b>Lienkaemper, James, J.</b> , Sickler, Robert R., Brown, Johnathan, Reidy, Liam M., and Guilderson, Thomas P.	Site-Specific Ground Motion Histories for Nonlinear Analyses of Systems. <b>Malhotra, Praveen</b>	INVITED: Seismic Array Observations at the Ordos Plateau, North China. <b>Chen, Y.J.</b> , Zhou, S., Ning, J., Feng, Y., Tang, Y., Jin, G., Fu, Y., Sandvol, E., and Liu, M.

## Friday, 18 April—Morning Poster Sessions

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### Exploring Crust to Core: Recent Advancement & Future Directions in Seismic Modeling (Eldorado—Anasazi. See page 347)

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H1. A Study on the S-Wave Velocity Structure of the Crust and Upper Mantle beneath Southern Korea Using Dispersive Characteristics of Rayleigh Wave. **Cho, B. J.**, B. G. Jo, Y. S. Jang, S. T. Lee, E. H. Hwang, and Y. S. Jeon.

H2. Deep Structure and Tectonic Evolution of the Basins of Northwestern China. **Okaya, N.**, and Mooney, W.D.

H3. Poisson's Ratio in the Crust and Uppermost Mantle beneath China. **Sun, Y.**, Toksöz, M.N., and Pei, S.

H4. A Geophysical Transect of the Crust across the Central Qaidam Basin. **Zhao, J.**, Jin, Z., Mooney, W.D., Wang, S., Tang L., Gao, X., Pei, S., and Liu, H.

H5. Seismic Anisotropy and Mantle Dynamics in the Rivera Subduction Zone. **Leon Soto, G.**, Ni, J.F., Grand, S., Guzman Speziale, M. Gomez Gonzalez, J., and Dominguez Reyes, T.

H6. Seismic Structure of the Crust and Uppermost Mantle of South America and Surrounding Oceanic Basins. **Chulick, G.S.**, Detweiler, S. and Mooney, W.D.

H7. Full Waveform Tomography for Seismic Velocity and Anelastic Losses in Heterogeneous Structures: Parametric Applications and Model Uncertainty. **Askan, A.**, Akcelik, V., Bielak, J., and Ghattas, O.

H8. Using Core-Diffracted Wave Dispersion to Model the Lowermost Mantle. **Euler, G.G.**, Wyssession, M.E.

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### Source Characterization and Site Characterization (Eldorado—Anasazi. See page 349)

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I1. Rapid Estimates of Seismic Moment Using Variable-Period Surface Wave Magnitudes. **Bonner, J.L.**, Herrmann, R.B., Benz, H.

I2.  $M(\max)$  East of the Rocky Mountains. **Wheeler, R.L.**, and Johnston, A.C.

I3. Systematic Moment Tensor Estimation for North America Earthquakes. **Herrmann, R. B.**, Benz, H., Ammon, C. J.

I4. Using P- and S-Wave RMS Amplitude Ratios to Constrain Earthquake Focal Mechanisms. **Horton, S.**

I5. Earthquake Focal Mechanisms from the New Madrid Seismic Zone. **Johnson, G.A.**, Horton, S.P., Withers, M.M., Cox, R.T.

I6. Relative Source Time Function Studies of Earthquakes in Southeastern Alaska. **Escudero, C.R.**, and Doser, D.I.

I7. Determination of Relative Source Time Functions Using Empirical Greens Functions for Earthquakes in South-Central Alaska. **Romero, O.M.**, and Doser, D.

I8. Source Parameter Estimates: Using a Small Aperture Array to Determine Error. **Kane, D.L.**, Prieto, G.A., Vernon, F.L., Shearer, P.M.

I9. Source Characterization of the M6.0 Parkfield Earthquake Using Time Reversal. **Larmat, C.S.**, Huang, L., Patton, H.J., Randall, G.E., Johnson, P.A.

