

Vadim Levin

web: <https://sites.rutgers.edu/vadim-levin> Earth and Planetary Sciences, Rutgers University
voice: (201) 658-2357 (mobile) e-mail: vadim.levin@rutgers.edu 610 Taylor Rd., Piscataway, NJ, 08854

EDUCATION

- 1996 **Ph.D.**, Seismology, Columbia University
1988 **Diploma with honors** (M.E. equivalent), Exploration Geophysics,
Gubkin Russian State University of Oil & Gas

RESEARCH INTERESTS

Earth's crust and upper mantle structure, origin and evolution of continents, subduction zone processes, seismic wave propagation in anisotropic medium, seismic data analysis methods

PROFESSIONAL EXPERIENCE

- 2016 – present **Professor**, Rutgers University, Dpt. of Earth and Planetary Sciences
2009 – 2016 **Associate Professor**, Rutgers University, Dpt. of Earth and Planetary Sciences,
2002 – 2008: **Assistant Research Professor**, Rutgers University, Dpt. of Geological Sciences,
2001 – 2002: **Research Scientist**, Yale University, Dpt. of Geology and Geophysics
1997 – 2001: **Associate Research Scientist**, Yale University, Dpt. of Geology and Geophysics,
1996 – 1997: **Postdoctoral Research Associate**, Yale University, Dpt. of Geology and Geophysics,
1990 - 1996: **Graduate Research Assistant**, Columbia University, Dept. of Geological Sciences,
1989 - 1990: **Senior Research Staff Assistant**, Lamont-Doherty Geological Observatory

FIELDWORK EXPERIENCE:

- 2018 – 2022 New England Seismic Transect (NEST) collaboration with Yale, ~15 portable broadband seismic stations.
2018 - 2020 Costa Rica
Operation of six broadband seismographs with the University of Costa Rica.
2012 - 2017: Maine, Quebec and Nova Scotia
Deployment, operation, recovery of broadband Earthscope FlexArray
2007, 2011: Western Tibet
deployment and retrieval of 30-element portable broad band seismic array.
2005: Costa Rica: deployment of 3-element portable broad-band passive array.
2004, 2006: Northern Apennines, Italy
Survey, installation, and retrieval of 25-node broadband passive array.
2000: Long Island, NY broadband data acquisition feasibility experiment
1997, 1998: Kamchatka, Russia
site survey, deployment of 15-node passive broadband seismic array
1994 - 1995: Vermont, Maine operation of 4 portable broad band seismic stations;
1994: Krafla volcano, Iceland,
active/passive source short-period seismic array deployment;
1989 - 1991: Shumagin Islands, Alaska
short-period seismic network maintenance, geodetic measurements

HONORS:

2018 Undergraduate Academic Affairs Service Award, Rutgers University
1995 Heezen Prize, Department of Geological Sciences, Columbia University

SOCIETIES: American Geophysical Union, Seismological Society of America,
Earthscape Consortium (Rutgers University representative);

TEACHING: Earthquakes and Volcanoes (460:201 – live, hybrid, online asynchronous versions); Introduction to Geophysics (460:306); Structure and Formation of the Earth (460:506); Geodynamics (460:507); Geophysics I: Seismology (460:555); Graduate seminars: seismological theory, observational seismology, seismic anisotropy; Survey seminars on earthquakes and society (“Political Earthquakes”; “When Foundations are Shaken”) and volcanoes (“Volcanoes of Costa Rica” – traveling seminar).

PROFESSIONAL SERVICE: *Incorporated Research Institutions for Seismology:* 2014 Electromagnetic Advisory Committee, 2015 – 2018 Data Services Standing Committee; *Earthscape:* 2011-2014, USArray Advisory Committee; *American Geophysical Union*, 2010 – 2016 Associate Editor, *Jour. of Geoph. Res. - Solid Earth*; *Tectonophysics*, 2005-2012, editorial board member; *National Science Foundation:* 2015, 2017 panelist

UNIVERSITY SERVICE:

2018 – 2023 Faculty Director, Aresty Research Center for Undergraduates; 2016 - 2022 Language Requirement Task Force, Language Engagement implementation committee; 2017 - 2018 Learning Management System Task Force; 2013 - 2018 Online Education Steering Committee, School of Arts & Sciences; 2009 – 2012 Appointments and Promotions Advisory Committee for non-tenured faculty, Math & Physics, School of Arts & Sciences; 2012-2015; 2021 Undergraduate Program Director, Dept. Earth and Planetary Sciences

SELECTED PUBLICATIONS (since 2000; * denotes papers authored by my students and postdocs)

