Program for 2006 SSA Annual Meeting

Presenter is indicated in bold.

TUESDAY, 18 APRIL

PLENARY SESSION: Commemoration of the 1906 San Francisco Earthquake (see page 191)

9:00 **Chris Poland**: Introduction

9:30 **Kevin Starr:** The 1906 San Francisco Earthquake: an Historical Overview

10:00 **Mary Lou Zoback:** The 1906 Earthquake: Birth of Earthquake Science

10:30 Coffee Break

11:00 **Thomas D. O'Rourke:** The 1906 San Francisco Earthquake: An Overview of Ground Failure and Associated Lifeline/Fire Impacts

11:30 **Stephen Tobriner:** The 1906 San Francisco Earthquake Physical Impacts

Concurrent SSA Oral Sessions

	The Impact of the 1908 Lawson Report on Earthquake Science Presiding: Jack Boatwright and Carol Prentice (see page 191)	**Nuclear Explosion Monitoring Anniversary Session I** Presiding: Bill Walter and Brian Stump (see page 192)	**Earthquake Science in the 21st Century: Understanding the Processes that Control Earthquakes I** Presiding: Bill Ellsworth and Greg van der Vink (see page 194)
2:00	Location and Tectonics of the Focal Region of the California Earthquake of 18 April 1906: Evidence from the Lawson Report and Later Studies. **Lomax, A.**	The CTBT—a Treaty with Two Faces. **Dahlman, O.**	Earthquake System Science: What It Means and Where It's Going. **Jordan, T.**
2:15	Re-evaluating the Intensity Distribution of the 1906 San Francisco Earthquake. **Boatwright, J.** and Bundock, H.	Seismic Source Location and Test Ban Verification. **Douglas, A.**	Paleoseismology in the 21st Century. **Weldon, R.**
2:30	Triangulation Surveys, Elastic Rebound, and Models of Slip in the 1906 Earthquake. **Segall, P.**, Song, S., and Lisowski, M.	Experimental Research Programs Designed for Improving Nuclear Test Monitoring: Historical Aspects and Future Considerations. **Bonner, J.** and Stump, B.	Earthquake Dynamics at the Crossroad between Seismology, Mechanics and Geometry. **Madariaga, R.** and Adda-Bedia, M.
2:45	The Lawson Report and Geologic Research Along the Northern San Andreas Fault. **Prentice, C.** and Niemi, T.	Development and Future of Explosion Source Theory. **Stevens, J.**	Fault Segmentation Effects on Sequences of Dynamic Events. **Shaw, B.**
3:00	Mining the Lawson Report. **Hoose, S.**	Frontiers and New Opportunities for Seismic Monitoring Research. **Ammon, C.**	Remotely Triggered Earthquakes. **Hough, S.**
3:15	A CAMEL-Based Assessment of Earthquake-Induced Landslide Hazards in the San Francisco Bay Region, California. **Keefer, D.**, S. Miles, M. Swank, and J. Blair	Seismic Instrumentation—Past and New Frontiers. **Berger, J.**	Panel Discussion
3:30	Coffee Break		

	The Northern San Andreas Fault: 100 Years of Scientific Study Presiding: Carol Prentice and Tina Niemi (see page 195)	**Nuclear Explosion Monitoring Anniversary Session II** Presiding: Brian Stump and Bill Walter (see page 196)	**Earthquake Science in the 21st Century: Understanding the Processes that Control Earthquakes II** Presiding: Bill Ellsworth and Greg van der Vink (see page 198)
4:00	Application of New Technology to Mapping the Northern San Andreas Fault. **C. Prentice**, Zachariasen, J., Koehler, R., Baldwin, J., Hall, N., and Wright, R.	Improving Magnitude Detection Thresholds Using Multi-event, Multi-station, and Multi-phase Methods. **Schaff, D.** and Waldhauser, F.	Overview of SAFOD Phases 1 and 2: Drilling, Sampling and Measurements in the San Andreas Fault Zone at Seismogenic Depths. **Hickman, S.**, Zoback, M., Ellsworth, W., Boness, N., Solum, J., and Malin, P.
4:15	The 1906 Earthquake and Northern San Andreas Fault: Significant Source of Near-Future Hazard? **Wong, I**. and Zachariasen, J.	SH-Wave Generation by an Explosion in a Complex Scattering Medium. **Toksoz, M. N.,** Chi, S., and Lu, R.	Observations of Fault Zone Deformation, In Situ Stress and Pore Pressure in SAFOD Phases 1 and 2: Implications for Fault Zone Processes. **Zoback, M.,** Hickman, S., Ellsworth, W., Boness, N., and Day-Lewis, A.
4:30	H.F. Reid, Elastic Rebound, and Seismic Gaps. **Jackson, D**. and Kagan, Y.	Source Scaling Analyses of Frequency Dependent Energy Partition For Regional P and S Phases From Explosion Sources. **Murphy, J.** and Barker, B.	Energy Partition of the 1999 Chi-Chi, Taiwan, (Mw 7.6) Earthquake. **Ma, K.-F.**
4:45	Paleoseismic Records of Earthquakes on the Northern San Andreas Fault: How Characteristic is the Great 1906 San Francisco Earthquake? **Niemi**, T., Zhang, H., Hall, N., and Fumal, T.	Observations of Pn-Lg Coda Scaling and Implications for Seismic Discrimination and the Explosion Source. **Patton, H.** and Taylor, S.	Earthquakes Triggered by Silent Slip Events: Improved Understanding of Earthquake Process by Joint Analysis of Seismic and Geodetic Data. **Segall, P.**
5:00	Deep-Water Turbidites as Holocene Earthquake Proxies along the Northern San Andreas Fault System. **Goldfinger**, C., Morey, A., Nelson, H.	A Lower Bound on the Standard Error of an Amplitude-based Regional Discriminant. **Anderson, D.,** Walter, W., Carlson, D., and Mercier, T.	A Decade of Episodic Tremor and Slip observations in the Northern Cascadia Subduction Zone. **Rogers, G.**, Kao, H., and Dragert, H.
5:15	How Space-time Interactions Organize the Northern San Andreas Fault System: Analysis Based on Recreating Great Earthquakes in the Computer. **Rundle, J.**	Fundamental Limitations in Resolving Power of Q Tomography. **Xie, J.**	Panel Discussion

Tuesday PM, 18 April Poster Sessions

Modeling the Tectonic Evolution of the San Andreas Transform Boundary through Time (see page 198)

A1 Implications of Slab-window Volcanism in Coastal California for Evolution of the San Andreas Transform. **McCrory, P.**, Wilson, D., and Stanley, R.

A2 Making the San Andreas Plate Boundary in the Wake of the Mendocino Triple Junction. **Furlong, K**.

A3 A Proposed Model for Lithospheric Evolution during Development of the Pacific-north American Plate Boundary. **Biasi, G**.

A4 Geologic Constraints on the Evolution of the San Andreas Fault System—implications for Transform Boundary Models. **Powell, R.**

A5 Scientific Visualization and Collaboration Tools Enhance Understanding of Seismological Data. **Kilb, D.**, Nayak, A., and Smith, B.

A6 A Comparison between the Transpressional Plate Boundaries of the South Island, New Zealand, and Southern California, USA. **Fuis, G.**, Kohler, M., Scherwath, M., ten Brink, U., and Van Avendonk, H.

A7 Giant Low-angle Faults Beneath the Palos Verdes Anticlinorium, California. **Sorlien, C.,** Broderick, K., Seeber, L., Luyendyk, B., Fisher, M., Sliter, R., and Normark, W.

A8 Geophysical Piercing 'Features' Defining Offset in the San Andreas Fault System, Northern California. **Jachens, R.**, Wentworth, C., McLaughlin, R., and Graymer, R.

A9 Insights into the Evolution of Faulting along the Rodgers Creek-Healdsburg-Maacama Fault Zones, Northern California, as Revealed by Gravity and Magnetic Data. **Langenheim, V.**, McLaughlin, R., and Jachens, R.

A10 Geologic Constraints on Long-term Displacements along the Rodgers Creek, Healdsburg and Maacama Fault Zones, Northern California. **McLaughlin, R.**, Langenheim, V., Jachens, R., Sarna-Wojcicki, A., Fleck, R., Wagner, D., and Clahan, K.

Beyond the San Andreas, the Other Active Faults of Northern California (see page 201)

B1 Kinematics and Future Seismic Sources of the Hayward Fault, California, from ERS and RADARSAT PS-InSAR. **Funning, G.,** Bürgmann, R., Ferretti, A., Novali, F., and Schmidt, D.

B2 Late Holocene Slip Rate Investigation of the Maacama Fault at the Haehl Creek site, Willits, California. **Larsen, M.**, Prentice, C., and Kelsey, C.

B3 Seismicity Rate Changes and Earthquake Forecasting Beyond the San Andreas. **Bowman, D.**, Colella, H., and Tiampo, K.

B4 Seismic-reflection Profiles in the Stepover Region of the Southern Hayward Fault Reveal a Northeast-Dipping Hayward Fault and West-Directed Blind Thrusting. **Williams, R.**, Wentworth, C., Stephenson, W., Simpson, R., Jachens, R., and Odum, J.

B5 A New Campaign GPS Network and Alinement Array on the Bartlett Springs Fault. **Murray, J.**, Svarc, J., Lienkaemper, J., Langbein, J., McFarland, F., Nishenko, S., and Page, W.

B6 Active Tectonic Deformation East of the San Andreas Fault System—Sacramento-San Joaquin Delta Area, California. **Weber, J.**

B7 The Pacific Star Fault Zone—A Significant Newly Recognized Structure in the San Andreas Fault System on the Northern California Coast of Mendocino County. **Lippincott, C.,** Merritts, D., Walter, R., Muller, J., and Springer, D.

B8 GPS-derived Fault Slip Rates along the Northernmost Segments of the Maacama and Bartlett Springs Fault Zones, Northwestern California. **Williams, T.,** Kelsey, H., and Freymueller, J.

B9 Near-surface Geophysical Surveying of East San Francisco Bay faults. **Craig, M.**, Kimball, M., and Lienkaemper, J.

B10 Potential Earthquake Hazards Associated with Previously Unrecognized Blind Thrust Fault: Analysis of the Marin County–Mt. Tamalpais Region. **Johnson, C.,** Furlong, K., and Kirby, E.

B11 A New 3D Finite-Element Model of the Hayward Fault. **Barall**, M. and Simpson, R.

B12 Mapping the Deformational Behavior and Mechanical Properties of the Hayward Fault. **Furlong, K.,** Malservisi, R., and Gans, C.

B13 Fault-zone Discontinuities along the Hayward Fault, Northern California, and Their Implications on Earthquake Hazards. **Ponce, D.**, Hildenbrand, T., and Jachens, R.

B14 A 3-Dimensional Geologic Map of the Hayward Fault. **Phelps, G.**, Graymer, R., Jachens, R., Ponce, D., Simpson, R., and Wentworth, C.

B15 Earth Structure and Site Response in the Northern San Francisco Bay Area. **Lin, H.-I.**, Chen, Y., Sell, R., Mooney, W., Detweiler, S., Fletcher, J., and Boatwright, J.

B16 The Evolution of a Plate Boundary System—Crustal Structure, Seismicity and Volcanism in Northern California. **Hayes**, G. and Furlong, K.

B17 Digital Compilation of Thrust and Reverse Fault Data along the Northeastern Range Front of the Santa Cruz Mountains, Southern San Francisco Bay Region, California. **D. Kennedy**

B18 Analysis of the Seismicity of the San Gregorio and Monterey Bay Fault Zones, Monterey Bay Region, California. **Simila, G.**, Stakes, D., Begnaud, M., and McNally, K.

B19 Commemorate the 1906 Earthquake at the Bottom of an Active-fault Trench. **Stenner, H.**, Zoback, M., Lienkaemper, J., Wells, D., and Schwartz, D.

B20 Faults and Potential Hazards Beneath the Alluvial-Covered, Highly Populated Areas of the San Francisco Bay Area Revealed by Seismic Images. **Catchings, R.**, Goldman, M., Rymer, M., and Gandhok, G.

B21 Fault length and Implications for Seismic Hazards in California. **Black**, N. and Jackson, D.

B22 Distribution of Aseismic Slip along the San Andreas and Calaveras Faults from Repeating Earthquakes. **Templeton, D.,** Nadeau, R., and Bürgmann, R.

B23 Expected Fault Displacements along the BART Concord-Bay Point Line, Alameda and Contra Costa Counties, California. **Kelson, K.**, Thompson, S., and Matsuda, E.

The M 7.6 Kashmir Earthquake of 8 October 2005 (*Joint with EERI*) (see page 205)

C1 Surface Ruptures and Rupture Kinematics of the 2005, Mw 7.6 Kashmir Earthquake from Sub-pixel Correlation of ASTER Images and Seismic Waveforms Analysis. **Avouac**, **J.-P.**, Ayoub, F., Leprince, S., Konca, O., and Helmberger, D.

C2 Location and Slip Distribution of the 2005 October 8 Kashmir Earthquake Rupture using Envisat SAR Analysis. **Fielding, E.**, Pathier, E., and Wright, T.

C3 Surface Ruptures of the 8th October 2005 Kashmir Himalayan Quakes: Bridges as Strain Gauges? **Grasso, J.-R.** and Mughal, M.

C4 Geodetic Constraints and Tectonic Implications of the Mw = 7.6, 8 October 2005, Kashmir Earthquake. **Bendick, R.**, Bilham, R., Feldl, N., Khan, S. F., and Khan, M. A.

C5 Static Stress Change from the 8 October, 2005 M = 7.6 Kashmir Earthquake. **Parsons, T.,** Yeats, R., Yagi, Y., and A. Hussain.

