ROBERT L. NOWACK
Department of Earth, Atmospheric and Planetary Sciences
Purdue University
550 Stadium Mall Drive
West Lafayette, IN 47907-2051
Phone: (765) 494-5978

EDUCATION:

Massachusetts Institute of Technology (Cambridge, Massachusetts)
Ph.D. Geophysics, 1985. Advisor: Keiiti Aki

Stanford University (Stanford, California)
M.S. Geophysics, 1977.

Beloit College (Beloit, Wisconsin)
B.A. Physics, with Honors, 1975.

PROFESSIONAL EXPERIENCE:

1998-Present	Purdue University, West Lafayette, IN Professor of Geophysics
1990-1998	Purdue University, West Lafayette, IN Associate Professor of Geophysics
1985-1990	Purdue University, West Lafayette, IN Assistant Professor of Geophysics
1985	Earth Resources Laboratory, MIT, Cambridge, MA Post-Doctoral Research Scientist
1978-1980	U.S. Geological Survey, Menlo Park, CA Seismologist
1977-78	Woodward Clyde Geotechnical Consultants (URS/AECOM), San Francisco, CA, Engineering Seismologist

PROFESSIONAL SOCIETIES:

American Geophysical Union (AGU)
Society of Exploration Geophysicists (SEG)
Seismological Society of America (SSA)
Insitute of Physics (IOP) London

PROFESSIONAL ACTIVITIES:

2012-2016 –Editor-in-Chief for the Journal of Geophysical Research-Solid Earth

2009-2012 – Co-Chief Editor for the Journal of Geophysical Research-Solid Earth

2012 Panel Member for DOE (Airforce Research Laboratory and National Nuclear Security Administration, NNSA).

2010 – External Academic Review Committee, Dept. of Geology and Geophysics, Texas A&M University.

2009 Panel Member for DOE (Airforce Research Laboratory and National Nuclear Security Administration, NNSA).

2008 Panel Member for DOE (Airforce Research Laboratory and National NuclearSecurity Administration, NNSA).

2007 Panel Member for NEHRP (National Earthquake Hazard Reduction Program).

2005-2009 – Associate Editor, Journal of Geophysical Research-Solid Earth.

2004-2011 – Associate Editor, Journal of Geophysics and Engineering.

1999-2009 – Associate Editor for Studia Geophysica et Geodaetica.

1995-2009 – Associate Editor for the Bulletin of the Seismological Society of America.

2006 Panel Member for DOE (Airforce Research Laboratory and National Nuclear Security Administration, NNSA).

1998 Technical Program Committee Member, for Meeting on Signal Recovery and Synthesis, Optical Society of America, Kailua-Kona, Hawaii.

1997 Panel Member for DSWA (Special Defense Weapons Agency) Program on CTBT.

1992 Panel member of the USGS National Earthquake Hazards Reduction Program (NEHRP).

Reviewer for the Journal of Geophysical Research, Geophysical Journal International, Pure and Applied Geophysics, Geophysics, Geophysical Prospecting, Geophysical Research Letters.

2004-present – Reviewer of Extended Abstracts for the Society of Exploration Geophysicists (SEG) Annual Meeting

Reviewer of proposals for the National Science Foundation, Department of Energy, and the U.S. Geological Survey.

AWARDS:

2020 Outstanding Reviewer Award, 2020, Geophysical Journal International
2018 AGU Oustanding Reviewer Award of 2018
2004-pres. Fellow, Institute of Physics (IOP), London

1986-88 Geology Faculty Award - Union Oil Foundation of California
1980 U.S. Geological Survey Merit Award

RESEARCH:

Visiting Research Appointments:

01/01/12-03/10/12 – Visiting Research Scientist
Scripps Intitution of Oceanography, University of California, San Diego

03/15/12-06/10/12 – Visiting Research Scientist
Dept. of Earth, Ocean and Atmos. Sci., University of British Columbia, Vancouver, Canada

