SPECIAL SECTION

Martian Seismology and the InSight Mission to Mars
Guest Editors: Philippe Lognonné, Sharon Kedar, and Victor C. Tsai

Introduction to the Special Issue on Mars Seismology
Philippe Lognonné, Sharon Kedar, and Victor C. Tsai

The Site Tilt and Lander Transfer Function from the Short-Period Seismometer of InSight on Mars
Alexander E. Stott, Constantinos Charalambous, Tristram J. Warren, William T. Pike, Robert Myhill, Naomi Murdoch, John B. McClean, Ashitey Trebi-Olennu, Grace Lim, Raphael F. Garcia, David Mimoun, Sharon Kedar, Kenneth J. Hurst, Marco Bierwirth, Philippe Lognonné, Nicholas A. Teanby, Anna Horleston, and William B. Banerdt

Seismic High-Resolution Acquisition Electronics for the NASA InSight Mission on Mars
Peter Zweifel, Davor Mance, Jan ten Pierick, Domenico Giardini, Cedric Schmelzbach, Thomas Haag, Tobias Nicoller, Savas Ceylan, Simon Stähler, Martin van Driel, David Sollberger, Fabian Euchner, John F. Clinton, Marco Bierwirth, Michel Eberhardt, Philippe Lognonné, William T. Pike, and W. Bruce Banerdt

Resonances and Lander Modes Observed by InSight on Mars (1–9 Hz)

ON THE COVER
Rendition of the Mars InSight lander to study the interior of the planet. The SEIS instruments under the protective dome at the front of the picture include 3-component Very Broad Band (VBB) and Short Period (SP) seismometers. The collection of papers in the special section in this issue examine the performance of these instruments and present initial analyses of data from them.

Image credit: NASA/JPL-Caltech
Resonances of the InSight Seismometer on Mars
Kenneth Hurst, Lucile Fayon, Brigitte Knapmeyer-Endrun, Cedric Schmelzbach,
Martin van Driel, Joan Ervin, Sharon Kedar, William T. Pike, Simon Calcutt,
Tristram Warren, Constantino Charalambous, Alexander Stott, Marco Bierwirth,
Philippe Lognonne, Sebastien de Raucourt, Taoufik Gabsi, Tangyu Nebut,
Oliver Robert, Sylvain Tillier, Savas Ceylan, Maren Böse, John Clinton,
Domenico Giardini, Anna Horleston, Taichi Kawamura, Amir Khan,
Guenole Orhand-Mainsant, John-Robert Scholz, Simon Stähler, Jennifer Stevanovic,
and William B. Banerdt

Anatomy of Continuous Mars SEIS and Pressure Data from
Unsupervised Learning
Salma Barkaoui, Philippe Lognonné, Taichi Kawamura, Éléonore Stutzmann,
Léonard Seydoux, Maarten V. de Hoop, Randall Balestrieri, John-Robert Scholz,
Grégory Sainton, Matthieu Plasman, Savas Ceylan, John Clinton, Aymeric Spiga,
Rudolf Widmer-Schnidrig, Francesco Civili, and W. Bruce Banerdt

Potential Pitfalls in the Analysis and Structural Interpretation of Seismic Data
from the Mars InSight Mission
Doyeon Kim, Paul Davis, Ved Lekić, Ross Maguire, Nicolas Compaire,
Martin Schimmel, Eleonore Stutzmann, Jessica C. E. Irving, Philippe Lognonné,
John-Robert Scholz, John Clinton, Géraldine Zenhäusern, Nikolaj Dahmen,
Sizhuang Deng, Alan Levander, Mark P. Panning, Raphaël F. Garcia,
Domenico Giardini, Ken Hurst, Brigitte Knapmeyer-Endrun, Francis Nimmo,
W. Tom Pike, Laurent Pou, Nicholas Schmerr, Simon C. Stähler, Benoit Tauxin,
Rudolf Widmer-Schnidrig, and William B. Banerdt