C6 The Pattan, Pakistan, Earthquake of 1974. **Pennington, W.**

C7 Surface Features of the Mw 7.6, 8 October 2005 Kashmir Earthquake, Northern Himalaya, Pakistan: Implications for the Himalayan Front. **Yeats, R.** and Hussain, A.

C8 Damage to the Engineered Constructions Due to Kashmir Earthquake of October 8, 2005. **Pandey, A.**, Pore, S., and Sinvhal, A.

C9 Kashmir (Muzaraffabad) Earthquake of October 8, 2005: Damages to Non-engineered Constructions. **Pore, S.**, Pandey, A., and Sinvhal, A.

C10 Probabilistic Seismic Hazard Assessment of Muzaffarabad, Azad Kashmir. **Khwaja, A.** and MonaLisa

C11 Environmental Issues Relating to the 8 October 2006 South Asia Earthquake. **Kelly, C.**

C12 The Kashmir Earthquake of 8th October 2005, and Landslides. **Sinvhal, A.**, Pandey, A., and Pore, S.

Earthquakes and Seismicity Around the World (see page 209)

D1 Seismicity Northeast of the New Madrid Seismic Zone and its Implications on the Hazard of the Area. **Shumway, A.**

D2 Recent Microearthquake Swarms in the Yakima Fold Belt, Southeastern Washington. **Rohay, A.**

D3 Shallow Seismicity of the Prince William Sound, Alaska Region (1971–2001). **Doser, D.** and Veilleux, A.

D4 The March 6, 2005, Magnitude 5.4 Charlevoix Earthquake and Related Seismic Activity January 2000—December 2005. Peci, V., **Drysdale, J.**, Halchuk, S., Bent, A., and Hayek, S.

D5 The 26 July 2005 Mw 5.6 Dillon, Montana Earthquake. **Stickney, M.**

D6 The Damas (Mw 6.4), Costa Rica, Earthquake, of November 20, 2004; Aftershocks and Slip Distribution. **Pacheco, J.**, Quintero, R., Vega, F., Segura, J., Jiménez, W., and González, V.

D7 The 2004 December 23 M8.1 Macquarie Earthquake. **Murphy, K.**, Abercrombie, R., and Antolik, M.

D8 The Pulumur and Bingol Earthquakes of 2003 Provide Evidence for the Internal Deformation of the Karliova Block between the North Anatolian and East Anatolian Faults. **Gulen, L.**, Kalafat, D., Gunes, Y., Pinar, A., Kuleli, S., and Toksoz, M. N.

D9 Seismic Activities of an Intra-continental Strike-slip Fault System: Kuhbanan Fault, Central Iran. **Shahpasandzadeh, M.** and Shafiei, A.

D10 Fault Segment with a Maximum Offset of 10-meter in the 1931 Fuyun Surface Rupture, NW China—An Interim Report. **Awata, Y.** and Fu, B.

D11 Preliminary Understanding of the Dynamics of the 1999 Chi-Chi Earthquake. **Chen, X.** and Zhang, H.

D12 Estimation of Frequency-magnitude Distribution Based on Interevent-time Statistics. Hainzl, S., **Scherbaum, F.,** and Beauval, C.

D13 Moderate and Large Earthquake Activity along Oceanic Transform Faults. **VanDeMark, T.** and Ammon, C.

D14 Theory of Transform-fault Trends. **Rance, H.**

D15 Variability of Atmospheric Circulation—an Initiator of Strong Earthquakes. **Bokov, V.**

One Hundred Years and More: Historical Instruments and their Recordings of Earthquakes (see page 212)

E1 SeismoArchives at the IRIS DMC: Seismograms of Significant Earthquakes of the World. **Benson, R.**, Lee, W., Knight, T., Hutt, B., and Ahern, T.

E2 TESEO2: Turn the Eldest Seismograms into the Electronic Original Ones. Pintore, S. and **Quintiliani, M.**

E3 Monitoring Earthquakes Since 1887: The Berkeley Seismographic Stations/Seismological Laboratory. **Uhrhammer, R.**, Hellweg, M., and Romanowicz, B.

E4 Seismic Recording and Instrumentation at the Hawaiian Volcano Observatory. **Nakata, J.**, Okubo, P., and Koyanagi, R.

E5 74 Years of Southern California Earthquake Catalog. **Hutton, K.**, Hauksson, E., Jones, L., and Givens, D.

E6 MMI Attenuation and Historical Earthquakes in the Basin and Range Province of Western North America. **Bakun, W.**

E7 A Modern Re-examination of the Locations of the 1905 Calabria and the 1908 Messina Straits Earthquakes. **Michelini, A.**, Lomax, A., Nardi, A., Rossi, A., Balombo, B., and Bono, A.

E8 The Stress Triggering Role of the 1923 Kanto Earthquake, Japan. **Nyst, M.**, Pollitz, F., Nishimura, T., Hamada, N., and Thatcher, W.

E9 Historical Earthquakes from Turkey and Neighboring Countries. **Meral Ozel, N.**, Bergeroglu, A., Kara, M., Bekler, F., and Kalafat, D.

E10 Climate Change Investigations Using Historical Seismograms. **Uhrhammer, R.** and Bromirski, P.

E11 A Reexamination of the 1964 m 9.2 Alaska Earthquake Rupture Process from the Combined Inversion of Seismic, Tsunami, and Geodetic Data and a Comparison with the 2004 Sumatra Earthquake. **Ichinose, G**; Graves, R; Sommerville, P., and Thio, H.

Extending ANSS: Next Generation Earthquake Monitoring (*Joint with EERI*) (see page 214)

F1 Continuous Microtremor Monitoring: One Possible Approach for Early Detecting the Damage of the Dam. **Chiu, H. C**.

F2 The Kentucky Vertical Strong-motion Network. **McIntyre, J**., Wang, Z., and Woolery, E.

F3 An Earthquake Detection, Identification and Location System for the Northeastern U.S. Based on the Wavelet Transform. **Ebel, J.**

F4 Observational Technologies Implemented for USArray. **Alvarez, M**., Busby, R., and Fowler, J.

F5 Characterization of Near-surface Geology at Strong-Motion Stations in the Vicinity of Reno, Nevada. **Pancha, A**., Anderson, J., and Louie, J.

F6 New Computational Approaches for Structural Damage Identification Using the Densely Instrumented 17-Story Moment-Resisting Steel Frame Factor Building. **Kohler, M**., Heaton, T., and Bradford, C.

F7 99 Years of Earthquake Recording in the Utah Region (1907–2006): Remaining Big Questions and Future Instrumentation Strategies. **Arabasz, W**. and Pankow, K.

F8 Earthquake Detection and Data Processing Systems at the Alaska Earthquake Information Center. **Ruppert, N**., Hansen, R., and Robinson, M.

F9 Analysis of Recent Earthquake Monitoring Improvements in the United States. **McNamara, D**., Anderson, K., Gee, L., Earle, P. Leeds, A., Buland, R., Benz, H., Hutt, C., and Butler, R.

F10 Shake Table Tests of a Full Scale Reinforced Concrete Wall Building: Real Time 50 Hz GPS Displacement

Measurements. **Bock, Y.**, Panagiotou, M., Yang, F., Restrepo, J., and Conte, J.

F11 Spatial Gradient Analysis for Areal Seismic Arrays: A New Method for Seismic Array Processing. **Langston, C.**

F12 Antelope-based Alarm Systems for Earthquake Monitoring. **Lindquist, K.**, Stachnik, J., Hansen, R., and Ruppert, N.

F13 Implementation of a Linear Shaker Using the Zero Friction Air Bearings. **Vrcelj, N.**

F14 Digital Accelerometer. **Vrcelj, N.**

F15 The Mutual Benefit of Seismograph Installation at Naval Hospital, Bremerton. **Wilson, D.,** Kent, R., Swanson, D.

Monitoring and Modeling the Seismic Wavefield (see page 217)

G1 Surface and Body Waves from Hurricane Katrina Observed in California. **Fehler, M.**, Gerstoft, P., and Sabra, K.

G2 Observations of Infragravity Waves at the Monterey Ocean Bottom Broadband Station (MOBB). Romanowicz, B., **Dolenc, D.**, McGill, P., Neuhauser, D., and Stakes, D.

G3 The Earth's Hum, Microseisms and Ocean Waves. **Rhie, J.** and Romanowicz, B.

G4 A Search for Tremor Using the Southern California Earthquake Data Center (SCEDC) Continuous Data. **Cochran, E.** and Shearer, P.

G5 Monterey Ocean Bottom Broadband Station (MOBB): Data Analysis and Noise Removal. **Dolenc, D.**, Romanowicz, B., Stakes, D., McGill, P. Uhrhammer, R., and Neuhauser, D.

G6 Q of the Mexican Volcanic Belt. **Iglesias, A.**, Singh, S., García, D., Ordaz, M., and Pacheco, J.

G7 New Madrid Seismic Zone V_P/V_S Ratios. **Powell, C.**, Withers, M., Dunn, M., and Vlahovic, G.

G8 High Fidelity Seismic Imaging for Steep Reflectors. **Wu, R.-S.** and Cao, J.

G9 Evaluation of Statistical Techniques for Seismic Wavelet Extraction via 3D Elastic Modeling. **Haney, M.**, Abbott, R., Symons, N., Bartel, L., and Aldridge, D.

G10 A New Finite-difference Method for Seismic Applications. **Nilsson, S.**, Petersson, A., Sjögreen, B., Rogers, A., and McCandless, K.

G11 Modeling Seismic Wave with Free Surface Topography Using Traction Image Method. **Zhang, W.** and Chen, X.

G12 Effects of Ground Surface on Rupture Dynamics of an Earthquake. **Zhang, H.** and Chen, X.

Earthquake Sources: Theory and Practice (see page 219)

H1 Test of the Split Nodes Fault Model for Faulting in Staggered Finite Difference Scheme. **Dalguer, L.** and Day, S.

H2 Optimal Seismic Station Placement for Source Inversion. **Page, M.** and Carlson, J.

H3 Resolving Fault Plane Ambiguity Using 3D Synthetic Seismograms. **Chen, P.**, Zhao, L., and Jordan, T.

H4 Friction Laws and Complexity in Earthquake Rupture Dynamics. **Daub, E.** and Carlson, J.

H5 Scaling Law of Slip Pinned by Fault Bends. **Ando, R.** and Yamashita, T.

H6 Fault Interaction in Alaska: Coulomb Stress Transfer and Periodic Clustering. **Bufe, C.**

H7 Homogeneity of Small-Scale Earthquake Faulting, Stress and Fault Strength. **Hardebeck, J.**

H8 Pulverized Rocks in the San Andreas Fault Zone. **Dor, O.**, Sisk., M., Ben-Zion, Y., Rockwell, T., and Girty, G.

H9 Structural and Wave Phenomena Effects on Double Couple Focal Mechanisms. **Preston, L.** and von Seggern, D.

H10 A New Paradigm for Inferring Stress Using Focal Mechanism Orientations. **Smith, D.** and Heaton, T.

H11 Fault Mechanisms of Recent Earthquakes in the Aegean Region Inferred From Regional Moment Tensor Inversions. **Meral Ozel, N.** and Yilmazer, M.

H12 Twelve Years and Counting: Regional Moment Tensors in and around Northern California. **Hellweg, M.**, Dolenc, D., Gee, L., Templeton, D., Xue, M. Dreger, D., and Romanowicz, B.

H13 The Real-time SCSN Moment Tensor Solution: Robustness of Mw, and Style of Faulting. **Clinton, J.** and Hauksson, E.

H14 Local and Moment Magnitude Scales in the Iranian Plateau Based on Strong Motion Records. **Shoja-Taheri, J.**, Naserieh, S., and Ghofrani, H.

H15 Size Scaling of Signals in the Early Portion of P Waveforms. **Lewis, M.** and Ben-Zion, Y.

H16 Energy Partition and Scaling Relations during Earthquake Rupture Processes. **Shi, Z.**, Needleman, A., Ben-Zion, Y., and Coker, D.

H17 Can Seismic Energy Radiation be Estimated from Near-fault Ground Motion and Mapped over Earthquake Fault Zones? **McGarr, A.** and Fletcher, J.

H18 Aftershock Abundance: Forecasting Aftershock Rates When Catalog Completeness Is High. **Christophersen, A.** and Gerstenberger, M.

Earthquake CORE: Culture, Outreach, Resources and Education (see page 223)

I1 International Seismological Centre—An Update. **Aspinwall, M.**, Botlon, M., Dawson, P., Harris, J., Shapira, A., and Storchak, D.

I2 The COSMOS VDC (http://db.cosmos-eq.org/): A Search Engine for World-wide Strong-motion Data. Archuleta, R., Steidl, J., and **Squibb, M.**

I3 USGS Earthquake Hazards Program Unveils Redesigned Website. **Wald, L.**

I4 The Station Information System (SIS) at the Southern California Earthquake Data Center (SCEDC). **Appel, V.** and Clayton, R.

I5 Summary of the ISC Bulletin of Events of 2003. Storchak, D. and **Bolton, M.**

I6 Updating Default Depths in the ISC Bulletin. **Bolton, M.,** Storchak, D., and Harris, J.

I7 Public Education—Disaster Preparedeness Education Program in Turkey. **Cakin, O.**, Petal, M., Sezan, S., and Turkmen, Z.