06/03/03-06/29/03 – Visiting Research Scientist
Dept. of Earth and Planetary Sci., University of California, Santa Cruz

05/01/02-05/25/02 – Visiting Research Scientist
Department of Geological Sciences, Queen's University, Kingston, Ontario, Canada

02/01/02-04/01/02 – Visiting Research Scientist
Institute for Geophysics, University of Texas, Austin, TX

01/15/92-06/01/92 - Visiting Research Scientist
Department of Theoretical Geophysics, University of Utrecht, The Netherlands

05/15/89-08/01/89 - Visiting Research Scientist
Seismology Laboratory of the Institut de Physique de Globe, Universite Paris VI, Paris, France

05/15/86-08/15/86 - Visiting Research Scientist
The Earth Resources Laboratory, Massachusetts Institute of Technology, Cambridge, MA

Invited Lectures:

Session Chairman for session on Tomography, American Geophysical Union Meeting, San Francisco, CA, Fall 1983.

Invited lecture given at the Institut de Physique du Globe Universite Paris VI, June, 1985.

Invited lecture given at Czech. National Academy of Sciences, June, 1985.

Invited lecture at the Exxon Research Center, Annandale, New Jersey, 1985.

Invited talk at Acoustical Society of America Annual Meeting, May, 1986.

Session Chairman for session on Wave Propagation, American Geophysical Union Meeting, San Francisco, CA, Fall 1987.

Invited lecture given at Northwestern University, February, 1988.

Invited talk at the Incorporated Research Institutions for Seismology (IRIS) Workshop, Alta, UT, September, 1988.

Invited lecture at the Amoco Research Center, Tulsa, OK, September, 1988.

Session Chairman for session on Anisotropy, American Geophysical Union Meeting, San Francisco, CA, Fall 1988.

Invited talk at the Geotechnology Research Institute (HARC) workshop on Seismic Exploration of Continental Margins, Houston, TX, 1989.

Invited talk at the Second IMACS Symposium on Computational Acoustics, Princeton, NJ, 1989.

Invited talk in the session on Seismic Imaging at the American Geophysical Union Meeting, San Francisco, CA, Fall 1989.

Session Chairman for session on Seismic Theory and Processing at the American Geophysical Union Meeting, Baltimore, MD, Spring 1990.

Invited talk at the Second International SIAM Conference on Applied Mathematics, Washington, DC, July, 1991.

Invited lecture given at University of Utrecht, The Netherlands, February, 1992.

Invited speaker at the IMA Workshop on Inverse Problems in Wave Propagation at the Institute for Mathematics and its Applications of the University of Minnesota, March 5-17, 1995.

Invited speaker at the SIAM Symposium on Geophysical Applications of Inverse Problems, Yosemite, California, December 16-20, 1995.

Invited lecture at Imperial College, London, England, June, 1997.

Invited lecture at Cambridge University, Cambridge, England, June, 1997.

Invited lecture at Indiana University/Purdue University-Fort Wayne, Fort Wayne, Indiana, October, 1997.

Session Chairman for session on Seismic Modeling in Heterogeneous Media at the Society of Exploration Geophysics Annual Meeting, Dallas, Tx, November 3-7, 1997.

Session Chairman, Structure of Volcanoes and Geothermal Fields at the American Geophysical Union Fall Annual Meeting, San Francisco, CA, December 6-10, 1998.

Session Chairman, Seismology section, American Geophysical Union Fall Annual Meeting, San Francisco, CA, 1999.

Invited talk at a symposium in honor of Keiiti Aki, University of Southern California, March 16-18, 2000.

Presentation at a conference on Seismic Wave Propagation in Prague, Czech Republic, June 5-9, 2000.

Invited lecture given at University of Illinois-Urbana, September 21, 2001.

Invited lecture given at Workshop on Seismic Attenuation, sponsored by the Department of Energy, Berkeley, CA, December 6, 2001.

