

# Bulletin of the Seismological Society of America

Volume 107 • Number 2 • April 2017

## Contents

Ⓔ indicates that online material is available in the electronic edition of BSSA

### Articles

- Theoretical Basis for the Observed Break in  $M_L/M_w$  Scaling between Small and Large Earthquakes 505 Ⓔ  
*Nicholas Deichmann*
- Local Earthquake Magnitude Scale and  $b$ -Value for the Danakil Region of Northern Afar 521 Ⓔ  
*Finnigan Illsley-Kemp, Derek Keir, Jonathan M. Bull, Atalay Ayele, James O. S. Hammond, J.-Michael Kendall, Ryan J. Gallacher, Thomas Gernon, and Berhe Goitom*
- Local Magnitude Discrepancies for Near-Event Receivers: Implications for the U.K. Traffic-Light Scheme 532  
*Antony Butcher, Richard Luckett, James P. Verdon, J.-Michael Kendall, Brian Baptie, and James Wookey*
- Fluid Injection and Seismic Activity in the Northern Montney Play, British Columbia, Canada, with Special Reference to the 17 August 2015  $M_w$  4.6 Induced Earthquake 542 Ⓔ  
*Alireza Babaie Mahani, Ryan Schultz, Honn Kao, Dan Walker, Jeff Johnson, and Carlos Salas*
- Relocated Hypocenters and Structural Analysis from Waveform Modeling of Aftershocks from the 2011 Prague, Oklahoma, Earthquake Sequence 553 Ⓔ  
*Marius P. Isken and Walter D. Mooney*
- Apparent Late Quaternary Fault-Slip Rate Increase in the Southern Lower Rhine Graben, Central Europe 563 Ⓔ  
*Ryan D. Gold, Anke Friedrich, Simon Kübler, and Martin Salamon*
- Stepover Rupture of the 2014  $M_w$  7.0 Yutian, Xinjiang, Earthquake 581 Ⓔ  
*Hao Zhang and Zengxi Ge*
- Revisiting the 1956 Anjar Earthquake in Western India: Empirical Green's Function Approach 592  
*Pallabee Choudhury, Sumer Chopra, Ketan Singha Roy, Jyoti Sharma, and B. K. Rastogi*
- Properties of Noise Cross-Correlation Functions Obtained from a Distributed Acoustic Sensing Array at Garner Valley, California 603  
*Xiangfang Zeng, Chelsea Lancelle, Clifford Thurber, Dante Fratta, Herb Wang, Neal Lord, Athena Chalari, and Andy Clarke*
- Detailed Analysis of the Far-Regional Seismic Coda in Kazakhstan Using Array Processing 611 Ⓔ  
*Claire Labonne, Olivier Sèbe, Alexandr Smirnov, Stéphane Gaffet, Yves Cansi, and Natalya Mikhailova*

Improving Global Radial Anisotropy Tomography: The Importance of Simultaneously Inverting for Crustal and Mantle Structure <i>Sung-Joon Chang and Ana M. G. Ferreira</i>	624
An Assessment of Crustal and Upper-Mantle Velocity Structure by Removing the Effect of an Ice Layer on the <i>P</i> -Wave Response: An Application to Antarctic Seismic Studies <i>Jordan H. Graw, Samantha E. Hansen, Charles A. Langston, Brian A. Young, Akram Mostafanejad, and Yongcheol Park</i>	639 (E)
Moment Tensor for Seismic Sources on a Bimaterial Interface: A Hyperfunction Approach <i>Çağrı Diner and A. Özgün Konca</i>	652
Stable and Transportable Seismic Yield Estimation from Local Full-Envelope Template Matching <i>Seung-Hoon Yoo</i>	660
Assessment of Infrasound Detectors Based on Analyst Review, Environmental Effects, and Detection Characteristics <i>Junghyun Park, Chris T. Hayward, Cleat P. Zeiler, Stephen J. Arrowsmith, and Brian W. Stump</i>	674 (E)
Ocean-Bottom Seismometer Instrument Orientations via Automated Rayleigh-Wave Arrival-Angle Measurements <i>Adrian K. Doran and Gabi Laske</i>	691 (E)
Subtracting Tilt from a Horizontal Seismometer Using a Ground-Rotation Sensor <i>Krishna Venkateswara, Charles A. Hagedorn, Jens H. Gundlach, Jeffery Kissel, Jim Warner, Hugh Radkins, Thomas Shaffer, Brian Lantz, Richard Mittleman, Fabrice Matchard, and Robert Schofield</i>	709
System Identification Based on Deconvolution and Cross Correlation: An Application to a 20-Story Instrumented Building in Anchorage, Alaska <i>Weiping Wen and Erol Kalkan</i>	718
Large-Scale Earthquake-Hazard Class Mapping by Parcel in Las Vegas Valley, Nevada <i>Aasha Pancha, Satish K. Pullammanappallil, L. Travis West, John N. Louie, and Werner K. Hellmer</i>	741 (E)
Analysis of Seismic-Driven Instability of Mt. Nuovo in the Ischia Island, Italy <i>Maria Ausilia Paparo and Stefano Tinti</i>	750
Anomalous <i>P<sub>n</sub></i> Amplitudes through the Southeastern Tarim Basin and Western Tien Shan along Two Profiles: Observations and Interpretations <i>Hongchun Wang, Sidao Ni, Ping Jin, Wenxue Liu, Xiong Xu, Changzhou Pan, Haofeng Zhu, and Henglei Xu</i>	760
Long-Period Amplification in Deep Alluvial Basins and Consequences for Site-Specific Probabilistic Seismic-Hazard Analysis: An Example from the Po Plain (Northern Italy) <i>C. Mascandola, M. Massa, S. Barani, S. Lovati, and M. Santulin</i>	770
Source-Related Variability of Site Response in the Mygdonian Basin (Greece) from Accelerometric Recordings and 3D Numerical Simulations <i>Emeline Maufroy, Emmanuel Chaljub, Nikolaos P. Theodoulidis, Zafeiria Roumelioti, Fabrice Hollender, Pierre-Yves Bard, Florent de Martin, Cédric Guyonnet-Benaize, and Ludovic Margerin</i>	787 (E)
Surface Motion of a Half-Space with a Semicylindrical Canyon under <i>P</i> , <i>SV</i> , and Rayleigh Waves <i>Chao Zhang, Qijian Liu, and Peng Deng</i>	809