Full publication list: <https://sites.rutgers.edu/vadim-levin/publications/>

* Bourke, J., V. Levin, I. Arroyo, and L. Linkimer, (2023) Evidence for Caribbean Plate subduction in Southern Costa Rica, *Geology*, accepted 12/22/22, online 03/02/23, <https://doi.org/10.1130/G50796.1>

Levin, V., H. Yuan & A. Hynes, (2022) Continents never forget: seismological record of lithospheric deformation 1 billion years ago, *Geological Society of London Special Publications*, online 28 October 2022, <https://doi.org/10.1144/SP531-2022-164>

* Chen, X., Levin, V., & Yuan, H. (2021). Small shear wave splitting delays suggest weak anisotropy in cratonic mantle lithosphere. *Geophysical Research Letters*, 48, e2021GL093861 <https://doi.org/10.1029/2021GL093861>

* Y. Li, V. Levin, A. Nikulin, X. Chen, (2021) Systematic Mapping of Upper Mantle Seismic Discontinuities Beneath Northeastern North America, G-cubed, [DOI 10.1029/2021GC009710](https://doi.org/10.1029/2021GC009710)

* Chen, X., Levin, V., Yuan, H., Klaser, M., & Li, Y. (2021). Seismic anisotropic layering in the Yilgarn and Superior cratonic lithosphere. *Journal of Geophysical Research: Solid Earth*, 126, e2020JB021575. <https://doi.org/10.1029/2020JB021575>

* Chen, X., Park, J. & Levin, V. Anisotropic Layering and Seismic Body Waves: Deformation Gradients, Initial S-Polarizations, and Converted-Wave Birefringence. (2021). *Pure Appl. Geophys.* 178, 2001–2023 <https://doi.org/10.1007/s00024-021-02755-6>

* Bourke, J., Levin, V., Linkimer, L., & Arroyo, I. (2020). A recent tear in subducting plate explains seismicity and upper mantle structure of southern Costa Rica. *Geochemistry, Geophysics, Geosystems*, 21, e2020GC009384. <https://doi.org/10.1029/2020GC009300>

Levin, V. S. Elkington, J. Bourke, I. Arroyo and L. Linkimer, (2020) Seismic anisotropy in southern Costa Rica confirms upper mantle flow from the Pacific to the Caribbean., *Geology*, accepted Bastille Day (July 14) published September 4, 2020; [DOI 10.1130/G47826.1](https://doi.org/10.1130/G47826.1)

* Li, Y., V. S. Elkington, J. Hlavaty, (2019) Localized Anisotropic Domains Beneath Eastern North America, *G-cubed*, 20, 5499– 5521. <https://doi.org/10.1029/2019GC008518>