Invited lecture given at University of Texas-Austin, February 8, 2002.

Invited talk at University of California-Santa Cruz, June 21, 2003.

Invited lecture given at the Houston Geophysical Society, Houston, TX, November 21, 2003.

Invited lecture given at Northwestern University, February 27, 2004.

Invited lecture at Beijing American Geophysical Union Western Pacific Meeting, July 25, 2006.

Invited Lecture at IGPP, Scripps, University of California San Diego, Jan 25, 2012.

Session Chair at the Fall Annual Meeting, AGU, San Francisco, Dec. 3-7, 2012.

Invited Lecture at KAUST, Saudi Arabia, Nov. 19, 2013

Invited Lecture Course given at National Autonomous University (UNAM), Mexico City, Gaussian Beams – Theory and Practice, April 27-30, 2016

Session Chair at the Fall Annual Meeting, Society of Exploration Geophysicists (SEG), Dallas, TX, Oct. 16-21, 2016.

Invited Lecture given at the University of California Santa Cruz, WTOPI Modeling and Imaging Project Annual Meeting, July 17-18. 2018.

Invited Lecture given at Rice University, Houston TX, Sept. 20, 2018.

Invited Lecture given at Peking University (online), August 17, 2020

Invited Lecture given at the Geodesy and Geophysics Seminar of the Upper Midwest (GYPSUM), (online), Feb 7, 2022

PUBLICATIONS:

Thesis:

Nowack, R.L. (1985) Wave propagation in laterally varying media and iterative inversion for velocity, Ph.D., MIT, 225 p.

Refereed Publications:

(Google Scholar: h-index 25, i10-index 43; ResearchGate: RG Score 33.17)

Nowack, R.L. and K. Aki (1984) The 2-D Gaussian beam synthetic method: Testing and Application, J. Geophys. Res., 89, 7797-7819.

Nowack, R.L. and K. Aki (1986) Iterative inversion for velocity using waveform data, Geophys. J.R. astr. Soc., 87, 701-730.

Nowack, R.L. and W.J. Lutter (1988) Linearized rays, amplitude and inversion, Pure and Applied Geophysics, 128, 401-421.

Nowack, R.L. and W.J. Lutter (1988) A note on the calculation of covariance and resolution, Geophys. J. Int., 95, 205-207.

Daudt, C.R., L.W. Braile, R.L. Nowack and C.S. Chiang (1989) A comparison of finite difference and Fourier method calculations of synthetic seismograms, Bull. Seism. Soc. Am., 79, 1210-1230.

Nowack, R.L. and W. Lutter (1989) Linearized rays, amplitude and inversion, in Scattering and Attenuation of Seismic Waves, Eds. Wu, R.S. and K. Aki, Birkhauser Boston.

Nowack, R.L. and J. Lyslo (1989) Frechet derivatives for curved interfaces in the ray approximation, Geophys. J. Int., 97, 497-509.

Lutter, W.J., R.L. Nowack and L.W. Braile (1990) Seismic imaging of upper crustal structure using travel-times from the PASSCAL Ourachita Experiment, J. Geophys. Res., 95, 4621-4631.

Daudt, C.R., L.W. Braile, R.L. Nowack and C.S. Chiang (1990) Reply to J. Vidale's "comment on 'a comparison of finite-difference and Fourier calculations of synthetic seismograms'", Bull. Seism. Soc. Am., 80, 496-497.

Lyslo, J.A. and R.L. Nowack (1990) Slant stack analysis of shot point 16 from the 1986 PASSCAL Ouachita Experiment, J. Geophys. Res., 95, 4647-4656.

Nowack, R.L. (1990) Tomography and the Herglotz-Wiechert Formulation, Pure and Applied Geophysics, 133, 305-315.

Lutter, W.J. and R.L. Nowack (1990) Inversion for crustal structure using reflections from the PASSCAL Ouachita Experiment, J. Geophys. Res., 95, 4621-4631.