I10. Characterizing Source Properties of Near-Surface Events in Southern Africa. **Gok, R.**, Walter, W.R., Linzer, L., Julia, J., and Nyblade, A.A.

I11. Assessment of Seismic Site Amplification and Seismic Building Vulnerability in the FY.R.O. Macedonia, Croatia and Slovenia (Project NATO SFP 980857). **Mucciarelli, M.**, Milutinovic, Z., Herak, M., Gosar, A., Albarello, D., Gallipoli, M.R., and the ASSASBV Working Group.

I12. Comparison of Site Classification from  $V_{s30}$ ,  $V_{s10}$  and HVSR in Italy, **Gallipoli, M.R.**, and Mucciarelli, M.

I13. Site Response of the Sacramento/San Joaquin Delta. **Fletcher, J.B.**, Boatwright, J., and Sell, R.

I14. A Comparison of ReMi-Interpreted  $V_{s30}$  Values to Proxies for Site Conditions: A Preliminary Case Study in Shavers Valley, California. **Yong, A.**, Hough, S.E., Pullammanappallil, S., Louie, J.N., Abrams, M.J.

I15. Measurement of Shallow Shear Velocity at 73 California Integrated Seismic Network Sites in Southern California. **Dhar, M.S.**, Thompson, M., Louie, J.N., and Pullammanappallil, S.

I16. Addressing Site Variability and Uncertainties in Site Response Analysis Using Approach 3: Case Study—Stanford University. **Upadhyaya, S.**, Wong, I., Silva, W., Gregor, N., Thomas, P., and Salah-Mars, S.

I17. Correlation of Shallow Shear Wave Measurements with Elevation and Slope along Three Urban Transects. **Pancha, A.**, Louie, J. N., Pullammanappallil, S., and Anderson, J. G.

I18. Variations of Fault Zone Damage and Velocity Contrasts along the Parkfield Section of the San Andreas Fault. **Lewis, M.A.**, Ben-Zion, Y., Peng, Z., Zhao, P., Shi, Z.,

I19. Distribution of Precarious Rock Toppling Accelerations with Distance from Active Faults: Lovejoy Buttes, Victorville, and Granite Pediment. **Brune, J.N.**, and Brune, R.J.

I20. Measurement of the Parameter Kappa, and Reevaluation of Kappa for Small to Moderate Earthquakes at Seismic Stations in the Vicinity of Yucca Mountain, Nevada. **Biasi, G.P.**, Anderson, J.G., Tibuleac, I.M., and Smith, K.D.

I21. Does Near-Borehole Velocity Structure Change Due To Hydraulic Fracturing during Well Stimulation (“Frac Job”)? **Chesnokov, E.M.**, Menke W., and Krasnova M.A.

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### **The Hayward Fault: 140 Years after the 1868 Hayward Earthquake** (Hilton—Ortiz. See page 353)

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U1. Mapping the Rupture of the  $M_W$  5.4 Alum Rock Earthquake. **Hellweg, M.**, Chung, A., Dreger, D., Kim, A., and Boatwright, J.

U2. A Study of Strong Ground Motions in the San Francisco Bay Area from the  $M_{5.4}$  Alum Rock, California Earthquake of October 30, 2007. **Tsai, Y.B.**, and Abrahamson, N.A.

U3. A Three-Dimensional Geologic Model of the Hayward-Calaveras Fault Junction: Insights from Geophysical Data. **Watt, J.T.**, Ponce, D.A., Graymer, R.W., Simpson, R.W., Jachens, R.C., McCabe, C.A., Phelps, G.A., Wentworth, C.M.

U4. Earthquake Stress Drops, Focal Mechanisms, and Anisotropic Attenuation from Borehole Recordings along the Hayward Fault. **Hardebeck, J.L.**, and Aron, A.

U5. Frictional Strength of Gouge Mixtures Derived from Hayward Fault Rocks. **Morrow, C.A.**, Moore, D.E., and Lockner, D.A.