I8 What's Shaking? Teaching about the Hazard of Earthquakes in Public High Schools. **Iversen, E.**

I9 Evolution of the Catfish (Namazu) as an Earthquake Symbol in Japan. Smits, G. and **Ludwin, R.**

I10 Earthquake Catfish (Jishin Namazu): Alive and Well in Japan. **Berglof, W.**

WEDNESDAY, 19 APRIL

Plenary Session: Learning From the Past (see page 225)

8:30 William B. Joyner Memorial Lecturer: **Norm Abrahamson**: Lessons Learned From Ground Rupture and Strong Ground Motion

9:00 **Mary Comerio:** Losses in the Built Environment

9:30 **Richard Andrews:** Emergency Management: Lessons From the Past

10:00 Coffee Break

Concurrent SSA Oral Sessions

	The Giant Sumatran Earthquakes of 2004 and 2005 (*Joint with EERI*) (see page 225) Presiding: Kerry Sieh and Aron Meltzner	**Near Fault Ground Motions from Large Earthquakes** (*Joint with EERI*) (see page 226) Presiding: Paul Spudich and David M. Boore	**Beyond the San Andreas, The Other Active Faults of Northern California** (see page 228) Presiding: Jim Lienkaemper and John Baldwin	**How Seismologists, Engineers and Emergency Planners can Work with Policymakers to Improve Disaster Planning and Mitigation** (*EERI Session joint with SSA and DRC)* (see page 229) Presiding: Linda Rowan, Brian Pallasch and Ray Willeman
10:30	Teleseismic Relocation and Assessment of Seismicity (1918–2005) in the Region of the 2004 M_W 9.0 Sumatra-Andaman and 2005 M_W 8.6 Nias Island Great Earthquakes. **Engdahl, E.**, Villasenor, A., and DeShon, H.	Near-Fault Strong-Motion from the M6.0 Parkfield, California Earthquake of 28 Sept 2004. **Shakal, A.,** Haddadi, H., and Huang, M.	The Earthquake Cycle on a Plate Boundary Fault System: San Francisco Bay Area 1600–2006. **Schwartz, D.,** Lettis, W., Lienkaemper, J., Hecker, S., Kelson, K., Fumal, T., Baldwin, J., Seitz, G., and Niemi, T.	Global Natural Hazard Risk Identification and International Development: Linking Mitigation to Regional Economic Development. **Lerner-Lam, A.** and Chen, R.
10:45	Reverse-time Migration of Teleseismic P Waves: Imaging the 28 March 2005 Sumatra Earthquake. **Walker, K.**, Shearer, P., and Ishii, M.	Variation of Recorded and Simulated Near-Fault Ground Motion Considering Fault Rupture Processes. **Pitarka, A.**, Somerville, P., Collins, N., Graves, R., and Thio, H.	The Relationship of the 1911 Calaveras Earthquake to Static Shear Stress Changes Following the 1906 San Francisco Mainshock. **Doser, D.,** Stein, R., Toda, S., and Grunewald, E.	CISN Display: Enhanced Delivery of Real-time Earthquake Hazards Information for Critical Users. **Scheckel, N.,** Vinci, M., Hauksson, E., Oppenheimer, D., and Frieberg, P.
11:00	Rupture Kinematics and Strong Ground Motion Estimates of the 2005, M_w 8.6, Nias- Simeulue Earthquake from the Joint Inversion of Seismic and Geodetic Data. **Konca, A.**, Hjorleifsdottir, V., Song, A., Helmberger, D., Sieh, K., and Avouac, J.-P.	High Frequency Earthquake Radiation Inferred from Near-fault Ground Motions: Contraints from a Dynamic Rupture Model and Empirical Green's Tensor Derivatives. **Pulido, N.** and Dalguer, L.	New Quaternary Fault Map Database for the San Francisco Bay Region, California. **Graymer, R.**	CAPSS: Involving the San Francisco Community in the Community Action Plan for Seismic Safety. **Comerio, M.**
11:15	The "Simeulue Saddle" and Rupture Overlap in the 2002, 2004, and 2005 Sunda Megathrust Earthquakes. **Meltzner, A.J.**, Briggs, R.W., Sieh, K., Konca, A.O., Hsu, Y.-J.	Influence of Fault Dip and Near-Fault Crustal Heterogeneity on Normal-Faulting Rupture Dynamics and Ground Motions. **O'Connell, D.**, Ma, S., and Archuleta, R.	New Coastal Strike-Slip Faults with Relatively High Rates of Slip and Deformation between the Offshore San Andreas and Onshore Maacama Faults, Northern Coastal California, Mendocino County. **Merritts, D.**, Springer, D., Walter, R., Lippincott, C., and Muller, J.	Geography of Earthquake Risk in the South of Market District of San Francisco: People, Place and Policy. **Wilson, J.**

11:30	Seismic Activity in the Sumatra-Java Region Prior to the December 26, 2004 (M_W = 9.0–9.3) and March 28, 2005 (M_W = 8.7) Earthquakes. Mignan, A., King, G., **Bowman, D.**, Lacassin, R., and Dmowska, R.	Site Effects for Near-Fault Forward-Directivity Motions. **Rodriguez-Marek, A**.	Structure of the Hayward Fault, California, from Relocated Seismicity and Focal Mechanisms. **Hardebeck, J.,** Michael, A., and Brocher, T.	A Hint for Improving Disaster Plans and Developing Better Earthquake Mitigation Strategies: Partnership. **Weaver, C.**
11:45	Interseismic Strain Accumulation and Future Giant Earthquake Scenarios in the Mentawai, Central Sumatra, Subduction Zone. **Chlieh, M.**, Avouac, J.-P., Sieh, K., Natawidjaja, D., and Galetzka, J.	Constraints on Near-Fault Motions from Unstable Landform Features in New Zealand. **Stirling, M.** and Anooshehpoor, R.	A 1650-Year Record of Large Earthquakes on the Southern Hayward Fault. **J. Lienkaemper** and P. Williams	Reduced Earthquake Risk and Losses as Consequences of Improved Seismic Monitoring. **Somerville, P.** and Leith, W.

12:00 SSA Annual Luncheon

Concurrent SSA Oral Sessions

	The Giant Sumatran Earthquakes of 2004 and 2005 (*Joint with EERI*) (see page 231) Presiding: Lori Dengler and Emile Okal	**Extending ANSS: Next Generation Earthquake Monitoring I** (*Joint with EERI*) (see page 232) Presiding: William Leith and Robert Nigbor	**The M7.6 Kashmir Earthquake of 8 October 2005** (*Joint with EERI*) (see page 233) Presiding: Roger Bilham and Saif Hussain		**Next Generation of Ground Motion Attenuation Models** (*EERI session joint with SSA*, see page 235) Presiding: Yusef Bozorgnia and Norm Abrahamson		**Advances in Liquefaction Evaluation** (*EERI session joint with SSA*) Presiding: Ross Boulanger and Thomas Holzer
2:00	Two Earthquakes and Tsunamis that Changed the Perspective of Indonesian People. **Prasetya, G.**	Future Seismic Instrumentation for ANSS. **Evans, J.**, Savage, W., Hutt, C., and Oppenheimer, D.	Geology of the Kashmir Earthquake and its Geomorphic Consequences. **Khan, M.,** Khattak, G., Shafique, M., and Owen, L.	2:00	The "Next Generation of Ground Motion Attenuation Models" (NGA) Project: An Overview. **Power, M.,** Chiou, B., Abrahamson, N., Roblee, C.	2:00	Do We Have It Right? **Holzer, T.**
2:15	Tsunami Generation from the Andaman Segment of the M>9.0 December 26, 2004 Sumatra-Andaman Earthquake. **Geist, E.**	The "GeoNet" Monitoring System of New Zealand. **H. Cowan** and K. Gledhill	The Blinding of the Himalayan Arc at the Western Syntaxis. **Seeber, L.**, Armbruster, J., and Jacob, K.	2:06	NGA Database. **Chiou, B.**	2:10	Update of Field-based Methods for Evaluating Liquefaction Potential. **Idriss, I.M.** and Boulanger, R.

2:30	The Cataclysmic 2004 Tsunami on NW Sumatra—Preliminary Evidence for a Near-field Secondary Source along the Western Aceh Basin. **Plafker, G.**, Nishenko, S., Cluff, L., and Syahrial, M.	ANSS Accelerometer Data—Not Just For "The Big One" (Anymore).**Pankow, K.**, Pechmann, J., and Arabasz, W.	Surface Faulting during the October 8th, 2005, Muzaffarabad Earthquake and Coulomb Stress Increase on the Jhelum Fault. Tapponnier, P, **King, G.**, Bollinger,L., and Grasso, J.-R.	2:20 2:34	The Abrahamson-Silva NGA Model. **Abrahamson, N.** Boore-Atkinson NGA Model. **Atkinson, G.**	2:20	Recent Advances in Soil Liquefaction Engineering. **Seed, R.**
2:45	The impact of the December 26, 2004 MW 9.2 Sumatra Earthquake and Tsunami on Utility, Bridge, and Highway Systems in Aceh Province, Sumatra. **Cluff, L.**, Nishenko, S., Plafker, G.	IRIS Collaborations with the ANSS Backbone Network. **Butler, R.** and Anderson, K.	The October 2005 Kashmir Earthquake—EERI Reconnaissance Report. **Hussain, S.**, Khazai., B., and Ahmed, N.	2:48	Campbell-Bozorgnia Next Generation Attenuation (NGA) Relations for PGA, PGV and Spectral Acceleration: A Progress Report. **Campbell, K.**, and Bozorgnia, Y.	2:30	Fines Content Correction Factors. **Green, R.**
3:00	Port and Harbor Damage from the December 26, 2004 Tsunami and Earthquake—south India and the Andaman Islands. **Eskijian, M.**	Probabilistic Estimates of Monitoring Completeness of Seismic Networks. **Schorlemmer, D.**, Woessner, J., and Bachmann, C.	Performance of Engineered & Non-engineered Structures in Northern Pakistan & Azad Kashmir during Oct 8 Earthquake. **Syed, A.**, Naeem, A., Ali, Q., Naseer, A., Javed, M., Ashraf, M., and Hussain, Z.	3:02	PEER-NGA Empirical Ground Motion Model for Horizontal Spectral Accelerations from Earthquakes in Active Tectonic Regions. **Chiou, B.** and Youngs, R.	2:40	Liquefaction and Deformation Potential of Fine-grained Soils. **Youd, T. L.**
3:15	Ancillary Records of the 2004 Sumatra Tsunami: New Challenges and Opportunities for Geophysicists. **Okal, E.**	How to Install More Strong Motion Stations for Less Money More Quickly. **Oppenheimer, D.**, Evans, J., Savage, W., and Hutt, C.	Pakistan Earthquake of October 8, 2005 (Mw7.6): A Preliminary Report on Source Characteristics and Recorded Ground Motions, **Singh. S.,** Iglesias A., Dattatrayam, R., Bansal, B., Perez-Campos, X., and Suresh, G.	3:16	Idriss NGA Model. **Idriss**, I.	2:50	Panel Discussion
3:30	Coffee Break						

	Tsunamis (see page 235) Presiding: Rob Witter and Brian Atwater	**Extending ANSS: Next Generation Earthquake Monitoring II** (*Joint with EERI*) (see page 237) Presiding: William Leith and Robert Nigbor	**Advances in Volcano Seismology: Enhanced Monitoring Capability Through Application of Complementary Methods** (see page 238) Presiding: Charlotte Rowe and Heather DeShon
4:00	Sedimentary Differences in Near-source Deposits of the 2004 South Asia Tsunami and Hurricane Katrina. **Moore, A.**, McAdoo, B., and Fritz, H.	A New Low Complexity Real-time Ground Motion Reporting Network. Rosenberger, A., **Rogers, G.**, and Cassidy, J.	Using Tiltmeters, GPS Receivers, Time-lapse Photography and Photogrammetry as Aids for Interpreting Volcanic Seismicity during the Ongoing Eruption of Mount St. Helens. **Moran, S.**, Dzurisin, D., LaHusen, R., Lisowski, D., Major, J., Schilling, S., and Shermod, D.
4:15	Evidence of Combined Entrainment and Suspension Deposition as Recorded in Tsunami Sand Sheets from the Recent SE India Tsunami and the 1700 AD Cascadia Tsunami. **Peterson, C.**, Jol, H., and Yeh, H.	DamageMap Prototype Using Real-time GPS Point Positioning. **Hudnut, K.**, Safak, E., Borsa, A., Langbein, J., Stark, K., Barseghian, D., Aspiotes, A., Acosta, A., Stubailo, I., Kohler, M., and Davis, P.	Improvements to Absolute Locations from an Updated Velocity Model at Mount St. Helens, Washington. **Thelen, W.**, Malone, S., Qamar, A., and Pullammanappallil, S.
4:30	Numerical Modeling of Submarine Landslide-generated Tsunamis at Seward and Valdez, Alaska, with Constraints from Recent Multi-beam and High-resolution Seismic Surveys. **Suleimani, E.**, Lee, H., Haeussler, P., and Hansen, R.	Monitoring Civil Structures Using a Network of Wireless Sensors. **Govindan, R.**, Caffrey, J., Johnson, E., and Masri, S.	Small Scale Attenuation Structure at Mt. Vesuvius, Italy. **Del Pezzo, E.**, Bianco, F., and De Siena, L.
4:45	A Comprehensive Study of Tsunami Risk in New Zealand, Including Probabilistic Estimates of Wave Heights from All Sources, Damage to Buildings, Deaths and Injuries. Berryman, K. and **Smith, W.**	Using Networked Wireless Structural Arrays for Urban Damage Detection. **Kohler, M.**, Davis, P., and Govindan, R.	Anamolous Thin Crust and High Attenuation Beneath the Taupo Volcanic Region of North Island, New Zealand from 3-D Tomographic Inversion of Short-period and Broadband Data. **Chiu, J.-M.**, Reyners, M., and Pujol, J.
5:00	Tsunami Monitoring and Warning in Puerto Rico and the Caribbean. **Von Hillebrandt-Andrade, C.** and Huérfano, V.	Real-Time Structural Health Monitoring Incorporating Soil Structure Interaction Effects. **Soyoz, S.**, Feng, M. Q., and Safak, E.	Infrasound from Strombolian Eruptions at Mount Erebus Volcano. Jones, K., **Aster, R.**, Johnson, J., Kyle, P., and McIntosh, W.
5:15	Seaside Tsunami Awareness Program. **Wilson, J.**	Establishing Connectivity between the COSMOS Geotechnical Virtual Data Center and the COSMOS Virtual (Strong Ground Motion) Data Center. **Swift, J.**, Squibb, M., Archuleta, R., Steidl, J., and Stepp, C.	Large Scale Ground Deformation of Etna Observed by GPS between 1994 and 2001. **Houlie, N.**

Advances in Volcano Seismology: Enhanced Monitoring Capability Through Application of Complementary Methods (see page 240)

J1 Separation of Qi and Qs from Passive Data at Mt. Vesuvius: A Reappraisal of Seismic Attenuation. **Del Pezzo, E.**, Bianco, F., and Zaccarelli, L.