Nowack, R.L. (1990) Perturbation methods for rays and beams, in Second IMACS Symposium on Computational Acoustics, Ed. Lee, D., North Holland Press, 167-180.

Nowack, R.L. (1990) Book review of "Geophysical Data Analysis: Discrete Inverse Theory" by W. Menke, Pure and Applied Geophysics, 140-142.

Nowack, R.L. and I. Psencik (1991) Perturbation from isotropic to anisotropic media in the ray approximation, Geophys. J. Int., 106, 1-10.

Nowack, R.L. (1992) Wavefronts and solutions of the Eikonal equation, Geophys. J. Int., 110, 55-62.

Nowack, R.L. and L.W. Braile (1993) Refraction and wide-angle reflection tomography: theory and results, in Seismic Tomography: Theory and Practice, Eds. Iyer, H.M. and K. Hirahara, Chapman and Hall Publ., London, pp. 733-763.

Lutter, W.J., A.M. Trehu and R.L. Nowack (1993) Application of 2-D travel-time inversion of seismic refraction data to the mid-continent rift beneath Lake Superior, Geophys. Res. Lett., 20, 615-618.

Erdogan, N. and R.L. Nowack (1993) Slant stack analysis for one dimensional upper mantle structure using short period data from MAJO, Pure and Applied Geophysics, 141, 1-24.

Nowack, R.L. (1994) Development of the FFT and Applications in geophysics, Proceedings of the International Lanczos Centenary Conference, Eds. Plemmons, R.J. and J.W. York, SIAM, Philadelphia, PA, 395-397.

van Heijst, H.J., R. Snieder and R.L. Nowack (1994) Resolving a low velocity zone with surface wave data, Geophys. J. Int., 118, 333-343.

Matheney, M.P. and R.L. Nowack (1995) Seismic attenuation values obtained from instantaneous frequency matching and spectral ratios, Geophys. J. Int., 123, 1-15.

Nowack, R.L. and M.P. Matheney (1997) Inversion of body-wave attributes derived from seismic refraction data, in Inverse Problems in Geophysical Applications, Eds., H.W. Engl, A.K. Louis, W. Rundell, SIAM Press, 51-64.

Nowack, R.L. and M.P. Matheney (1997) Inversion of seismic attributes for velocity and attenuation, Geophys. J. Int., 178, 689-700.

Matheney, M.P. and R.L. Nowack (1997) Seismic attribute inversion for velocity and attenuation structure using data from the Glimpce Lake Superior experiment, J. Geophys. Res., 102, 9949-9960.

Brudzinski, M.R., W.-P. Chen, R.L. Nowack and B. Huang (1997) Variations of P-wave speeds in the mantle transition zone beneath the Northern Philippine Sea, J. Geophys. Res., 102, 11,815-11,827.

Nowack, R.L. (1997) Applications of inverse problems to the analysis of refraction and wide-angle seismic data, in Inverse Problems and Wave Propagation, Eds., G. Chavent, G. Papanicolaou, P. Sacks and W. Symes, IMA, 90, 395-417.

Gasparini, P., and the TomoVes Working Group (with R.L. Nowack and others) (1998) Looking inside Mt. Vesuvius, EOS, 79, 229-232.

Matheney, M.P. and R.L. Nowack (1998) Seismic attenuation computed from reflection data and comparison with refraction results, Pure and Applied Geophysics, 153, 537-559.

Nowack, R.L. (1998) Applications of generalized inversion in geophysics, in Cornelius Lanczos Collected Published Papers with Commentaries, vol. V, General Editor, W.R. Davis; Editors, M.T. Chu, P.Dolan, J.R. McConnell, L.K. Norris, E. Ortiz, R.J. Plemmons, D. Ridgway, B.K.P. Scaife, W.J. Stewart, and J.W. York, Jr.; Associate Editors, W.O. Doggett, B.M. Gellai, and AA. Gsponer, Consulting Editor, A. Prioli, North Carolina State University, Raleigh, NC, 3-206—3-211.