U6. New Airborne LIDAR Survey of the Hayward Fault, Northern California. **Brocher, T.M.**, Prentice, C. S., Whitehill, C., Brown, J., Phillips, D., Bevis, M., and Shrestha, R.

U7. Segmentation of the Hayward Fault, Northern California, Inferred from Geophysical, Geologic, and Seismicity Data. **Ponce, D.A.**, Graymer, R.W. and Jachens, R.C.

U8. Moment Balance Calculations and the Potential for Large Southern Hayward-Central Calaveras Fault Earthquakes, San Francisco Bay Region, California. **Graymer, R.W.**, Hardebeck, J.L., Simpson, R.W., Ponce, D.A., and Watt, J.T.

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### **Recent Tsunamigenic Events** (Hilton—Ortiz. See page 354)

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Y1. A Revised Slip Model for the 2007 Megathrust Earthquake ( $M_w$  8.1) in the Solomon Islands. **Fisher, M.A.**, Ji, C., Scholl, D.W., Wong, F.L., Sliter, R.W.

Y2. Relocation of the  $M_W$  8.4 2007 Southern Sumatra Aftershock Sequence and Prior Regional Seismicity. **Mitchell, L.M.**, and DeShon, H.R.

Y3. Progress in Developing an Indian Ocean Tsunami Warning System (IOTWS). **Detweiler, S.**, Mooney, W.D., Kelly, A., Atwater, B., Sipkin, S. and Petersen, M., and Hudnut, K.

Y4. The USGS Contribution to Training in Seismic and Tsunami Hazards: Preparing Indonesia for Their Next Event. **Mooney, W.D.**, and Milkereit, C.

Y5. Tsunami Simulation Database of KMA. **Jeon, Y.S.**, D. H. Sheen, B. J. Cho, Y. C. Park, S. C. Park

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### **Friday, 18 April—Afternoon Poster Sessions**

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#### **Scaling Aspects in Earthquake Analysis and Modeling** (Eldorado—Anasazi. See page 355)

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J1. Rupture Directivities of the 2003 Big Bear Earthquake Sequence. Tan, Y., **Ortega, F.**, and Helmberger, D.

J2. Dynamic Source Rupture Process of the 2003 Tokachi-Oki Earthquake. **Zhang, Wenbo**, and Iwata, Tomotaka.

J3. Detailed Seismicity Analysis in Vrancea (Romania) to Provide Well-Constrained Parameters for Seismic Cycle Behavior. Radulian, M., Enescu, B., Popa, M., Zaharia, B., and **Greco, B.**

J4. The Synthetic Earthquake Time Histories at Bedrock Level for Kuala Lumpur City Center. **Adnan, A.B.**, Hendriyawan, Marto, A., Masyur, I.

J5. Characterization of Seismicity Pattern Change Based on Earthquake Networks. **Suteanu, M.**, Suteanu, C.

J6. Analysis of Apparent Stress,  $M_W$  Distribution and Scaling Relationships for Subduction Zone Earthquakes along the Nicoya Peninsula, Costa Rica. **Stankova-Pursley, J.**, Bilek, S.L. Phillips, W.S., Newman, A.V.

J7. Kinematic Source Parameters and Scaling of Micro-Repeating Earthquakes at Parkfield. **Chung, A. I.**, Dreger, D.S., and Nadeau, R.M.

J8. Characterization of Fault Zones in Southern California by Analysis of Potency Tensor Summations. **Bailey, I.W.**, Becker, T.W., Ben-Zion, Y.

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**Structure, Stress and Attenuation Modeling** (Hilton—Ortiz. See page 357)

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V1. The Effect of Mississippi Embayment Sediments on Local Earthquake Tomography. **Powell, C.A.**, and Withers, M.