Displacement and Stress Associated with Distributed Anelastic Deformation in a Half-Space <i>Sylvain Barbot, James D. P. Moore, and Valère Lambert</i>	821 (E)
Influence of Lithostatic Stress on Earthquake Stress Drops in North America <i>Oliver S. Boyd, Daniel E. McNamara, Stephen Hartzell, and George Choy</i>	856 (E)
Alternative (G-16v2) Ground-Motion Prediction Equations for Central and Eastern North America <i>Vladimir Graizer</i>	869
Ground-Motion Prediction Model for Vertical Response Spectra from Mexican Interplate Earthquakes <i>A. D. García-Soto and Miguel A. Jaimes</i>	887
Ground-Motion Prediction Equation for the Chilean Subduction Zone <i>Gonzalo A. Montalva, Nicolás Bastías, and Adrian Rodríguez-Marek</i>	901 (E)
Testing Ground-Motion Prediction Equations against Small-to-Moderate Magnitude Data in Iran <i>H. Zafarani and A. Farhadi</i>	912
Partially Nonergodic Empirical Ground-Motion Models for Predicting Horizontal and Vertical PGV, PGA, and 5% Damped Linear Acceleration Response Spectra Using Data from the Iranian Plateau <i>Farhad Sedaghati and Shahram Pezeshk</i>	934 (E)
Empirical Evaluation of Hierarchical Ground-Motion Models: Score Uncertainty and Model Weighting <i>Sum Mak, Robert Alan Clements, and Danijel Schorlemmer</i>	949 (E)
Ground-Motion Variability for Single Site and Single Source through Deterministic Stochastic Method Simulations: Implications for PSHA <i>Maria D'Amico, Mara Monica Tiberti, Emiliano Russo, Francesca Pacor, and Roberto Basili</i>	966 (E)
Derivative-Based Global Sensitivity Analysis: Upper Bounding of Sensitivities in Seismic-Hazard Assessment Using Automatic Differentiation <i>Christian Molkenthin, Frank Scherbaum, Andreas Griewank, Hernan Leovey, Sergei Kucherenko, and Fabrice Cotton</i>	984
<b>Short Notes</b>	
The Predictive Power of Ground-Motion Prediction Equations <i>D. Bindi</i>	1005
The Relation between Ground Acceleration and Earthquake Source Parameters: Theory and Observations <i>Itzhak Lior and Alon Ziv</i>	1012
Validation of 3D Velocity Models Using Earthquakes with Shallow Slip: Case Study of the 2014 $M_w$ 6.0 South Napa, California, Event <i>Walter Imperatori and František Gallovič</i>	1019 (E)
Paleoseismic Evidence for the 21 April 1918 $M_w$ 6.9 Surface Rupture of the Northern Clark Strand of the Central San Jacinto Fault, California <i>J. Barrett Salisbury, Thomas K. Rockwell, and Mike T. Buga</i>	1027
A Combined Earthquake–Landslide Source Model for the Tsunami from the 27 November 1945 $M_w$ 8.1 Makran Earthquake <i>Mohammad Heidarzadeh and Kenji Satake</i>	1033 (E)
Role of the Kopili Fault in Deformation Tectonics of the Indo-Burmese Arc Inferred from the Rupture Process of the 3 January 2016 $M_w$ 6.7 Imphal Earthquake <i>A. P. Singh, N. Purnachandra Rao, M. Ravi Kumar, M.-C. Hsieh, and L. Zhao</i>	1041