Nowack, R.L. (1998) Applications of the FFT in Geophysics, in Cornelius Lanczos Collected Published Papers with Commentaries, vol. VI, General Editor, W.R. Davis; Editors, M.T. Chu, P.Dolan, J.R. McConnell, L.K. Norris, E. Ortiz, R.J. Plemmons, D. Ridgway, B.K.P. Scaife, W.J. Stewart, and J.W. York, Jr.; Associate Editors, W.O. Doggett, B.M. Gellai, and AA. Gsponer, Consulting Editor, A. Prioli, North Carolina State University, Raleigh, NC, 3-511—3-515.

Nowack, R.L., E. Ay, W.-P. Chen and B. Huang (1999) A seismic profile of the upper mantle along the southwestern edge of the Philippine Sea Plate using short-period array data, Geophys. J. Int., 136, 171-179.

Nowack, R.L. and W-P. Chen (1999) Souce-receiver reciprocity and empirical Green's function from chemical blasts, Bull. Seism. Soc. Am., 89, 538-543.

Tomfohrde, D.A. and R.L. Nowack (2000) Crustal structure beneath Taiwan using frequency-based inversion of receiver function waveforms, Pure and Applied Geophysics, 157, 737-764.

Nowack, R.L. and S. Stacy (2002) Synthetic seismograms and wide-angle seismograms attributes from the Gaussian beam and reflectivity methods for models with interfaces and gradients, Pure and Applied Geophysics, 159, 1447-1464.

Stacy, S. and R.L. Nowack (2002) Modeling of wide-angle seismic attributes from shot gather 11 of the Sarex Experiment, Studia Geophysica et Geodetica, 46, 667-690.

Nowack, R.L., C. Li and J. Virieux (2002) Inversion of seismic attributes from the 1996 3-D tomography experiment at Mt. Vesuvius, Italy, in The TomoVes Project: Looking Inside Mt. Vesuvius, P. Gasparini and A. Zollo (eds.), Naples, Italy, http://people.na.infn.it/~bobb10/CD-TomoVes.zip.

Nowack, R.L. (2003) Calculation of synthetics seismograms with Gaussian beams, Pure and Applied Geophysics, 160, 487-507.

Pride, S.R., (and DOE Working group including R.L. Nowack) (2003) Permeability dependence of seismic amplitudes, The Leading Edge, 518-523.

Li, C. and R.L. Nowack (2004) Application of autoregressive extrapolation to seismic tomography, Bull. Seism. Soc. Am., 94, 1465-1466.

Haase, J., R.L. Nowack, C.H. Park, A. Hunyar, J. Hill and M. Hamburger (2004) Evaluation of seismic hazard for Indiana, FHWA/IN/JRTP02004/3, Joint transportation Research Program, Indiana Department of Transportation, Indianapolis.

Nowack, R.L. (2005) Review of "Fundamentals of Seismic Wave Propagation" by C.H. Chapman, Siam Review, 47, 616-618, Society of Industrial and Applied Mathematics, Philadelphia.

Li, C. and R.L. Nowack (2005) Seismic tomography using travel-time surfaces for experiments in the laboratory, J. Geophysics and Engineering, 2, 231-237.

Nowack, R.L. and C. Li (2006) Application of autoregressive extrapolation to the cross-borehole tomography, Studia Geophysica et Geodetica, 50, 337-348.

Nowack R.L., S. Dasgupta, G.T. Schuster, and J.M. Sheng (2006) Correlation migration using Gaussian beams of scattered teleseismic body waves, Bull. Seism. Soc. Am., 96, 1-10.

Dasgupta, S. and R.L. Nowack (2006) Deconvolution of 3-component teleseismic P-waves using the autocorrelation of the P to SV scattered waves, Bull. Seism. Soc. Am., 96, 1827-1835.