Magnitude Scales for Marsquakes Calibrated from InSight Data
Maren Böse, Simon C. Stähler, Nicholas Deichmann, Domenico Giardini,
John Clinton, Philippe Lognonné, Savas Ceylan, Martin van Driel,
Constantinos Charalambous, Nikolaj Dahmen, Anna Horleston, Taichi Kawamura,
Amir Khan, Martin Knapmeyer, Guénolé Orhand-Mainsant, John-Robert Scholz,
Fabian Euchner, and W. Bruce Banerdt

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Energy Envelope and Attenuation Characteristics of High-Frequency (HF) and Very-High-Frequency (VF) Martian Events

Scattering Attenuation of the Martian Interior through Coda-Wave Analysis
Foivos Karakostas, Nicholas Schmerr, Ross Maguire, Quancheng Huang, Doyeon Kim, Vedran Lekic, Ludovic Margerin, Ceri Nunn, Sabrina Menina, Taichi Kawamura, Philippe Lognonné, Domenico Giardini, and Bruce Banerdt

Search for Infrasound Signals in InSight Data Using Coupled Pressure/Ground Deformation Methods
Raphael F. Garcia, Naomi Murdoch, Ralph Lorenz, Aymeric Spiga, Daniel C. Bowman, Philippe Lognonné, Don Banfield, and William Bruce Banerdt

Brownian Noise and Temperature Sensitivity of Long-Period Lunar Seismometers
Andrew Erwin, Leandro A. N. de Paula, Nicholas C. Schmerr, David Shelton, Inseob Hahn, P. Roger Williamson, Ho Jung Paik, and Talso C. P. Chui

ARTICLES

Source Process-Related Delays in Earthquake Early Warning for Example Cases in Greece
Nikolaos Vavlas, Anastasia A. Kiratzi, and Zafeira Roumelioti

Off-Network Earthquake Location by Earthquake Early Warning Systems: Methodology and Validation
Mark Netanel, Andreas Samuel Eisermann, and Alon Ziv

Comparison of Single-Well Microseismic Focal Mechanism Inversions with Different Source Models
Han Li, Xu Chang, Jinlai Hao, and Yibo Wang

A Significant Increase in Interplate Seismicity near Major Historical Earthquakes Offshore Martinique (FWI)
Jordane Corbeau, O’Leary Gonzalez, Nathalie Feuillet, Anne-Marie Lejeune, Fabrice R. Fontaine, Valérie Clouard, Jean-Marie Saurel, and the OVSM Team

Revisiting the Classical Experiment in Earthquake Control at the Rangely Oil Field, Colorado, 1970, Using a Coupled Flow and Geomechanical Model
Josimar A. Silva, Hannah Byrne, Andreas Plesch, John H. Shaw, and Ruben Juanes

Effects of Earthquake Magnitude, Distance, and Site Conditions on Spectral and Pseudospectral Velocity Relationship
Haizhong Zhang and Yan-Gang Zhao

Stress Drop Derived from Spectral Analysis Considering the Hypocentral Depth in the Attenuation Model: Application to the Ridgecrest Region, California
Dino Bindi, Hoby N. T. Razafindrakoto, Matteo Picozzi, and Adrien Oth
Creep on the Sargent Fault over the Past 50 Yr from Alignment Arrays with Implications for Slip Transfer between the Calaveras and San Andreas Faults, California
Daniel D. Mongovin and Belle Philibosian

Late Holocene Slip Rate of the Mojave Section of the San Andreas Fault near Palmdale, California

Seismic and Geodetic Analysis of Rupture Characteristics of the 2020 Mw 6.5 Monte Cristo Range, Nevada, Earthquake
Chengli Liu, Thorne Lay, Fred F. Pollitz, Jiao Xu, and Xiong Xiong

Strong Motions on Land and Ocean Bottom: Comparison of Horizontal PGA, PGV, and 5% Damped Acceleration Response Spectra in Northeast Japan and the Japan Trench Area
Yadab P. Dhakal, Takashi Kunugi, Wataru Suzuki, Takeshi Kimura, Nobuyuki Morikawa, and Shin Aoi