J2 3-D Scattering Image of Mt. Vesuvius, Preliminary Results. **Tramelli, A.**, Fehler, M., Del Pezzo, E., and Bianco, F.

J3 Multiple Denoising and Classification Methods for Improving Seismic Surveillance: Applications at Guagua Pichincha, Soufriere Hills and Redoubt Volcano. **Rowe, C.**, Garcia-Aristizabal, A., and White, R.

J4 Can 4D Seismic Tomography Forecast Volatile-rich Magma Intrusions and Explosive Activity at Mt. Etna? Patane, D., Barberi, G., **Cocina, O.**, De Gori, P., and Chiarabbar, C.

J5 Volcano-tectonic Earthquake Sequences near Active Volcanoes and Their Use in Eruption Forecasting. **White, R.** and Rowe, C.

J6 Broadband Characteristics of Volcanic Earthquakes Recorded during 2004–2005 at Mount Saint Helens, Washington. **Horton, S.**

J7 Seismo-acoustic Monitoring at Tungurahua Volcano. **Ruiz, M.**, Lees, J., and Jonson, J.

J8 Seismicity Related to the 2005 Explosive Events at Volcán de Fuego, México. **Nunez-Cornu, F.**, Vargas-Bracamontes, D., and Suarez-Plascencia, C.

J9 Cross-correlation Analysis Reveals Waveform Similarity in Long-period Events Prior to Eruptive Activty at Mt. Spurr Volcano, Alaska. **Brown, J.**, DeShon, H., Prejean, S., Thurber, C., and Power, J.

J10 Cross-correlation and Double-difference Techniques used in Earthquake Relocations at Shishaldin Volcano, Alaska. **Meyer, N.**, DeShon, H., Thurber, C., and Prejean, S.

J11 High-precision Earthquake Location and Three-dimensional P-wave Velocity Determination at Redoubt Volcano, Alaska. **DeShon, H.**, Rowe, C., and Thurber, C.

J12 High-precision Earthquake Locations at Great Sitkin Volcano, Alaska using Waveform Alignment and Double-Difference Techniques. **Pesicek, J.**, DeShon, H., Thurber, C., and Prejean, S.

Recent Results from the 28 September 2004, M6.0 Parkfield, California Earthquake (see page 242)

K1 Comparing the 1966 and 2004 Parkfield Events. **Hellweg, M.** and Dreger, D.

K2 Small Magnitude Source Parameters in the Parkfield Region. **Allmann, B.**, Shearer, P., and Lin, G.

K3 Detecting Stress-induced Spatiotemporal Variations of Scatterers, Parkfield, CA. Taira, T., **Silver, P.**, Niu, F., and Nadeau, R.

K4 Co-seismic and Post-mainshock Variations in Seismic Velocity on the San Andreas Fault at Depth and Implications from the 2004 M6 Parkfield Earthquake. **Li, Y.-G.**, Vidale, J., Chen, P., and Cochran, E.

K5 Apparent Changes in Repeating Earthquake Depths Associated with the 28 September 2004, M6.0 Parkfield Mainshock. **Siegel, J.** and Nadeau, R.

K6 Parkfield Earthquakes and Micro-repeater Recurrence Times. **Goltz, C.**

K7 Seismicity Precursor Modeling of M6.0 2004 Parkfield Earthquake. **Korneev, V.**

K8 Kinematic Rupture Model for the 1966 Mw 6 Parkfield Earthquake with Assessment of Resolution. **Custodio, S.,** Archuleta, R., and Liu, P.

K9 Kinematic Modeling of the 2004 Parkfield Earthquake. **Kim, A.** and Dreger, D.

K10 The Effect of Lateral Refraction on Estimates of the Rupture Velocity of the 2004 Parkfield Earthquake from Observations at UPSAR. **Fletcher, J.**, Spudich, P., Baker, L., and Sell, R.

K11 Subsurface Structure of the San Andreas Fault Zone near Parkfield, California, Inferred from High-Resolution Reflection and Refraction Profiling. **Rymer, M.**, Catchings, R., Goldman, M., and Steedman, C.

K12 On the Strong Ground Shaking at the Fault Zone 16 and Nearby Stations of Parkfield Array. **Haddadi, H.**, Shakal, A., Kalkan, E., and Roffers, P.

K13 Seismic Input Energy of Ground Motions During the 2004 (M6.0) Parkfield, California Earthquake. **Kalkan, E.**, Haddadi, H., and Shakal, A.

K14 Simulation of Strong Ground Motion from the 2004 Parkfield Earthquake. **Sesetyan, K.**, Madariaga, R., Durukal, E., and Erdik, M.

K15 The San Fernando Valley, California High School Seismograph Project: 2004 Parkfield Earthquake. **Simila, G.**

Paleoseismic Characterization of Earthquake Recurrence and Hazard Assessment (see page 245)

L1 Earthquake Surface Slip Distributions. **Wesnousky, S.**

L2 Using Pollen to Constrain the Age of the Youngest Rupture of the San Andreas Fault at San Gorgonio Pass. **Yule, D.,** Maloney, S., and Cummings, L. Scott

L3 Slip Rates, Recurrence Intervals and Earthquake Event Magnitudes for the Southern Black Mountains Fault Zone, Southern Death Valley, California, Using Optically Stimulated Luminescence. Mahan, S., **Sohn, M.**, Knott, J., and Bowmen, D.

L4 The Study and Revision of Probabilistic Seismic Hazard Map of Taiwan. **Cheng, C.**, Lee, C., Lin, P., Chiou, B., and Chern, J.

L5 An Example of Time-dependent Seismic Hazard Analysis from West Central Taiwan. Lin, P., **Lee, C.**, and Cheng, C.

L6 A Preliminary Seismicity Model for Southwest Western Australia Based on Neotectonic Data. Clark, D. and **Schneider, J.**

L7 Geomorphic Evolution of the Cadell Fault, Southeastern Australia: Implications for Intraplate Fault Behaviour and Seismic Hazard Assessment. Prendergast, A., Clark, D., Collins, C., and **Schneider, J.**

L8 Precariously Balanced Rock Methodology and Shake Table Calibration. **Purvance, M.**, Anooshehpoor, R., and Brune, J.

L9 Geologic Constraints on Extreme Ground Motions. **Brune, J.**

L10 WITHDRAWN: Earthquakes and Archeology: Neocatastrophism or Science? **Nur, A.** and Kovach, R.

L11 Estimating Historical Earthquakes Parameters Using Archeology and Geology in Um-El-Kanatir, Dead Sea Transform. **Wechsler, N.**, Katz, O., and Marco, S.

The Northern San Andreas Fault: 100 Years of Scientific Study/The Impact of the Lawson Report on Earthquake Science (see page 247)

M1 Timing of Late Holocene Paleoearthquakes on the Northern San Andreas Fault at the Fort Ross Orchard Site, Sonoma County, California. **Kelson, K.**, Streig, A., Koehler, R., and Kang, K.

M2 A 3000-year Record of Earthquakes on the Northern San Andreas Fault at the Vedanta Marsh Site, Olema, California. **Zhang, H.**, Niemi, T., and Fumal, T.

M3 Stratigraphic Evidence for Major Earthquakes at Bolinas Lagoon, Marin County, California. **Byrne, R.** and Reidy, L.

M4 Preliminary Earthquake Record of the Peninsula Section of the San Andreas fault, Portola Valley, California. **Baldwin, J.,** Prentice, C., Wetenkamp, J., and Sundermann, S.

M5 Tectonic deformation and coastal change associated with the offshore San Andreas fault zone west of the Golden Gate. **Ryan, H.** and Parsons, T.

M6 Utilization of LiDAR / ALSM Point Cloud Data for Earthquake Geology and Tectonic Geomorphic Mapping, Analysis, and Visualization. **Crosby, C.** and Arrowsmith, R.

M7 Simulation- and Statistics-Based Analysis of the 1906 Earthquake and Northern California Faults. **Glasscoe, M.**, Donnellan, A., Granat, R., Lyzenga, G., Norton, C., and Parker, J.

M8 Significance of Damaging San Francisco Bay Region Earthquakes Before and After the Major 1906 Earthquake. **Toppozada, T.** and Branum, D.

M9 Using the Lawson Report and Other Historical Documents to Investigate Fault Morphology and Coseismic Slip of the 1906 Earthquake in Marin County. **Daehne, A.** and Niemi, T.

M10 High-resolution Analysis of 1906 Earthquake Intensities in the City of San Jose, California. **Shostak, N.**

M11 Effects and Response of Nevada to the Great 1906 San Francisco, California Earthquake. **dePolo, C.** and Earl, P.

Integrating Geology and Geodesy in Studies of Active Faults (see page 250)

N1 Earthquake Cycle Models and Interseismic Strain: A Test of Effective Friction Evolution and Transient Mantle Rheology. **Hearn, E.**, Ergintav, S., Reilinger, R., and McClusky, S.

N2 Variability of Long-term Fault Activity along the North Anatolian Fault, Turkey. **Okumura, K.** and Kondo, H.

N3 The Comparison of Long-term and Short-term Slip Rates of a Major Active Strike-slip Fault System: Mosha Fault, Central Alborz, Iran. **Shahpasandzadeh, M.**

N4 Preliminary Paleoseismic Observations along US Highway 50, Basin and Range Province, Central Nevada. **Koehler, R.**, and Wesnousky, S.

N5 Slip Rate of the San Andreas Fault near Littlerock, California. **Sickler, R.,** Weldon, R., Fumal, T., Schwartz, D., Mezger, L., Alexander, J., Biasi, G., Burgette, R., Goldman, M., and Saldana, S.

N6 Improving the Slip Rate Estimate at Pitman Canyon, Southern San Andreas Fault. **Bemis, S.**, Weldon, R., and Burgette, R.

Wednesday PM, 19 April Poster Sessions

Earthquake Science in the 21st Century: Understanding the Processes that Control Earthquakes (see page 251)

O1 Study of Near-Field Earthquake Processes: Progress of the NELSAM Project in Tautona Mine, South Africa. **Reches, Z.**, Jordan, T., Johnston, M., Zoback, M, Heesakkers, V., Zechmeister, M., Murphy, S., and van Aswegen, G.

O2 Drilling the Megathrust: The Nankai Trough Seismogenic Zone Drilling Project. **Tobin, H.** and Kinoshita, M.

O3 Construction of the EarthScope Plate Boundary Observatory: Two Years Down and Three to Go. Jackson, M., **Prescott, W.**, Andeson, G., Feaux, K., Mencin, D., and Blume, F.

O4 EarthScope Data Management at the IRIS DMC. **Trabant, C.**, Johnson, P., Templeton, M., Benson, R., and Ahern, T.

O5 Diverse Continuous Seismic, Geophysical, and Geodetic Data at the Northern California Earthquake Data Center (NCEDC). **Neuhauser, D.**, Klein, F., Zuzlewski, S., Murray, M, Dietz, L., Houlié, N., Oppenheimer, D., and Romanowicz, B.

O6 Accessing SAFOD Data Products: Downhole Measurements, Physical Samples and Long-term Monitoring. **Weiland, C.**, Zoback, M., Hickman, S., and Ellsworth, W.

O7 Associating Southern California Seismicity with Late Quaternary Faults. **Woessner, J.**, Hauksson, E., Plesch, A., Shaw, J., and Wesson, R.

O8 Relationship of Seismicity to Fault Structure in California. **Powers, P.** and Jordan, T.

O9 Seismic Probing of InSAR Anomalies to Understand Fault Zone Compliance. **Cochran, E.**, Li, Y.-G., Shearer, P., Vidale, J., and Fialko, Y.

O10 Quantifying Heterogeneities in the Surface Traces of Strike-slip Faults. **Wechsler, N.**, Ben-Zion, Y., and Christofferson, S.

O11 Fault Geometry and Rupture Dynamics in the Marmara Sea, Turkey. **Oglesby, D.**, Mai, P., Atakan, K., Pucci, S., and Pantosti, D.

O12 Nonuniform Prestress on Branched Fault Systems and the Effects on Dynamic Fault Branching. **Duan, B.** and Oglesby, D.

O13 Clusters of Earthquakes in the Southern of Iberian Peninsula. **Posadas, A.**, Navarro, M., and Vidal, F.

O14 Locally Induced Seismicity in the Swiss Alps Following the Large Rainfall event of August 2005. **Husen, S.**, Deichmann, N., and Kissling, E.

O15 Causes of Intraplate Earthquakes in Greenland, Plate Motion or "Post" Glacial Uplift. **Gregersen, S.**, Voss, P., and Larsen, T.

O16 Direct Test of Static Stress versus Dynamic Triggering of Aftershocks. **Pollitz, F.** and Johnston, M.