V2. Development of a 3D Upper Crustal Velocity Model of the Goldstream Valley, Central Alaska. **Dougherty, S.L.**, Ebel, J.E., and Leidig, M.

V3. Crustal Structure of the Pakistan Himalayas from Receiver Functions. **Zugibe, T.P.**, Frank, S.D., Ferris, A.N.

V4. Shear Wave Velocity Structure beneath the Western Basin and Range Province, Eastern California: Implications for Crustal-Scale Tectonic Models. **Leslie, S.**, Mooney, W.D., and Kamath, N.

V5. Attenuation Tomography Using Ambient Noise Correlation. **Matzel, E.M.**

V6. Global Stress-Drop Variations of Large-Magnitude Earthquakes. **Allmann, B.P.**, and Shearer, P.M.

V7. Comparison of Coulomb Stress Analysis of the 22 Dec 2003 Mw6.5 San Simeon Earthquake with Aftershocks and Focal Mechanisms. **Wooddell, K. E.**, McLaren, M. K., and Stanton, M. A.

V8. Load Shedding of Himalayan Convergence by the Shillong Plateau Revealed by GPS Measurements. **Szeliga, W.**, Bilham, R., Akhter, S. H., Seeber, L., Steckler, M., Drukpa, D., Babu, P., Battacharyya, A., and Qi, W.

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**Next Generation of Collaborative Earthquake Predictability Research** (Hilton—Ortiz. See page 359)

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W1. Proximity to past Earthquakes as a Least Astonishing Hypothesis for Forecasting Locations of Future Earthquakes. Kafka, A.L., and **Ebel, J.E.**

W2. An Update of the New Zealand Earthquake Forecast Testing Center. **Gerstenberger, M.C.**, Rhoades, D.A., Stirling, M.W., Vere-Jones, D., Harte, D.S.

W3. Probabilistic Completeness Studies of the INGV Seismic Network in Italy. **Schorlemmer, D.**, Mele, F., Marzocchi, W.

W4. The Collaboratory for the Study of Earthquake Predictability (CSEP) Testing Center Development at SCEC. **Liukis, M.**, Schorlemmer, D., Yu, J., Maechling, P., Jordan, T.H., Zechar, J., and Euchner, F.

W5. The Uniform California Earthquake Rupture Forecast Version 2 (UCERF 2). **Field, E.H.**

W6. INVITED: Earthquake Prediction: Probabilistic Aspect. **Molchan, G.**, and Keilis-Borok, V.

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**Seismic Hazard and Risk** (Hilton—Ortiz. See page 360)

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X1. Preliminary Results from a New Paleoseismic Site on the San Andreas Fault near Crystal Springs Reservoir, San Francisco Peninsula, California. **Prentice, C.S.**, Sickler, R.S.; Hecker, S.; Schwartz, D.P., and Brown, J.

X2. Efficient Approach to Vector-valued Probabilistic Seismic Hazard Analysis of Multiple Correlated Ground Motion Parameters. **Bazzurro, P.**, Tothong, P., Park, J.

X3. Active Faults in or near the Proposed Trans-Alaska Gas Pipeline Corridor, East-Central Alaska. **Carver, G.**, Bemis, S., Solie, D., Obermiller, K., and Weldon, R.

X4. High-Rate GPS Seismology: Results from the 2002 M = 7.9 Denali Fault Earthquake. **Cassidy, J.F.**, Bilich, A., Larson, K.M.

X5. Limitations of the Short Earthquake Record for Seismicity and Seismic Hazard Studies. **Swafford, L.C.** and Stein, S.

X6. Seismic Source Identification and Development of Earthquake Parameters for Seismic Hazard Analysis of Santa Clara Valley Water District Dams, Santa Clara County, California. **Thompson, S.C.**, and Kelson, K.I.

X7. Ground Motions and Seismic Assessment of Waikalua Reservoirs after 2006 Hawaii Earthquake. **Zafir, Z.**