A Ground-Motion Model for the Gulf Coast Region of the United States
Shahram Pezeshk, Arash Zandieh, and Alireza Haji-Soltani

Prediction of Ground-Motion Parameters for the NGA-West2 Database Using Refined Second-Order Deep Neural Networks
Duofa Ji, Chenxi Li, Changhai Zhai, You Dong, Evangelos I. Katsanos, and Wei Wang

Ground-Motion Model for Crustal Events in Italy by Applying the Multisource Geographically Weighted Regression (MS-GWR) Method
Giovanni Lanzano, Sara Sgobba, Luca Caramenti, and Alessandra Menafoglio

A Ground-Motion Prediction Equation for the Western and the Southwestern Parts of China Based on Local Strong-Motion Records and an Overseas Reference Model for the Vertical Component
Hao Xing and John X. Zhao

Efficient Propagation of Epistemic Uncertainty for Probabilistic Seismic Hazard Analyses (PSHAs) Including Partial Correlation of Magnitude–Distance Scaling
Maxime Lacour and Norman Abrahamson

A Sample Generation of Scenario Earthquake Shaking Maps via a Combination of Modal Decomposition and Empirical Copula toward Seismic Hazard Assessment
Ryuta Imai, Naoki Kasui, Asako Iwaki, and Hiroyuki Fujiwara

Bayesian Parameter Estimation for Space and Time Interacting Earthquake Rupture Model Using Historical and Physics-Based Simulated Earthquake Catalogs
Luis Ceferino, Percy Galvez, Jean-Paul Ampuero, Anne Kiremidjian, Gregory Deierlein, and Juan C. Villegas-Lanza
Simulation of Strong Ground Motion in the National Capital Region, India, from a Future 8.5 Magnitude Earthquake Using Two-Step Empirical Green’s Function Method
Krishnavajjhala Sivaram

Stochastic Finite-Fault Simulation of the $M_s$ 7.0 Lushan Earthquake Based on Frequency- and Distance-Dependent Radiation Patterns
Tianjia Wang, Xu Xie, and Longfei Ji

Weijuan Meng, Dinghui Yang, Xingpeng Dong, and Jian Ma

DisperNet: An Effective Method of Extracting and Classifying the Dispersion Curves in the Frequency–Bessel Dispersion Spectrum
Sheng Dong, Zhengbo Li, Xiaofei Chen, and Lei Fu

Measurement of Surface-Wave Phase-Velocity Dispersion on Mixed Inertial Seismometer – Distributed Acoustic Sensing Seismic Noise Cross-Correlations
Avinash Nayak, Jonathan Ajo-Franklin, and The Imperial Valley Dark Fiber Team

Seismic Velocity Response to Atmospheric Pressure Using Time-Lapse Passive Seismic Interferometry
Chloé Gradon, Florent Brenguier, Johannes Stammeijer, Aurélien Mordret, Kees Hindriks, Xander Campman, Richard Lynch, Pierre Boué, and Malgorzata Chmiel

COMMENTS AND REPLIES

Comment on “Activation Rate of Seismicity for Hydraulic Fracture Wells in the Western Canadian Sedimentary Basin” by Hadi Ghofrani and Gail M. Atkinson
James P. Verdon and Julian J. Bommer

Reply to “Comment on ‘Activation Rate of Seismicity for Hydraulic Fracture Wells in the Western Canadian Sedimentary Basin’ by Hadi Ghofrani and Gail M. Atkinson” by James P. Verdon and Julian J. Bommer
Hadi Ghofrani and Gail M. Atkinson

ERRATUM

Erratum to Hybrid Simulation of Near-Fault Ground Motion for a Potential $M_w$ 7 Earthquake in Lebanon
Rosemary Fayjaloun, Mayssa Dabaghi, Cécile Cornou, Mathieu Causse, Yang Lu, Laurent Stehly, Christophe Voisin, and Armand Mariscal