Chen, R., V.P. Drnevich, X. Yu, and R. Nowack (2007) Water content measurements with Time Domain Reflectrometry in highly conductive soils using reflections from the soil surface, J. Geotechnical and Geoenvironmental Engineering, ASCE, 133, 1597-1608.

Nowack, R.L., W.P. Chen, U. Kruse,and S. Dasgupta (2007) Imaging offsets in the Moho: Synthetic tests using Gaussian Beams with teleseismic waves, Pure and Applied Geophysics, 164, 1921-1936.

Dasgupta, S. and R.L. Nowack (2008) Frequency extrapolation to enhance the deconvolution of transmitted seismic waves, J. Geophys. and Eng., 5, 118-127.

Nowack, R.L. and C. Li (2009) Methods and Applications of Seismic Tomography, in Handbook of Signal Processing in Acoustics (eds. D. Havelock, M. Vorlander and S. Kuwano), Springer-Verlag, pp. 1635-1653.

Dasgupta, S., R.L. Nowack, and S. Mitra (2009) Deconvolution of three-component teleseismic data from Southern Tibet using the SVA technique, Bull. Seism. Soc. Am., 99, 1973-1983.

Nowack, R. L., T. Parsons and A. Revil (2009) Exploring New Frontiers with JGR-Solid Earth, J. Geophys. Res., 114, B10, doi:10.1029/2009JB006977.

Tseng, T.L., W.P. Chen and R.L. Nowack (2009) Northward thinning of Tibetan crust revealed by virtual seismic profiles, Geophys. Res. Lett., 36, 14, doi:10.1029/2009GL038252.

Nowack, R.L., W.P. Chen and T.L. Tseng (2010) Application of Gaussian beam migration to multi-scale imaging of the lithosphere beneath the Hi-CLIMB array in Tibet, Bull. Seism. Soc. Am., 100, 1743-1754.

Chen, W.P., M. Martin, T.L. Tseng, R.L. Nowack, S.H. Hung and B.H. Huang (2010) Shear-wave birefringence and current configuration of converging lithosphere under Tibet, Earth Planet. Sci. Lett., 295, 297-304.

Nowack, R.L. (2010) Seismic interferometry using Gaussian beams, Earthquake Science, 23, 417-424.

Nowack, R.L. and S.M. Kainkaryam (2011) The Gouy phase anomaly for harmonic and time-domain paraxial Gaussian beams, Geophys. J. Int., 184, 965-973.

Haase, J.S. and R.L. Nowack, R.L. (2011) Earthquake scenario ground motions for the urban area of Evansville, Seismological Res. Lett., 82, 177-187.

Nowack, R.L. (2011) Dynamically focused Gaussian beams for seismic imaging, Int. J. Geophys., Vol. 2011, Art. No. 316581, doi: 10.1155/2011/316581.

Haase, J.S., Y.S. Choi and R.L. Nowack (2011) Liquefaction hazard near the Ohio Riverf from Midwestern scenario earthquakes, Environmental and Engineering Geoscience, 17, 165-181..

Griffin, J. D., R. L. Nowack, W.P. Chen and T.L. Tseng (2011) Velocity structure of the Tibetan lithosphere: Constraints from P-wave travel times of regional earthquakes, Bull. Seism. Soc. Am., 1201, 1938-1947, doi: 1785/0120100229.

Haase, J.S., Y.Y. Choi, T. Bowling and R.L. Nowack (2011) Probabilistic seismic-hazard assessment including site effects for Evansville Indiana and the surrounding region, Bull. Seism., Soc. Am., 101, 1039-1054.

Chen, W.P., S.H. Hung, T.L. Tseng, M. Brudzinski, Z. Yang, and R.L. Nowack (2012) Rheology of the continental lithosphere: progress and new perspectives with special reference to project Hi-CLIMB, Gondwana Research, 21, 4-18.