O17 Dynamic Stresses, Coulomb Failure, and Remote Triggering. **Hill, D.**

O18 Dynamic Triggering of Earthquakes Caused by Surface Waves. **Hernandez, S.**, Velasco, A., and Pankow, K.

O19 The June 2005 Southern California Anza Earthquake: An Examination of the Extended Aftershock Zone and Intermediate Range Triggering of the Yucaipa Earthquake. **Felzer, K.** and Kilb, D.

O20 Anomalous Omori and Inverse Omori's Law around the Time of Main Shocks. **Peng, Z.** and Vidale, J.

O21 Source Properties of Earthquakes in the Aftershock Zones of the 1999 Izmit and Duzce Earthquakes from Iterative Spectral Stacking for Common Source and Receiver Terms. **Yang, W.**, Peng, Z., and Ben-Zion, Y.

O22 Source Properties of Repeating Earthquakes in the Aftershock Zones of the 1999 Izmit and Duzce Earthquakes Based on a Stacked Spectral-ratios and Moving Time-window. **Peng, Z.**, Ben-Zion, Y., and Yang, W.

O23 How Much Does P-wave Coda Bias S-wave Spectral Estimates? **Prieto, G.**, Thomson, D., Vernon, F., and Shearer, P.

O24 Variability in Source Parameters, as Measured Downhole at Parkfield, CA. **Sonley, E.** and Abercrombie, R.

O25 Characterization of Co-seismic Strain Release in Southern California Based on Earthquake Catalog Data. **Bailey, I.**, Becker, T., and Ben-Zion, Y.

O26 Combing Noisy Waveforms for Signal: Application of Matched Filters to Identify and Locate Earthquakes in 35-500 s GSN Data. **Walker, K.** and Shearer, P.

O27 Marked Co-seismic Fault Weakening in the Presence of Melt Lubrication. **Nielsen, S.**, Di Toro, G., Hirose, T., and Shimamoto, T.

O28 Thermal Pressurization of Pore Fluids Due to Frictional Heating during Earthquakes. **Vredevoogd, M.**, Oblesby, D., and Park, S.

O29 Structure, Composition and Strain of the San Andreas Fault-zone at Tejon Pass, California. **Reches, Z.**, Verrett, J., Borges, G., Dewers, T., Witten, A., and Brune, J.

O30 Earthquake Scaling and Near-source Ground-motions from Multi-cycle Earthquake Simulation (with Heterogeneity in Rate-and-State Friction). **Mai, P.**, Hillers, G., Ampuero, J.-P., and Ben-Zion, Y.

O31 Scale Seismology. Results. Problems. Possibilities. **Chesnokov, E.**

O32 Full Form Synthetic Seismogram Calculations And Determination of Focal Mechanism Of Frac Events Based On 3-C Seismic Array Observations. Vikhorev, A., Ammerman, M., Brown, R., Abaseyev, S., and **Chesnokov, E.**

O33 Teleseismic Receiver Functions Study On The Velocity Structure Beneath Yanqing-Huailai Basin, NW Beijing. **Zhou, R.-M.,** Stump, B., Herrmann, R., Chen, Y. T., and Yang, Z.-X.

O34 Detailed Seismic Velocity Structures in the Focal Areas of Recent Large Inland Earthquakes in Japan by DD Tomography. **Okada, T.**, Yaginuma, T., Suganomata, J., Hasegawa, A., Zhang, H., and Thurber, C.

O35 Detailed Crustal Shear-wave Splitting Observations Along the POLARIS-BC Array. Al-Khoubi, I., **Cassidy, J.**, and Bostok, M.

O36 Testing the 1st-Generation RELM Models. **Schorlemmer, D.**, Field, E., and Jordan, T.

O37 Implementing the Collaboratory for the Study of Earthquake Predictability: Challenges and Solutions. **Schorlemmer, D.**, Zechar, J., Maechling, P., and Jordan, T.

O38 Testing Alarm-based Earthquake Prediction Strategies. **Zechar, J.** and Jordan, T.

O39 When the Earth Speaks. **Freund, F.**, Lau, B., and Takeuchi, A.

O40 Ongoing Accelerating Seismicity in California. **Colella, H.** and Bowman, D.

O41 Precursory Accelerating Moment Release: Fact or Data-Fitting Fiction. **Michael, A.**, Felzer, K., and Hardebeck, J.

O42 Earthquake Forecasting in Northern California Based on Temporal Variations in the Strain Field at Seismogenic Depths. **Sipkin, S.**

Nuclear Explosion Monitoring Anniversary Session (see page 259)

P1 The Seismic Networks of the International Monitoring System of the Comprehensive Nuclear-Test-Ban Treaty Organization. **Barrientos, S.** and Suarez, G.

P2 On the Detection of Low Magnitude Seismic Events Using Array-based Waveform Correlation. **Gibbons, S.,** Ringdal, F., and Kvaerna, T.

P3 A Bayesian Hierarchical Approach to Multiple-event Seismic Location. **Myers, S.**, Johannesson, G., and Hanley, W.

P4 Regional Body-Wave Attenuation Using a Coda Source Normalization Method: Application to MEDNET

Records of Earthquakes in Italy. **Walter, W.,** Mayeda, K., Malagnini, L., and Scognamiglio, L.

P5 Developing Pn attenuation models for Eurasia. **Yang, X.**, Taylor, S., and Phillips, W.

P6 Regional Calibration of Peak Envelope Arrival Time. **Phillips, W.** and Stead, R.

P7 Joint Inversion for Three-Dimensional Velocity Structure of North Africa and the Middle East. **Flanagan, M.,** Matzel, E., Pasyanos, M., van der Lee, S., Marone, F., Rodgers, A., Romanowicz, B., and Schmid, C.

P8 Improving Ms Estimates by Calibrating Variable Period Magnitude Scales at Regional Distances. **Pasyanos, M.,** Hooper, H., and Bonner, J.

P9 Modeling of the May 21, 1997 Jabalpur Earthquake in Central India: Regional Path Calibration. **Saikia, C.**

P10 A New Approach for Wave Propagation Simulation in Irregular Multilayered Earth Model with Boundary Element Method. **Ge, Z.** and Chen, X.

P11 Source Phenomenology Experiment in Arizona: Amplitude Ratio Analysis of Regional Arrivals for Production Mining and Single-Fire Sources. **Zeiler, C.**, Velasco, A., and Hernandez, S.

P12 Source Features and Scaling of Calibration Explosions in Middle East/Eastern Mediterranean for CTBT Monitoring. **Hofstetter, A.,** Gitterman, Y., and Pinsky, V.

P13 Infrasound Waveguide. **Herrin, E.,** Kim, T., and Stump, B.

Near Fault Ground Motions from Large Earthquakes (*Joint with EERI*) (see page 261)

Q1 Effects of Directivity and Supershear Rupture Speed on Near-Fault Ground Motion. **Bykovtsev, A.** and Quazi, H.

Q2 The Relationship of Near-fault Velocity Pulse to the Source Parameters. **Liu, Q.**, Yuan, Y., and Jin, X.

Q3 Effects of Directivity on Shaking Scenarios: An Application to the 1980 Irpinia Earthquake, M 6.9, Southern Italy. **Pacor, F.,** Cultrera, G., Emolo, A., Gallovic, F., Cirella, A., Hunstad, I., Piatanesi, A., Tinti, E., Ameri, G., and Franceschina, G.

Q4 An Efficient Method for Simulating Near-fault Strong Motions at Broadband Frequencies in Layered Half-spaces. **Hisada, Y.**

Q5 Analysis and "Prediction" of the M = 6.2, 1991 and M = 7.2, 1992 Cape Mendocino Earthquakes by Ground Motion Modeling with Empirical Green's Functions. **Hutchings, L.**, Kane, D., O'Boyle, J., Scognamiglio, L., and Tremi, M.

Q6 Do Weak (Strong) Motion Empirical Models Predict Strong (Weak) Ground Motion? Results from the Kik-Net Records in Japan. Pousse, G., Cotton, F., **Scherbaum, F.**, and Bonilla, L.

Q7 Near-fault Broadband Ground Motions from a Megathrust Earthquake: A Case of the Great 1923 Kanto Earthquake. **Miyake, H.**, Koketsu, K., Kobayashi, R., Tanaka, Y., and Ikegami, Y.

Q8 Inclusion of Stress Distribution on the Fault in Stochastic Finite Fault Modeling: Application to the M6, 2004 Parkfield Earthquake. **Assatourians, K.** and Atkinson, G.

Q9 Event Location and Source Complexity as Derived from Strong Motion Data. **Porter, L.** and Leeds, D.

Q10 Thermal Pressurization Explains Enhanced Long-Period Motion in the Chi-Chi Earthquake. **Andrews, J.**

Q11 Scaling of High-Frequency Ground Motions for the Sumatra, Chi-Chi, and Kocaeli Earthquake Sequences. **Frankel, A.**

Q12 Ground-Motion Scaling in Western Anatolia Region (Turkey). Akinci, A., Akyol, N., **D'Amico, S.**, Malagnini, L., and Mercuri, A.

Q13 Use of m_b vs. M_W in the Search for High-Stress Earthquakes. **Dewey, J.** and Boore, D.

Q14 Damage Potential of Near-source Ground Motion Records. **Bazzurro, P.** and Luco, N.

Q15 Near-fault Ground Motion Destructiveness: The Inadequacy of Some Popular Intensity Measures. **Georgarakos, P.**, Kourkoulis, R., and Gazetas, G.

Q16 Simulated Nonlinear Response of High-Rise Buildings for the 2003 Tokachi-Oki Earthquake M_W 8.3. **Yang, J.**, Heaton, T., and Hall, J.

Hazard and Risk (see page 265)

R1 Earthquake Risk Estimates for Residential Construction in the U.S. and Canada. **Windeler, D.**, Rahnama, M., Baca, A., Hall, L., Molas, G., Morrow, G., Onur, T., Seneviratna, P., and Williams, C.

R2 Comparing Site-specific Probabilistic Seismic Hazard in Southern California with the USGS National Hazard Maps. **Terra, F.**, Wong, I., Zachariasen, J., Dober, M., Hill, J., and Robb, B.

R3 New Seismic Hazard Assessment for Guam and the Northern Mariana Islands. **Mueller, C.**, Haller, K., Frankel, A., and Petersen, M.

R4 Seismic hazard evaluation on the Thai Peninsula, Thailand. **Dober, M.**, Wong, I., Zachariasen, J., Fenton, C., Thongsoi, A., Sutiwanich, C., and Harnpattanapanich, T.

R5 Correlating Earthquake Risk and Urban Development: Case of Istanbul. **Gencer, E**.

R6 A New Seismic Zonation of Latium Region. **Colombi, A.**, Meloni, F., and Orazi, A.

R7 Earthquake Hazard Maps for County Level Disaster Prevention. **Chao, S.**

R8 State-of-the-Art of the research on Lifeline Earthquake Engineering in China. Han., Y. and **Sun, S.**

R9 Use of Rupture End-Point Characteristics in Seismic Hazard Assessment. **Knuepfer, P.**

R10 Seismic Response Of Adjacent Buildings Under Pounding Effects. **Gholipour**, **Y**.

R11 Insured Losses for Repeats of the 1906 San Francisco and 1811/1812 New Madrid Earthquakes: How Does the Hazard Relate to Risk? **Hall, L.,** Rahnama, M., Windeler, D., Baca, A., Molas, G., Onur, T., and Seneviratna, P.

R12 A Study on Calibration and Validation of Building Vulnerability to Earthquake. **Byeon, J.**

R13 A Study on Seismic Resistance of R/C Multi-Story Buildings with Slab Irregularity. **Gulay, G.**, Ayranci, M., and Sahbaz, U.

R14 The Instable Dynamics of the Earth Energy: The Methods and Possibilities of Control Thereof. **Kerimov, I.** and Kerimov, S.