- * Chen, X., Y. Li and V. Levin, (2018) Shear Wave Splitting Beneath Eastern North American Continent: Evidence for a Multi-layered and Laterally Variable Anisotropic Structure, G-cubed, *published August, 02, 2018* <https://doi.org/10.1029/2018GC007646>
- Levin, V., M. D. Long, P. Skryzalin, Y. Li, and I. Lopez, (2017), Seismic evidence for a recently formed mantle upwelling beneath New England, *Geology*, <https://doi.org/10.1130/G39641.1>
- Levin, V., Servali, A., VanTongeren, J., Menke, W., and Darbyshire, F., (2017), Crust-mantle boundary in eastern North America, from the (oldest) craton to the (youngest) rift, in Bianchini, G., Bodinier, J.-L., Braga, R., and Wilson, M., eds., *The Crust-Mantle and Lithosphere-Asthenosphere Boundaries: Insights from Xenoliths, Orogenic Deep Sections, and Geophysical Studies: Geological Society of America Special Paper 526*, p. 107-131, doi:10.1130/2017.2526(06).
- Menke, W., P. Skryzalin, V. Levin, T. Harper, F. Darbyshire, and T. Dong (2016), The Northern Appalachian Anomaly: A modern asthenospheric upwelling, *Geophys. Res. Lett.*, 43, 10,173–10,179, doi:10.1002/2016GL070918.
- Park, J. and V. Levin, (2016) Anisotropic shear zones revealed by back-azimuthal harmonics of teleseismic receiver functions, *Geophys. J. Int.*, first published online August 26, 2016 [doi:10.1093/gji/ggw323](https://doi.org/10.1093/gji/ggw323)
- Park, J., and V. Levin, (2016) Statistics and frequency-domain moveout for multiple-taper receiver functions, *Geophys. J. Int.*, 207, 512-527, [doi:10.1093/gji/ggw291](https://doi.org/10.1093/gji/ggw291).
- Levin, V., J. A. VanTongeren, and A. Servali (2016), How sharp is the sharp Archean Moho? Example from eastern Superior Province, *Geophys. Res. Lett.*, 43, [LINK](https://doi.org/10.1002/2016GL067729), doi:10.1002/2016GL067729
- * Razi, Ayda S., Roecker, Steven W., Levin, Vadim, (2016) The Fate of the Indian Lithosphere beneath western Tibet: Upper mantle elastic wavespeed structure from a joint teleseismic and regional body wave tomographic study *Physics of the Earth and Planetary Interiors*, pp. 11-23, [DOI: 10.1016/j.pepi.2015.12.001](https://doi.org/10.1016/j.pepi.2015.12.001)
- Levin, V., S. Droznina, M. Gavrilenko, M. Carr, S. Senyukov, (2014), Seismically active sub-crustal magma source of the Klyuchevskoy volcano in Kamchatka, *Geology*, 42(11):983, [doi:10.1130/G35972.1](https://doi.org/10.1130/G35972.1)
- Yuan, H., V. Levin, (2014), Stratified seismic anisotropy and the lithosphere-asthenosphere boundary beneath Eastern North America, *J. Geophys. Res.*, 119-4, pp. 3096-3114, [doi: 10.1002/2013JB010785](https://doi.org/10.1002/2013JB010785)
- *Shokoohi Razi, A., V. Levin, S. Roecker, G.-C. Dino Huang, (2014), Crustal and uppermost mantle structure beneath western Tibet using seismic travelttime tomography, *Geochem. Geophys. Geosyst.*, 15, pp. 434-452, [doi: 10.1002/2013GC005143](https://doi.org/10.1002/2013GC005143)
- Levin, V., G. Huang and S. Roecker, (2013), Crust-mantle coupling at the northern edge of the Tibetan plateau: evidence from focal mechanisms and observations of seismic anisotropy, *Tectonophysics*, Volume 584, pp. 221–229, [doi:10.1016/j.tecto.2012.05.013](https://doi.org/10.1016/j.tecto.2012.05.013)
- *Nikulin, A., V. Levin, M. Carr, C. Herzberg, M. West, (2012), Evidence for two upper mantle sources driving volcanism in Central Kamchatka, *Earth and Plan. Sci. Lett.*, vol. 321-322, pp. 14-19 [doi: 10.1016/j.epsl.2011.12.039](https://doi.org/10.1016/j.epsl.2011.12.039)
- *Huang, G., S. Roecker, V. Levin, (2011), Intermediate-depth earthquakes in the West Kunlun range, *Geoph. Res. Lett.*, vol. 38, L01314, 5 pp., [doi:10.1029/2010GL045893](https://doi.org/10.1029/2010GL045893)
- *Nikulin, A., V. Levin, A. Shuler, M. West, (2010), Anomalous seismic structure beneath the Klyuchevskoy Group, Kamchatka, *Geophys. Res. Lett.*, vol. 37, L14311, [doi:10.1029/2010GL043904](https://doi.org/10.1029/2010GL043904)
- *Nikulin, A., Levin, V. and Park, J., (2009), Receiver function study of the Cascadia megathrust: evidence for localized serpentinization, *Geochem. Geophys. Geosyst.*, vol. 10, Q07004, [doi:10.1029/2009GC002376](https://doi.org/10.1029/2009GC002376)
- Piana Agostinetti, N., V. Levin and J. Park, (2008), Crustal structure above a retreating trench: Receiver function study of the northern Apennines orogen, *Earth and Plan. Sci. Lett.*, vol. 275, Issues 3–4, pp. 211–220, [doi:10.1016/j.epsl.2008.06.022](https://doi.org/10.1016/j.epsl.2008.06.022)
- Levin, V., Roecker, S., Graham, P. and Hosseini, A., (2008), Seismic Anisotropy Indicators in Western Tibet: Shear Wave Splitting and Receiver Function Analysis, *Tectonophysics*, vol. 462, Issues 1–4, pp. 99–108, [doi:10.1016/j.tecto.2008.03.019](https://doi.org/10.1016/j.tecto.2008.03.019)