Nowack, R.L. (2012) A tale of two beams: an elementary overview of Gaussian beams and Bessel beams, Studia Geophys. et Geod., 56, doi: 10.1007/ s11200-011-9054-0.

Bakir, A.C. and Nowack, R.L. (2012) Modeling seismic attributes of Pn waves using the spectral element method, Pure and Applied Geophys., doi:10.1007/s00024-011-0414-z.

Bakir, A.C. and Nowack, R.L. (2012) Velocity and attenuation structure of the Tibetan lithosphere beneath the Hi-CLIMB array from the modeling of Pn attributes, Pure and Applied Geophys., doi:10.1007/s00024-012-0482-8.

Nowack, R.L. and M.G. Bostock (2013) Scattered waves from low-frequency earthquakes and plate boundary structure in northern Cascadia, Geophys. Res. Lett., 40, doi: 10.1002/grl.50826.

Revil, A., P. Tregoning, M. Walter and R.L. Nowack (2015) An Appreciation to the Peer Reviewers for JGR Solid Earth in 2014, J. Geophys. Res., 120, doi: 10.1002/2015JB012308.

Oren, C. and R.L. Nowack (2017) Seismic body-wave interferometry using noise autocorrelation for crustal structure, Geophys. J. Int., 208, 321-332, doi:10.1093/gji/ggw394.

Oren, C. and R.L. Nowack (2018) An overview of reproducible 3D seismic data processing and inversion with Madagascar, Geophysics, 83, F9-F20, doi: 10.1190/GEO2016-0603.1.

Nowack, R. L. and M. S. R. Kiraz (2018) Virtual Green's functions using seismic interferometry and Marchenko Redatuming, Seism. Res. Letters, 89, 613-619 doi: 10.1785/0220170211.

Kiraz, M. S. R. (2018) Marchenko redatuming and imaging with application to the Frio carbon sequestration experiment, Geophys. J. Int., 215, 1633-1643. doi: 10.1093/gji/ggy356.

Ergun Erhan and R.L. Nowack (2020) Application of non-stationary iterative time-domain deconvolution, Studia Geophysica et Geod., 64, 76-99, doi: 10.1007/s11200-019-1165z, online first.

Huang, J. and R.L. Nowack (2020) Machine Learning using U-Net Convolutional Neural Networks for the Imaging of Sparse Seismic Data, Pure and Applied Geophysics, 177, (6) 2685-2700, doi.org/10.1007/s00024-019-02412-z.

Zeng, Qicheng and R.L. Nowack (2021) Anlysis of Local Seismic Events Near a Large-N Array for Moho Reflections, doi.org/10.1785/0220200087.

Articles in Refereed Proceedings:

Patwardhan, A.D., D.D. Tillson and R.L. Nowack (1978) Zonation for critical facilities based on two-level earthquakes, International Earthquake Engineering and Microzonation Conference Proceedings, 485-496.

Nowack, R.L., M.K. Sen, and P.L. Stoffa (2003) Gaussian beam migration for sparse common-shot data, Society of Exploration Geophysics, Expanded Abstracts, 73rd Annual Meeting, Tulsa, OK.

Nowack, R.L. and C. Li (2005) Autoregressive extrapolation applied to tomography in the cross-borehole geometry, Society of Exploration Geophysicists, Expanded Abstracts, 75th Meeting, Houston, 2562-2566.

Yu, X., V.P. Drnevich, and R.L. Nowack (2005) Statistical comparison of models for the dielectric spectrum of soil mixtures, Proceedings of the Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP), Atlanta, 215-225.

Yu, X., V.P. Drnevich, and R.L. Nowack (2005) Comprehensive evaluation of near surface soil properties by combining electromagnetic wave and seismic wave method, Proceedings of the 16th International Conference on Soil Mechanics and Geotechnical Engineering (ICSMGE), Osaka, Japan, September.