THURSDAY, 20 APRIL

Plenary Session: Assessing the Present (see page 268)

8:30 **Greg Beroza:** "Ground Motion Simulations for a Repeat of the 1906 Earthquake"

9:00 **Charlie Kircher:** HAZUS Analysis of a Repeat of the 1906 Earthquake

9:30 **Richard K. Eisner:** Emergency Response and Post-event Recovery After "The Big One"

10:00 Coffee Break

Concurrent SSA Oral Sessions

	Paleoseismic Characterization of Earthquake Recurrence and Hazard Assessment I (see page 269) Presiding: Ray Weldon and Tom Rockwell	**Broadband Simulations of the 1989 Loma Prieta and 1906 San Francisco Earthquakes I** (see page 270) Presiding: Brad Aagaard and Thomas Brocher	**Crossing the Fault from Seismology to Engineering: Bruce Bolt Memorial Session** (*Joint with EERI*) (see page 272) Presiding: Norm Abrahamson, Nick Gregor	**The Future of Earthquake Research** (*See EERI program for details*)
10:30	High Resolution Paleoseismic Records at Three Sites on the Northern San Andreas Fault. **Fumal, T**., Niemi, T., and Zhang, Z.	Three-Dimensional Geologic Map of Northern and Central California: A Basic Model for Supporting Earthquake Simulations and Other Predictive Modeling. **Jachens, R.**, Simpson, R., Graymer, R., Wentworth, C., and Brocher, T.	Crossing the Seismology—Engineering Interface. Abrahamson, N. and **Gregor, N.**	

10:45	New and Extended Paleoseismological Evidence for Large Earthquakes on the San Andreas Fault at the Bidart Fan Site, California. **Akciz, S.**, Grant, L., and Arrowsmith, R.	The New USGS 3D Seismic Velocity Model for Northern California. **Brocher, T.**, Aagaard, B., Simpson, R., and Jachens, R.	Recommendations for the Selection and Scaling of Ground Motion Time Histories for Building Code Applications. **Watson-Lamprey, J.**, Abrahamson, N., and Bachman, R.
11:00	Reid's Elastic Rebound Theory in Light of the Long Paleoseismic Record at Wrightwood. **Scharer, K.**, Biasi, G., Fumal, T., and Weldon, R.	A New Regional Seismic Tomography Model for Northern California. **Zhang, H.**, Thurber, C., Brocher, T., Liu, Y., and Evangelidis, C.	Incorporation of Earthquake Source, Propagation Path, and Site Uncertainties into Assessment of Liquefaction Potential. **Darragh, R.**, Gregor, N., and Silva, W.
11:15	New Insights to Earthquake Behavior of the Southernmost San Andreas Fault. **Williams, P.** and Seitz, G.	A Unified Source Model for the 1906 San Francisco Earthquake. **Song, S. G.**, Beroza, G., and Segall, P.	On the Use of Bayesian Updating to Combine Seismic Hazard Results and Information from the Geological Record. **Toro, G.** and Cornell, A.
11:30	Rupture Histories from Paleoseismic Records on the Southern San Andreas Fault. **Biasi, G.**, Weldon, R., and Scharer, K.	Regional and Global Scale Modeling the Great 1906 San Francisco Earthquake. **Rodgers, A.**, Petersson, A., Nilsson, S., Sjogreen, B., McCandless, K., and Tkalcic, H.	"Did You Feel It?" and ShakeMap: A New Interface between Seismological and Engineering Data. **Atkinson, G.** and Wald, D.
11:45	The Long Record of San Jacinto Fault Paleoearthquakes at Hog Lake: Implications for Regional Patterns of Strain Release in the Southern San Andreas Fault System. **Rockwell, T.**, Seitz, G., Dawson, T., and Young, J.	Large Scale Seismic Modeling and Visualization of the 1906 San Francisco Earthquake. **Petersson, A.**, Rodgers, A., Duchaineau, M., Nilsson, S., Sjogreen, B., and McCandless, K.	Making Waves: Seismologists and Engineers Collaborating at the NEES Experimental Field Sites. **Steidl, J.**
12:00	Lunch		

Concurrent SSA Oral Sessions

	Paleoseismic Characterization of Earthquake Recurrence and Hazard Assessment II (see page 273) Presiding: Ray Weldon and Tom Rockwell	**Broadband Simulations of the 1989 Loma Prieta and 1906 San Francisco Earthquakes II** (see page 275) Presiding: Brad Aagaard and Thomas Brocher	**Constraints on Transonic Rupture Propagation** (*EERI session joint with SSA*) (see page 276) Presiding: Ralph Archuleta and Michel Bouchon	**Surface Fault Rupture** (*EERI session joint with SSA*) (see page 277) Presiding: Suzanne Hecker and Jerry Treiman	**Scenario for a M6.7 Earthquake on the Seattle Fault Presiding: Don Ballantyne and Craig Weaver** (*EERI session joint with SSA*) (see page 325)
2:00	A Synergistic Approach to Earthquake Science and Forecasting: Assimilating Paleoseismic, Geodetic, and Historic Data into Numerical Simulations of Earthquake Fault Systems. **Rundle, J.**	Broadband Ground Motion Simulations for Earthquakes in the San Francisco Bay Region. **Graves, R.**	Dynamic Rupture Propagation and Radiation along Kinked Faults. **Vilotte, J.P.** and Festa, G.	Characteristic Fault Rupture: Implications for Fault Rupture Hazard Analysis. **Abrahamson, N.** and Hecker, S.	

2:15	Holocene Paleoseismic Activity on the Nephi Segment of the Wasatch Fault Zone, Utah. **DuRoss, C.**, McDonald, G., and Lund, W.	Simulations of the 1906 San Francisco Earthquake using High Performance Computing. **Larsen, S.**, Dreger, D., and Dolenc, D.	Guidelines for Predicting the Occurrence of Supershear Earthquakes. **Dunham, E.**	Estimating Fault Displacement Hazard for Strike-Slip Faults. Petersen, M., Cao, T., Dawson, T., **Wills, C.**, and Schwartz, D.
2:30	A Longer and More Complete Paleoseismic Record for the Provo Segment of the Wasatch Fault Zone, Utah. **Olig, S.**, McDonald, G., Black, B., DuRoss, C., and Lund, W.	Finite-element Simulations of Ground Motions in the San Francisco Bay Area from Large Earthquakes on the San Andreas Fault. **Aagaard, B.**	The Effect of Supershear Rupture Speed on the High Frequency Content of Ground Motions. **Spudich, P.**, and Bizzarri, A.	Coseismic Ground Deformation at San Bernardino Valley College, California. **Gath, E.**, Gonzalez, T., and Sieh, K.
2:45	Multi-method Paleoseismology: Combining on and Offshore Data to Build a Basin Wide Record of Earthquakes at Lake Tahoe. **Seitz, G.**, Kent, G., Smith, S., Dingler, J., Driscoll, N., Karlin, R., Babcock, J., and Harding, A.	Flexible Steel Building Responses to a 1906 San Francisco Scenario Earthquake. **Heaton, T.**, Olsen, A., and Hall, J.	On the Correlation of Slip and Rupture Velocity and Its Effect on Ground Motion**. Schmedes, J.**, Archuleta, R., and Liu, P.	Understanding Surface Fault Rupture Hazards to Mitigate Fault Rupture Risks. **Cluff, L.**
3:00	Fault Interactions and Paleoearthquake Clustering in the Active Taupo Rift, New Zealand. **Villamor**, **P.**, Nicol, A., Robinson, R., Berryman, K., and Walsh, J.	Predicted Liquefaction of East Bay Fills During a Repeat of a 1906 San Francisco, California, Earthquake. **Holzer, T.**, Blair, L., Noce, T., and Bennett, M.	An Observational Link between Rupture Velocity and Fracture Energy: The Case of the Bam Earthquake. **Bouchon, M.**	Mitigation of the Surface Fault Rupture Hazard. **Bray, J.**
3:15	Feasibility of Long-term Earthquake Prediction Using Global Data Sets: Implications for California. **Sykes, L.**, and Menke, W.	Simulation of Long-period Ground Motions in the Los Angeles Basin from the Great 1906 San Francisco Earthquake. **Kimura, T.**, Ikegami, Y., and Koketsu, K.	Radiation Pattern Peculiarities for Transonic and Supersonic Complex Rupture Propagation. **Bykovtsev, A**. and Quazi, H.	Structures Near a Fault—Can They Survive? **Wyllie, L.**
3:30	Coffee Break			

	Integrating Geology and Geodesy in Studies of Active Faults (see page 278) Presiding: Sally McGill and Liz Hearn	**Global Seismicity and Wave-speed Structure of Earth's Deep Mantle and Crust: Sessions in Honor of the Seismological Contributions of E. Robert Engdahl** (see page 279) Presiding: Mike Ritzwoller and Steve Kirby	**Using Regional Velocity Structures to Estimate Seismic Hazard** (see page 281) Presiding: Fred Pollitz and Jeanne Hardebeck	**Ground Motions for Engineering Design** Presiding: Gail Atkinson and Jon Stewart (*EERI session joint with SSA.* See page 282)
4:00	Constancy of strain accumulation and release on strike-slip faults in Turkey and California. **Dolan, J.**, Kozaci, O., Frankel, K., and Finkel, R.	The Management of Data from International Seismographic Networks: Activities at the IRIS DMC. **Ahern, T.** and Benson, R.	Integrated Modeling and Waveform Tuning of Regional 3-D Velocity Structures. **Koketsu, K.,** Tanaka, Y., Hikima, K., Miyake, H., Kobayashi, R., and Ikegami, Y.	Do Scaled and Spectrum-matched Near-Source Records Produce Biased Nonlinear Structural Responses? Bazzurro, P. and **Luco, N.**
4:15	Lithospheric elasticity promotes episodic fault activity. **Chery, J.,** and Vernant, P.	Two Decades of Mantle Tomography With Routinely Processed Travel Time Data. **van der Hilst, R.**	Details of Earth Structure in the San Francisco Bay Area as Revealed by a Network of 2-D Controlled-Source Seismic Imaging Profiles. **Catchings, R. D.**, Goldman, M. R., Rymer, M .J., and Gandhok, G.	Evaluation of Two Ground Motion Scaling Methods to Estimate Mean Structural Demands. **Kalkan, E.** and Kunnath, S.
4:30	Relationship between geodetic and geologic fault slip-rates with more realistic rheologies and rupture histories. **Hetland, E.**, and Hager, B.	High-resolution seismic tomography and hypocenter relocations for the NE Japan subduction system -An overview. **Hasegawa, A.**	Ground Predictions Using The USGS Seismic Velocity Model of the San Francisco Bay Area: Evaluating the Model and Scenario Earthquake Predictions. **Rodgers A.**, Petersson, A., Nilsson, S., Sjogreen, B., and McCandless, K.	Biases Caused by Use of Spectrum-compatible Motions. **Watson-Lamprey, J.** and Abrahamson, N.
4:45	Discrepancies Between Fault Slip Rates Obtained by Block Modeling of GPS Data and Surface Exposure Age Dating of Strike-Slip Fault Offsets in Tibet. **Thatcher, W**.	Earthquake Location and Seismic Tomography: Pushing the Envelope for Subduction Zone Studies**.** **Thurber, C.**, Zhang, H., Brudzinsk, M., DeShon, H. and Engdahl, E.R.	Simulated Ground Motion in Santa Clara Valley and Vicinity from M6.7 and Greater Scenario Earthquakes. **Harmsen, S.**, Hartzell, S., and Liu, P.	A Computationally Intelligent Method of Ground Motion Selection for Structural Design. **Alimoradi, A.**, Naeim, F., and Pezeshk, S.
5:00	Geodetic versus geologic slip rate along the Dead Sea Fault. **Le Beon, M.**, Klinger, Y., Agnon, A., Dorbath, L., Baer, G., Meriaux, A.-S., Ruegg, J.-C., Charade, O., Finkel, R., and Ryerson, F.	From precision to accuracy: recent advances in seismic location. **Myers, S.**	TeraShake: Strong Shaking in Los Angeles Expected From Southern San Andreas Earthquake. **Olsen, K.**, Day, S., Minster, J., Cui, Y., Chourasia, A., Faerman, M., Moore, R., Hu, Y., Zhu, J., Li, Y., Maechling, P., and Jordan, T.	Ground Motion Intensity Measures for Collapse Capacity Prediction: Choice of Optimal Spectral Period and Effect of Spectral Shape. **Haselton, C.** and Baker, J.

5:15 Latest Pleistocene Slip Rate of the San Bernardino Strand of the San Andreas fault in Highland: Possible Confirmation of the Low Rate Suggested by Geodetic Data. **McGill, S.**, Weldon, R., Kendrick, K., and Owen, L.

Fine-scale Seismicity of Earth's Interior: Regional- and Global-scale Double-difference Applications to Study Plate-tectonic Processes. **Waldhauser, F.**, Abend, H., Bohnenstiehl, D., Kim, W., Richards, P., Schaff, D. and Tolstoy, M.

Effects of Large-Scale Topography on the Ground Motions and Rupture Dynamics in the Simulation of the 1812 Wrightwood, California, Earthquake. **Ma, S.**, and Archuleta, R.

Design Ground Motion Library. **Youngs, R.,** Power, M., and Chin, C.

Thursday AM, 20 April Poster Sessions

The Giant Sumatran Earthquakes of 2004 and 2005 (*Joint with EERI*) (see page 283)

S1 Coseismic Land-level Changes Caused by 26 December, 2004 Sumatra Earthquake and Evidence of Paleotsunami Deposits (?) in Andaman and Nicobar Islands, India. **Malik, J.**, and Murty, C. V. R.

S2 Constraining the Co-seismic Fault Slip of Large Subduction Earthquakes Using both Teleseismic Body and Surface Waves and an Update of the 2004 Sumatra-Andaman Earthquake. **Ji, C.**, Hjorleifsdottir, V., and Song, T.-R.

S3 Kinematic Analysis of GPS Data in SE Asia during the Sumatra-Andaman and Nias Earthquakes. **Hashimoto, M.**, Hashizume, M., Takemoto, S., Fukuda, Y., Fujimori, K., Takiguchi, H., Sato, K., Otsuka, Y., Saito, S., Miyazaki, S., and Satomura, M.

S4 Earthquake Rupture Variations along the Sumatra-Andaman Subduction Zone. **Bilek, S.**

S5 Joint GPS and Satellite Measurements of Atmospheric Processes Related to the Northern Sumatra Earthquake Sequence of Dec 2004–Apr 2005. **Ouzounov, D.**, Pulinets, S., Cervone, G., Kafatos, M., Ciraolo, L., and Taylor, P.

S6 Estimation of Path Characteristic of the Great Sumatra Earthquake by Multipulse Method. **Routray, A.**, and Kumar, V.

S7 A CUSUM Based Phase Detector for Seismic Signals Using an Adaptive Markov Model. **Mohanty, W.**

S8 Development of Attenuation Relationship for Far Field Earthquakes Caused by Dip Slip Mechanism for the Application of Sumatran Earthquake Effects to the Peninsula of Malaysia. **Adnan, A.**, Hendriyawan, H., Marto, A., and Irsham, M.

S9 A Cumulative Broadband Body-wave Magnitude for Quick Reliable Estimation of the Size of Great Earthquakes. **Bormann, P.**, Wylegalla, K., and Saul, J.

S10 9.3—An Orchestral Composition Commemorating the 2004 Sumatra Earthquake and Tsunami. **Barker, J.** and Rolls, T.

S11 Outreach in Western Sumatra: Educating Citizens on How to Live with Their Natural Tectonic Environment. **Stebbins, C.**, Sieh, K., Natawidjaja, D., and Suwargadi, B.