- Levin, V., J. Park, F. P. Lucente, L. Margheriti, S. Pondrelli, (2007), The end of subduction in Northern Apennines confirmed by observations of quasi-Love waves from the great 2004 Sumatra-Andaman earthquake. *Geophys. Res. Lett.*, vol. 34, L04304, [doi:10.1029/2006GL028860](https://doi.org/10.1029/2006GL028860)
- Levin, V., D. Okaya and J. Park, (2007), Shear wave birefringence in wedge-shaped anisotropic regions. *Geoph. Journ. Int.*, vol. 168 (1), pp. 275–286, [doi: 10.1111/j.1365-246X.2006.03224.x](https://doi.org/10.1111/j.1365-246X.2006.03224.x)
- Levin, V., A. Henza, J. Park and A. Rodgers, (2006), Texture of mantle lithosphere along the Dead Sea Rift: recently imposed or inherited? *Phys. Earth Planet. Int.*, vol. 158, pp. 174-189, [doi:10.1016/j.pepi.2006.05.007](https://doi.org/10.1016/j.pepi.2006.05.007)
- Levin, V., N. M. Shapiro, J. Park, M. H. Ritzwoller, (2005), The Slab Portal Beneath the Western Aleutians, *Geology*, vol. 33, No. 4, pp. 253-256, [doi: 10.1130/G20863.1](https://doi.org/10.1130/G20863.1)
- Shapiro, N. M., M. H. Ritzwoller, P. Molnar and V. Levin, (2004), Thinning and Flow in Tibetan Crust Constrained by Seismic Anisotropy, *Science*, vol. 305, pp. 233-236, [DOI: 10.1126/science.1098276](https://doi.org/10.1126/science.1098276)
- Levin, V., D. Droznin, J. Park, E. Gordeev, (2004), Detailed mapping of seismic anisotropy with local shear waves in southeastern Kamchatka, *Geoph. J. Int.*, vol. 158, pp. 1009-1023 [doi: 10.1111/j.1365-246X.2004.02352.x](https://doi.org/10.1111/j.1365-246X.2004.02352.x)
- Menke, W. and V. Levin, (2003), The cross-convolution method for interpreting SKS splitting observations, with application to one and two-layer anisotropic earth models, *Geoph. J. Int.*, vol. 154, pp. 379-392, [doi: 10.1046/j.1365-246X.2003.01937.x](https://doi.org/10.1046/j.1365-246X.2003.01937.x)
- Levin, V., L. Margheriti, J. Park, and A. Amato, (2002), Anisotropic seismic structure of the lithosphere beneath the Adriatic coast of Italy constrained with mode-converted body waves, *Geophys. Res. Lett.*, vol. 29, pp. 15-1-15-4, [doi:10.1029/2002GL015438](https://doi.org/10.1029/2002GL015438)
- Levin, V., N. Shapiro, J. Park and M. Ritzwoller, (2002), Seismic Evidence for Catastrophic Slab Loss Beneath Kamchatka, *Nature*, vol. 418, pp. 763-767, [doi:10.1038/nature00973](https://doi.org/10.1038/nature00973)
- Park, J. and V. Levin, (2002), Seismic Anisotropy: Tracing Plate Dynamics in the Mantle, *Science*, vol. 296, pp. 485-489, [doi: 10.1126/science.1067319](https://doi.org/10.1126/science.1067319)
- Menke, W. and V. Levin, (2002), Anomalous seaward dip of the lithosphere-asthenosphere boundary beneath northeastern US detected using differential-array measurements of Rayleigh waves, *Geoph. J. Int.*, vol. 149, pp. 413-421, [doi: 10.1046/j.1365-246X.2002.01652.x](https://doi.org/10.1046/j.1365-246X.2002.01652.x)
- Levin, V., J. Park, J. Lees, M. T. Brandon, V. Peyton, E. Gordeev, and A. Ozerov, (2002), Crust and Upper Mantle of Kamchatka from Teleseismic Receiver Functions, *Tectonophysics*, vol. 358, pp. 233-265, [doi:10.1016/S0040-1951\(02\)00426-2](https://doi.org/10.1016/S0040-1951(02)00426-2)
- Peyton, V., V. Levin, J. Park, M. Brandon, J. Lees, E. Gordeev, A. Ozerov, (2001), Mantle Flow at a Slab Edge: Seismic Anisotropy in the Kamchatka Region, *Geophys. Res. Lett.*, vol. 28, pp. 379-382, [doi: 10.1029/2000GL012200](https://doi.org/10.1029/2000GL012200)
- Levin V. and J. Park, (2000), Shear zones in the Proterozoic lithosphere of the Arabian Shield and the nature of the Hales discontinuity, *Tectonophysics*, vol. 323, pp 131-148, [doi:10.1016/S0040-1951\(00\)00105-0](https://doi.org/10.1016/S0040-1951(00)00105-0)
- Park, J., and V. Levin, (2000), Receiver functions from multiple-taper spectral correlation estimates, *Bull. Seis. Soc. Am.*, vol. 90, pp. 1507-1520, [doi: 10.1785/0119990122](https://doi.org/10.1785/0119990122)
- Levin, V., W. Menke and J. Park, (2000) No Anisotropic Domains in Northeastern US Appalachians, *Journ. Geoph. Res.*, vol. 105, pp. 19029-19042, [doi: 10.1029/2000JB900123](https://doi.org/10.1029/2000JB900123)
- Levin, V., J. Park, M. Brandon and W. Menke, (2000), Thinning of the upper mantle during the late Paleozoic Appalachian orogenesis, *Geology*, vol. 29, pp. 239-242, [https://doi.org/10.1130/0091-7613\(2000\)28<239:TOTUMD>2.0.CO;2](https://doi.org/10.1130/0091-7613(2000)28<239:TOTUMD>2.0.CO;2)