Drnevich, V.P., X. Yu, C. Zambrano, and R. Nowack (2006) Refined one-step TDR method for water content and density, Proceedings, ASCE GeoCongress, Atlanta, GA, February.

Yu, X., V.P. Drnevich, and R.L. Nowack (2006) Soil property variation by time domain reflectometry, Proceedings, UNSAT2006, The 4th International Conference on Unsaturated Soils, Phoenix, AZ, April.

Zambrano, C.E., V.P. Drnevich, X. Yu, and R. Nowack (2006) Soil texture characterization from TDR waveform analysis, Proceedings TDR 2006, Purdue University, West Lafayette, USA, Sept. Paper ID 1, 21 p., https://engineering.purdue.edu/TDR/Papers.

Yu, X., V.P. Drnevich, and R.L. Nowack (2006) Improvements of soil dielectric mixing model for inversion analysis of time domain reflectometry measurements, Proceedings TDR 2006, Purdue University, West Lafayette, USA, Sept., Paper ID 4, 19 p., https://engineering.purdue.edu/TDR/Papers.

Dasgupta, S. and R.L. Nowack (2006) Autoregressive extrapolation in the frequency domain for the enhanced deconvolution of transmitted seismic waves, International Exposition and 76th annual meeting, New Orleans, Society of Exploration Geophysics, Tulsa.

Nowack, R.L. (2008) Focused Gaussian beams for seismic imaging, in Expanded Abstracts, 78th Annual Meeting of the Society of Exploration Geophysicists, Las Vegas, p. 2376-2380.

Nowack, R.L., W.P. Chen, and T.L. Tseng (2008) Frequency-dependent nature of Pn in Western China: Gaussian beam modeling of data from the Hi-CLIMB experiment, 30th Annual Monitoring Research Review, NNSA/Air Force Research Laboratory, Volume 1, p. 180-189.

Nowack, R.L. (2008) Frame-based Gaussian beam summation and seismic head waves, Proceedings of the Project Review, Geo-Mathematical Imaging Group (Purdue University, West Lafayette, IN), p. 113-119.

Nowack, R.L. (2008) Gaussian beam imaging for converted and surface reflected waves, Proceedings of the Project Review, Geo-Mathematical Imaging Group (Purdue University, West Lafayette, IN), p. 121-128.

Nowack, R.L. (2008) Focused Gaussian beams for seismic imaging, Proceedings of the Project Review, Geo-Mathematical Imaging Group (Purdue University, West Lafayette, IN), p. 129-139.

Nowack, R.L. (2009) A tale of two beams: Gaussian beams and Bessel beams, Proceedings of the Project Review, Geo-Mathematical Imaging Group, Vol. 2, (Purdue University, West Lafayette, IN), pp. 49-58.

Nowack, R.L. (2009) Dynamically focused Gaussian beams for seismic imaging, Proceedings of the Project Review, Geo-Mathematical Imaging Group, Vol. 2, (Purdue Unversity, West Lafayette, IN), pp. 59-70.

Nowack, R.L., W.P. Chen and T.L. Tseng (2009) Frequency-dependent nature of Pn in Western China, 31st. Annual Monitoring Research Review, NNSA, Air Force Research Laboratory, pp. 166-175.

Nowack, R.L, W.P. Chen, J.D. Griffin, A. Bakir and T.L. Tseng (2010) The Propagation of Pn in western China, 2010, 32-nd Monitoring Research Review, NNSA, Air Force Research Laboratory.

Abstracts and Papers Presented at Meetings:

Ellsworth, W.L., W.H.K. Lee and R.L. Nowack (1979) Toward a kinematic model of the San Andreas system in central California, Earthquake Notes, 49, p. 98.

Nowack, R.L. and W.L. Ellsworth (1979) Crustal velocity structure in central California from earthquake and explosion travel-times, Earthquake Notes, 49, p. 99.

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