S12 Risk Communication in a Networked Society. **Comfort, L.**

S13 Tsunami Damage Detection Using Moderate-resolution Satellite Imagery. **Yamazaki, F.**, Kouchi, K., and Matsuoka, M.

S14 Evaluation of Tsunami Damage in the Eastern Part of Sri Lanka Due to the 2004 Sumatra Earthquake Using Remote Sensing Technique. **Miura, H.**, Wijeyewickrema, A.C., and Inoue, S.

S15 Geotechnical Damages on the Indian Coast Due to Tsunamis Caused by Dec. 26, 2004 Sumatra Earthquake. **Maheshwari, B.**, Sharma, M.L., and Narayan, J. P.

S16 Role of Mangrove Ecosystem with reference to Tsunami Seismic Hazard. **Gokhale, V.**

Tsunamis (see page 286)

T1 Tsunamis along the Eastern Mediterranean Coast: The Past Is the Key to the Future. **Salamon, A.**, Ward, S., and Rockwell, T.

T2 Late Prehistoric Tsunami(s) in the Tasman Sea: Evidence from Tasmania and Flinders Island. **Hutchinson, I.** and Ellison, J.

T3 In Search of Past Tsunami Deposits along the Sumatran Subduction Zone, Padang, Western Sumatra. **Logsdon II, M.,** Yulianto, E., Rubin, C., and Witter, R.

T4 Paleotsunami Study in Simelue Island, a Preliminary Result. **Yulianto, E.** and Dengler, L.

T5 Landform and Marsh Deposits Provide Evidence for the Probable Occurrence of Prehistoric Earthquakes and Tsunamis for the Last 5,000 Yr BP on the Pacific Coast of Mexico, Guerrero State. **Ramirez-Herrera, M.-T.**, Kostoglodov V., and Cundy, A.

T6 Tsunami Deposit Grading as a Record of Changing Tsunami Flow. **Higman, B.** and Jaffe, B.

T7 Modeling Tsunami Erosion and Deposition. **Gelfenbaum, G.**, Lesser, G., Jaffe, B., and Moore, A.

T8 Tsunami Whirlpools—Observed in 2004 and Remembered in First Nations Art and Myth. **Ludwin, R.** and Colorado, A.

T9 Submarine Geologic Constraints on Central California Tsunami Hazards. **Nishenko, S.**, Cluff, L., Page, W., Hanson, K., Angell, M., Rietman, J., Thio, H., and Ichinose, G.

T10 Joint Contribution of Historical and Geological Data for Tsunami Hazard Assessment in Gargano and Eastern Sicily (Italy). **De Martini, P.**, Pantosti, D., Barbano, M., Gerardi, F., Smedile, A., Azzaro, R., and Del Carlo, P.

T11 Source Parameters Analysis of the Regional Moment Tensor Inversion in the Caribbean Region. **Cameron, A.**, Asencio, E., von Hillebrandt-Andrade, C., Huerfano, V., Mendoza, C.

T12 Probabilistic Tsunami Hazard Analysis. **Thio, H.**, Ichinose, G., Polet, J., and Somerville, P.

Advances in Geodetic Studies of Seismic Sources (see page 289)

U1 High-rate GPS Data—When Are They Useful? **Clinton, J**., Bilich, A., Larson, K., Miyazaki, S., and Yamagiwa, A.

U2 Kinematic Inversion of the 2004 Mw 6 Parkfield Earthquake from Strong Motion Seismic Data and High-rate GPS Data. **Custodio, S**., Liu, P., Archuleta, R., and Larson, K.

U3 Postseismic Deformations Following the Sumatra-Andaman and Nias Earthquakes Detected by Continuous GPS Observations in Southeast Asia. **Hashimoto, M**., Hashizume, M., Takemoto, S., Fukuda, Y., Fujimori, K., Takiguchi, H., Satomura, M., Otsuka, Y., and Saito, S.

U4 Post-seismic Deformation after the 2003 Bam, Iran Earthquake from Time Series Analysis of Envisat InSAR. **Fielding, E.**, Funning, G., Lundgren, P., Li, Z., and Bürgmann, R.

U5 Near Real-time Source Parameters for Earthquake Loss Estimates: Bam, 26 December 2003. **Wang, R.**, Wyss, M., Zschau, J., and Xia, Y.

U6 Over a decade monitoring a mature seismic gap: how much longer do we have to wait? Protti, M., Gonzalez, V., Schwartz, S., Dixon, T., Kato, T., Kaneda, Y., and Lundgren, P.

U7 Interseismic Geodetic Strain around Continental Faults and Equivalent Elastic Thickness. **Chery, J.**

U8 Aseismic Creep Associated with Seismic Swarms in the Salton Trough, CA. **Lohman, R.** and McGuire, J.

U9 Joint Inversion of GPS and Leveling Data for the Coulomb Stress Evaluation in the Mexicali-Imperial Valley. **Glowacka, E.**, Sarytchikhina, O., Nava Pichardo, F., and Gonzalez, J.

U10 Using InSAR for the Observation of Large-scale Deformation over the Western Basin and Range. **Gourmelen, N.** and Amelung, F.

U11 A GPS Anomaly, Probably Related to Hydrology, in the San Gabriel Valley, California. **King, N.**, Argus, D., Langbein, J., Agnew, D., Dollar, R., Bawden, G., Liu, Z., Reichard, E., Yong, A., Bock, Y., Stark, K., and Barseghian, D.

U12 Motion of upper plate faults during subduction zone earthquakes: The curious case of the Atacama Fault in northern Chile. Loveless, J., **Pritchard, M.**, and Allmendinger, R.

Global Seismicity and Wave-speed Structure of Earth's Deep Mantle and Crust: Sessions in Honor of the Seismological Contributions of E. Robert Engdahl (see page 291)

V1 Calibrated Earthquake Data Sets for Regional and Global Seismology. **Bergman, E.** and Engdahl, E.R.

V2 GLASS: A New Approach to the Global Phase Association Problem. **Johnson, C.**, Benz, H., and Buland, R.

V3 Development of a Direct Search Software Package for Locating Poorly Constrained Earthquakes. **Lee, W.** and Baker, L.

V4 Dueling Slabs Revealed by the Engdahl/van-der-Hilst/ Buland (EHB) Earthquake Catalogue. **Kirby, S.**, Engdahl, E. R., and Villaseñor, A.

V5 Accurate Relocated Earthquake Hypocentres Reveal Structure of Subducted Indian Plate under Burma. **Stork, A.**, Selby, N., Heyburn, R., Woodhouse, J., and Searle, M.

V6 MesoAmerican Seismic Experiment: Imaging the Subducting Slab. **Pérez-Campos, X.**, Clayton, R., Iglesias, A., Singh, S., Husker, A., Davis, P., Valdés-González, C., and Stubailo, I.

V7 Development of a Three-dimensional Velocity Model for the Greater Barents Sea Region. **Ritzmann, O.**, Faleide, J., Bungum, H., Maercklin, N., Mooney, W., Detweiler, S., and Myklebust, R.

V8 Progress in Broad-band Continental Scale Ambient Noise Tomography. **Ritzwoller, M.**, Barmin, M., Bensen, G., Levshin, A., McCoy, C., Moschetti, M., Lin, F., Yang, Y., and Shapiro, N.

V9 Sn Tomography in China. **Sun, Y.**, Toksoz, M. N., Pei, S., Zhao, J., and Liu, H.

V10 Crustal Structure of the Northeastern Margin of the Tibetan Plateau from the Songpan-Ganzi Terrane to the Ordos Block. **Liu, M.**, Mooney, W., Li, S., Okaya, N., and Detweiler, S.

V11 Full Waveform Inversion of Seismic Velocity and Anelastic Losses in Highly Heterogeneous Sedimentary Valleys. Akcelik, V., **Askan, A.**, Bielak, J., and Ghattas, O.

V12 Implications of Precise Tremor Event Location for the Mechanism of Deep Nonvolcanic Tremor. **Shelly, D.**, Beroza, G., Ide, S., and Nakamula, S.

V13 Investigating Upper Mantle Structure Beneath New Zealand with Receiver Functions. **Boyd, O.**, Savage, M., Sheehan, A., and Jones, C.

V14 Investigating Fine-scale Heterogeneity of the Inner-core Structure Using Inner-core Scattered Waves Recorded by LASA. **Peng, Z.**, Vidale, J., Leyton, F., and Koper, K.

V15 The Western Quebec Seismic Zone (Eastern Canada): Seismic Clustering along an Ancient Hotspot Track. **Ma, S.**, Eaton, D., and Dineva, S.

V16 Georgian Bay (Ontario) Earthquake with Magnitude mN 4.3 (October 20, 2005) and Its Foreshock–Aftershock Sequence: Tectonic Implications. **Dineva, S.**, Eaton, D., Ma, S., and Mereu, R.

V17 A Global Search for Repeating Earthquakes: Preliminary Results and Application to the Inner Core. **Zhang, J.**, Richards, P., and Schaff, D.

Using Regional Velocity Structures to Estimate Seismic Hazard (see page 295)

W1 Modulus Based Quantification of Seismic Hazards. **Dickson, W.**

W2 Probabilistic Seismic Hazard Assessment for the Urban Area of Evansville, Indiana, Incorporating Laterally Varying Site Effects. Haase, J., **Choi, Y. S.**, and Nowack, R. L.

W3 A Matter of Scale: Understanding Nevada's Sedimentary Basins for Seismic Hazard Assessment. Louie, J. N., **Heimgartner, M.**, Pancha, A., Thelen, W., Scott, J. B., and Lopez, C. T.

W4 Characterizing the Yucca Mountain Site for Developing Seismic Design Ground Motions. **Upadhyaya, S.**, Wong, I., Kulkarni, R., Stokoe, K. H., Dober, M., Silva, W., and Quittmeyer, R.

W5 Waveform Inversion of the Strong Motion Data from Anchorage Basin, Alaska. **Dutta, U.**, Sen, M. K., Biswas, N., and Yang, Z.

W6 Shear-velocity Profile across the Evergreen Basin (CA) Using Microtremor Array Studies. **Asten, M.** and Boore, D.

W7 Regional Attenuation Method Comparison for Northern California. **Ford, S.**, Dreger, D., Mayeda, K., Walter, W., Malagnini, L., and Phillips, W. S.

W8 Fully 3D Waveform Tomography for the L. A. Basin Area Using SCEC/CME. **Chen, P.**, Zhao, L., and Jordan, T.

W9 3-D Velocity Models and Earthquake Locations in Southern California using a New Cross-correlation Location Method. **Lin, G.** and Shearer, P.

W10 Shear Wave Velocity of California's Strong Motion Recording Stations. **Kayen, R.,** Thompson, E., Minasian, D., and Carkin, B.

W11 Joint Inversion of Surface Wave Velocity and Gravity Observations and its Application to Central Asian Basins Shear Velocity Structure. **Maceira, M.** and Ammon, C. J.

W12 Crustal Structure for Eastern and Central Canada from an Improved Neighborhood Algorithm Inversion. **Bent, A**. and Kao, H.

W13 Site Classification and Amplification in the Mississippi Embayment for Regional Seismic Risk Estimations. **Onur, T**., Hall, L., and Molas, G.

Thursday PM, 20 April Poster Sessions

Ground Motion: Assessment and Effects (see page 297)

X1 Ground Motion Scaling for Large Subduction Earthquakes: The September 26, 2003, M 8.1 Tokachi-oki Earthquake Sequence (Hokkaido, Japan). **Macias, M.** and Atkinson, G.

X2 Correlation of Casualties with Various Ground Motion Parameters in the 1999 Chi-Chi, Taiwan Earthquake. **Sullivan, M.** and Onur, T.

X3 The 2004 Mid-Niigata Earthquake: The effect of ground motion on triggering of Catastrophic Landslides and Soil–Structure Interaction. **Kourkoulis, R.**, Gerolymos, N., Georgarakos, P., and Gazetas, G.

X4 Building Settlement in the Artificial Fill of Old Mission Creek Marshland, San Francisco Bay. **Sullivan, R.**

X5 Flexible Steel Building Responses to Scenario Earthquakes in the Los Angeles Basin. **Olsen, A.**, Heaton, T., and Hall, J.

X6 Effects of Rainfall on Soil-structure System Frequency: Examples Based on Poroelasticity and a Comparison with Full-scale Measurements. **Todorovska, M.** and Al Rjoub, Y.

X7 Instrumental Criteria for Seismic Intensity Assessment: Alternative Definitions and Applications. Sandi, H., Borcia, S., Vlad, I., and **Vlad, N.**

X8 Damping-adjustment Factors for Spectral Accelerations. **Malhorta, P.**

X9 The Preliminary Study of Next Generation Ground-Motion Attenuation Relationship for Taiwan Crustal Earthquakes. **Lin, P.,** Lee, C., Chiu, H., Cheng, C., Chiou, B., and Chern, J.

X10 Three Dimension Velocity Imaging of Seismic Pseudo Wave in North China with Seismic Anomaly. **Li, D.**

Broadband Simulations of the 1989 Loma Prieta and 1906 San Francisco Earthquakes (see page 299)

Y1 Acceleration Response Spectra for the 1906 San Francisco Earthquake Inferred from Modified Mercalli Intensity. Seekins, L., **Boatwright, J.**, and Bundock, H.

Y2 The Great 1906 San Francisco Earthquake: Simulation of Broad-Band Strong Ground Motion. **Mavroeidis, G.**, Halldorsson, B., Zhang, F., and Papageorgiou, A.

Y3 3D Simulations of Ground Motions in Northern California Using the USGS SF06 Velocity Model. **Dolenc, D.**, Dreger, D., and Larsen, S.