ADVISING

Graduate students:

Alissa Henza (MS, HP Billiton) 2005; Alex Nikulin (PhD, Assoc. Professor, SUNY Binghamton) 2011; Ayda Shokoohi Razi (PhD) 2016, Benjamin Dunham (MS, USGS, CA) 2016, Yiran Li (MS; PhD candidate, SUNY Binghamton) 2019, Xiaoran Chen (PhD, software industry, California) 2020, James Bourke (PhD candidate, current), Maryam Abbasian (PhD candidate, current)

Service on committees

Mark Baum (Rutgers PhD; Exxon) 2006, Brian Zurek (Lehigh PhD, Exxon) 2008, Isabelle Hong (Rutgers, 2019), Zhongxiong Cui (Lehigh PhD) 2020, Cong Li (UMass Amherst PhD), 2020, Alex Burky (Princeton PhD) 2022, Katelyn Frizzell (MS candidate - current, Rutgers)

Postgraduate-Scholar Sponsor: Guochin (Dino) Huang, 2007-2011 (now at Texas Seismic Network); Xiaoran Chen (2020-2021, now in software industry, California)

Undergraduate Advisees at Rutgers (independent research, honors, Aresty Research Assistants):

Peter Graham (Colorado School of Mines, MS; Golder Associates, NJ), Benjamin Marshall (IT industry, NJ), Helen Janiszewski (Assist. Prof; Univ. of Hawaii, Manoa), Maria Shakhnovich (software start-up, California), Michael Klaser (Rutgers MS 2017; environmental consulting, NJ), Andrea Servali (data analytics industry, California), Yiran Li (Rutgers MS; Binghamton PhD program), Peter Skryzalin (US Army), Janine Hlavaty (environmental consulting, NJ), Steven Elkington (environmental consulting, NJ), Mariya Galochkina (PhD candidate, MIT), Joyce Franco (environmental consulting, NJ), Renée Ghosh.

NSF FUNDING HISTORY

Principal Investigator at Rutgers since 2003

EAR-2147426 2022-2025 Collaborative Research: How have orogenesis, rifting, and recent mantle dynamics shaped the lithosphere beneath the New England Appalachians? **177K**

EAR-1735912 2017-2020 Collaborative Research: Seismic and geologic constraints on the lithosphere structure and evolution of the northern Appalachians **164K**

OISE-1658648 2018-2020 **IREs:** Geoscience Research At the Cordillera Talamanca (GREAT) **248K**

EAR-1147831 2012-2017, Deep Structure of Three Continental Sutures in Eastern North America ~\$290K + \$6500 REU+\$8000 REU

EAR-1015422 2010-2014, Deep structure controls on magmatic output of Klyuchevskoy volcanic group, Kamchatka \$63720 + \$7500 REU supplement

EAR 0911350 2009-2011 Strength of continental lithosphere in western China from seismic body wave studies **\$133K**

EAR-0844023 TROPICS Science Plan Development Workshop at Rutgers University **\$5K**

OISE 0645826 US/Costa Rica: Planning Visit at the University of Costa Rica, January 2007-December 2007 **\$17.5K**

EAR 0545698 2006 – 2010 Seismic anisotropy and rock texture within the Cascadia megathrust zone **\$130K**

EAR 0440062 2006 -- 2011 (no-cost extended) Collaborative Research: Imaging the Upper Mantle Beneath the Western Tibetan Plateau **\$239K**

OISE 0437181 2003-2007 U.S.-Costa Rica Dissertation Research: Operation of Seismic Array at Cerro Mercedes, Costa Rica **\$10K**

EAR 0242291 2003 – 2009 (no-cost extended) Collaborative Research: Retreating-trench, extension and accretion tectonics in Northern Apennines; **\$268K**