Y4 Uncertainty Estimates of Losses for a Repeat of the 1906 San Francisco Earthquake. **Molas, G.**, Anderson, R., Seneviratna, P., and Winkler, T.

Y5 Dynamic Failure Stress for the Great 1906 San Francisco Earthquake as a Predictor For Later Events. **Olsen, K.**, Eddo, J., Jimenez, R., Lippincott, C., Wimmer, L., and Winther, P.

Y6 Near-field Broadband Ground-motions Based on Low-frequency Finite-difference Synthetics Merged with High-frequency Scattering Operators. **Mai, P.** and Olsen, K.

Crossing the Fault from Seismology to Engineering: Bruce Bolt Memorial Session (*Joint with EERI*) (see page 301)

Z1 Accelerograms Selection for Structural Response Analysis Accounting for the Intrinsic Seismic Motion Variability. **Berge-Thierry, C.** and Rey, J.

Z2 Time Histories for SHAKE Analysis—Spectra Matching or Scaled. **Zafir, Z.** and Boardman, T.

Z3 Using Random Vibration Theory to Predict Site Response. **Rathje., E.**, Ozbey, M., and Kottke, A.

Z4 Australia's Earthquake Hazard and Risk. **Schneider, J.**, Leonard, M., Allen, T., Robinson, D., Clark, D., Dhu, T., Cummins, P., Edwards, M., Burbidge, D., Dale, K., Mullaly, D., and Milne, M.

Z5 Potential Impact of Earthquakes on the Cadell Fault Scarp, Southeastern Australia, on Regional Australian Communities. Dhu, T., Clark, D., Allen, T., and **Schneider, J.**

Z6 National Site Classification Map for Australia. **McPherson, A.** and Hall, L.

Z7 Balloons to Satellites: A Century of Progress in Geotechnical Site Characterization. **Yong, A.**, Hough, S., Cox, H., Tiampo, K., Braverman, A., Harvey, J., Hook, S., Hudnut, K., and Simila, G.

Z8 SCEC Cybershake Platform: Incorporating Deterministic 3D Waveform Modeling into Probabilistic Seismic Hazard Curves. **Graves, R.**, Maechling, P., Zhao, L., Mehta, G., Gupta, N., Mehringer, J., Deelman, E., Kesselman, C., Callaghan, S., Cui, Y., Field, E., Gupta, V., Jordan, T., Okaya, D., and Vahi, K.

Z9 The Working Group on California Earthquake Probabilities (WGCEP) Plan for Developing a Uniform California Earthquake Ruture Forecast (UCERF). **Field, E.**

Z10 A Probabilistic Analysis of Extensional Ground Cracking along the MacArthur Park Escarpment, Los Angeles. **Thio, H.**, Roth, W., Dawson, E., and Somerville, P.

Z11 A Preliminary Look at Multiple Gas Pipeline Crossings of the Eastern Castle Mountain-Caribou Fault System, Alaska. **Darigo, N.**, and Rajah, S.

Z12 Extreme Magnitude Earthquake Modeling and Its Impact on Mexico's City Seismic Hazard Estimation. Chavez, M., **Madariaga, R.**, Mai, M., Cabrera, E., and Perea, N.

Z13 Seismic Hazard Data for the New, Italian Building Code Based on European Standard. **Montaldo, V.**, Meletti., C., Stucchi, M., Faccioli, E., Calvi, G., Boschi, E., Di Pasquale, G., and Gomez Capera, A.

Z14 Ground Motion Scenarios for Urban Areas and Infracstructures: the Case of Istanbul, Turkey. **Cultrera, G.**, Akinci, A., Lombardi, A., Pacor, F., Ameri, G., Cocco, M., Franceschina, G., Pessina, V., and Zonno, G.

Z15 Characteristics of Seismic High Frequencies of Strong Motion Accelerograms. **Saragoni, G.** and Ruiz, S.

Z16 Directivity Influence on Displacement Response Spectra at Low Frequency in Near Source Range. **Herrero, A.**, Cultrera, G., Piatanesi, A., Rovelli, A., Cirella, A., Hunstad, I., and Tinti, E.

Z17 Characteristics of Radiated Energy and Apparent Stress for Continental Strike-slip Earthquakes. **Choy, G.** and McGarr, A.

Z18 Analysis of Strong Ground Motion Source Scaling and Attenuation Models from Earthquakes Located in Different Source Zones in Taiwan. **Sokolov, V.**, Loh, C.-H. and Jean, W.-Y.

Z19 A Retrospect of Two Strong Motion Networks by and for Seismologist and Engineers: the SMART1 Array and the TSMIP Networks in Taiwan. **Tsai, Y.-B.**

Z20 Post-earthquake Response Spectra for Evaluating Building Performance from a Structural Engineer's Viewpoint. **Freeman, S.**

Z21 Urban Seismology: City Effects on Earthquake Ground Motion and Effects of Spatial Distribution of Ground Motion on Structural Response. Fernandez, A. and **Bielak, J.**

Z22 Decision Tools for Earthquake Risk Management, including Net Present Value and Expected Utility. **Smith, W.**

Z23 Insurance Earthquake Risk Management: 100 Years of Progress. **Guatteri, M.**, Castaldi, A., Bertogg, M., Dodo, A., Grollimund, B., Tschudi, S., and Haase Straub, S.

Z24 Improved and Simplified Hazard Maps a Common Task for Earth Scientists and Engineers. **Kuroiwa, J.**

Z25 The Great (Ms8.5) Haiyuan Earthquake of 1920, Northwest China. **Zhang, K.** and Liu, S.

Z26 The Research and Suggestion of Extent Value of Physical Measure in Seismic Intensity Scale of China. **Hao, M.** and Xie, L.-L.

Earthquake Warning and Alerting Systems: New Technologies for Hazard Mitigation and Emergency Response (*Joint with DRC*) (see page 306)

AA1 The Fastest P-wave Warning System FREQL, UrEDAS and Compact UrEDAS with Actual Situations. **Nakamura, Y.**, Saita, J., Araya, T., and Sato, T.

AA2 Station Density and Its Role in the Evolution of Earthquake Early Warning Estimates. **Cua, G.** and Heaton, T.

AA3 Implementation of Real-time Testing of Earthquake Early Warning Algorithms: Using the California Integrated Seismic Network (CISN) Infrastructure as a Test Bed. **Hauksson, E.**, Solanki, K., Given, D., Maechling, P., Oppenheimer, D., Neuhauser, D., and Hellweg, M.

AA4 Earthquake Warning Systems from the User Perspective. **Grasso**, V. and Allen, R.

AA5 The Crywolf Issue in Seismic Early Warning Applications. **Iervolino, I.**, Convertito, V., Giorgio, M., Manfredi, G., and Zollo, A.

AA6 The Irpinia Seismic Network: A New Monitoring Infrastructure for Seismic Alert Management in Campania Region, Southern Italy. **Iannaccone, G.**, Weber, E., Bobbio, A., Cantore, L., Corciulo, M., Convertito, V., DiCrosta, M., Elia, L., Emolo, A., Lancieri, M., Martino, C., Romeo, A., Satriano, C., and Zollo, A.

AA7 Advanced Digital Seismic Network for Earthquake Hazard Mitigation in Bulgaria. D. Solakov, S. Nikolova, P. Passmore, **Zimakov, L.**, Rozhkov, M., Kushnir, A., and Khaikin, L.

AA8 Development of a Shakemap Methodology Based on Fourier Amplitude Spectra. **Sokolov, V.**, Wenzel, F., and Böse, M.

AA9 Attenuation Relations for Intermediate-depth Vrancea (Romania) Earthquakes Based on Fourier Amplitude Spectra. **Sokolov, V.,** Bonjer, K.-P., Wenzel, F., and Grecu, B.

AA10 a Study of Spectral Intensity Scales in Taiwan. **Ueong, Y.-S.**, Yeh, Y., and Shih, R.-C.

AA11 Shakemap Estimation Based on Empirical Site Correction Model. **Wen, K.-L.**, Chang, Y.-W., Jean, W.-Y., Lin, C.-M., and Chang, C.-L.

AA12 Relationships between Instrumental Ground Motions and Felt Intensity for the Central United States. Atkinson, G. and **Kaka, S.**

AA13 Seismic Network Conversion at the Geological Survey of Canada, Sidney, BC. **Mulder**, T. and Lindquist, K.

AA14 Canada's Automated Natural Hazard Alert Service—Earthquakes. Wetmiller, R., **Halchuk, S.**, and Woodgold, C.

AA15 Rapid Post-earthquake Information Tools from the Advanced National Seismic System (ANSS). **Wald, D.**

AA16 Prompt Assessment of Global Earthquakes for Response (PAGER): A System to Estimate Impact Following Significant Earthquakes Worldwide. **Earle, P.**, Wald, D., and Lin, K.-W.

AA17 Earthquake Loss Estimates: Real-time and Scenario Mode. **Wyss, M.**

AA18 International Cooperation for an Indian Ocean Tsunami Warning System (IOTWS). **Detweiler, S.**, Mooney, W., Hudnut, K., Atwater, B., and Sipkin, S.

AA19 The Local Tsunami Warning System in Hawaii. **Fryer, G.**, Hirshorn, B., Cessaro, R., Shiro, B., Koyanagi, S., McCreery, C., and Weinstein, S.

AA20 Investigating the Damage Potential of Seismic Seiches in the Puget Lowland. **Barberopoulou, A.**, Pratt, T., and Titov, V.

FRIDAY, 21 APRIL—ORAL SESSIONS

	Faults Exposed! Applications of ALSM Data (see page 311) Presiding: Ken Hudnut and Judith Zachariasen	**Earthquake Warning and Alerting Systems: New Technologies for Hazard Mitigation and Emergency Response** (*Joint with DRC*) (see page 312) Presiding: Richard M Allen, James Goltz, and David Wald	**Advances in Geodetic Studies of Seismic Sources** (see page 314) Presiding: Roland Bürgmann and Gareth Funning	**The Earthquake Professionals' Top Ten Initiatives** (*EERI session joint with SSA*) (see EERI program for details)
8:00	Seeing through the Redwoods: Mapping the Northern San Andreas Fault in Dense Forest Cover Using LiDAR. **Zachariasen, J.,** Prentice, C., Koehler, R., and Baldwin, J.	Applications and Benefits of Earthquake Early Warning: Implementation and Alert Times across California. **Allen, R. M.**	Coseismic Slip and Afterslip of the Mw9.15 Aceh-Andaman Earthquake. **Chlieh, M.**, Avouac, J.-P., Sieh, K., Hjorleifsdottir, V., Song, T.-R., Ji, C., Sladen, A., Hebert, H., Natawidjaja, D., and Galetzka, J.	

8:15	The B4 LIDAR Survey of the Southern San Andreas and San Jacinto Faults. **Bevis, M.**, Hudnut, K., Brzezinska, D., Sanchez, R., and Toth, C.	Applications and Limitations of Earthquake Early Warning: Inferences from ShakeMap Uses and Users. **Wald, D.**	Coupled Seismic and Geodetic Studies of Six Subduction Zone Earthquakes. **Pritchard, M.**, Ji, C., Simons, M., Norabuena, E., Dixon, T., and Boroschek, R.
8:30	New Looks at Active Faults: Tectonic Geomorphology Using Airborne Laser Swath Mapping (ALSM). **Arrowsmith, J.** and Crosby, C.	Early Warning Systems for Large Earthquakes: Extending the Virtual Seismologist to Finite Ruptures. **Yamada, M.** and Heaton, T.	Modeling the Rupture Process of Large Earthquakes with 1 Hz GPS. **Larson, K.**, Miyazaki, S., Choi, K., Hikima, K., Koketsu, K., Haase, J., Emore, G., and Yamagiwa, A.
8:45	Systematic Landform Response to Uplift along the Dragon's Back Pressure Ridge, Carrizo Plain, California, Imaged Using High-resolution LiDAR Topographic Data. **Hilley, G.** and Arrowsmith, J.	ElarmS Earthquake Alarm Systems: Early Results in Northern California. **Wurman, G.** and Allen, R.	Did the 2003 San Simeon Earthquake Influence the Hypocenter Location and Rupture Pattern of the 2004 Parkfield Earthquake? **Johanson, I.** and Bürgmann, R.
9:00	Use of Airborne Laser Swath Mapping in Slip-Rate Studies of the San Bernardino Segment of the San Andreas Fault, Southern California. **McGill, S.** and Pierce, L.	The Seismic Alert System of Oaxaca. Cuéllar, A., **Espinosa-Aranda, J.**, Palomino, M., and Ramos, S.	Along-track Differential InSAR: A New Look at the 1999 Hector Mine Earthquake. **Bechor Ben Dov, N.** and Zebker, H.
9:15	GeoEarthScope: Imagery and Geochronology to Support Investigations into the Structure and Evolution of the North American Continent and the Physical Processes Controlling Earthquakes. **Phillips, D.,** Prescott, W., Jackson, M., and Meertens, C.	Real-time Estimation of Earthquake Location and Magnitude for Seismic Early Warning in Campania Region, Southern Italy. **Zollo, A.,** Satriano, C., Lancieri, M., Lomax, A., Bobbio, A., Cantore, L., Convertito, V., Corciulo, M., De Matteis, R., Di Crosta, M., Elia, L., Emolo, A., Iannaccone, G., Martino, C., Romeo, A., and Weber, E.	The Next Big Earthquake on a San Andreas Fault. **Fialko, Y.**

9:30 Coffee Break

Plenary Session: Preparing for the Future (see page 315)

10:00 **Kerry Sieh:** A Bleak Prognosis for Greater Human Suffering from Earthquakes

Greg Deierlein: Challenges and Innovations in a Sustainable World

Henry Renteria: TBA

Closing Session

12:00 **Chris Poland**: A Centennial Challenge to Earthquake Professionals Worldwide