VEDRAN LEKIC

Assoc. Professor, Dept of Geology
Univ. of Maryland, College Park, MD 20742
Tel: (301) 405-4086 Email: ved@umd.edu

SCIENTIFIC INTERESTS:

I seek to understand the structure and dynamics of the interior of the Earth and other planets and satellites – from crust to core – using seismic data and joint geophysical inversions. Additionally, I study ways of quantifying uncertainty, which is necessary for hypothesis testing in geophysics.

PROFESSIONAL PREPARATION:

Harvard University (2004), B.A. in Earth & Planetary Science and Astronomy &Astrophysics
University of California, Berkeley (2009), Ph.D. in Earth & Planetary Science

APPOINTMENTS:

7/18 – present Associate Professor, Dept. of Geology, Univ. of Maryland, College Park, MD
1/12 – 6/18 Assistant Professor, Dept. of Geology, Univ. of Maryland, College Park, MD
6/10 – 12/11 NSF Postdoctoral Fellow, Dept. of Geological Sciences, Brown University, RI

AWARDS:

2015 Young Faculty Award, CMNS Board of Visitors, University of Maryland (2015)
2014 Packard Foundation Fellowship for Science and Engineering
2014 National Science Foundation CAREER Award
2013 Charles F. Richter Early Career Award, Seismological Society of America

PROFESSIONAL SERVICE ACTIVITIES:

Incorporated Research Institutions of Seismology (IRIS): Institution representative (2012-present), Quality Assurance Advisory Cmte. (Chair 2018), Standing Cmte. on Instrumentation Services (2016-18) and Global Seismic Network (2013-15, 2022-present), Undergraduate Internship Program Selection Cmte. (2014). **Seismological Society of America (SSA):** Early Career Award Cmte. (2016-2017, Chair 2018). **American Geophysical Union:** Co-Chair of Seismology Fall Meeting Program Cmte. (2012-2013). **Geological Society of Washington:** Councilmember at Large (2014-2015), Membership Cmte. (2014-2015). **Journal of Geophysical Research – Solid Earth:** Associate Editor (2019-2021). **Eos:** Science Adviser (2021-2023). **National Science Foundation:** EAR Portfolio Review Committee (2020-2021).

TEACHING ACTIVITIES:

GEOL 200: Earth's Fury. Introductory course on how scientists study geologic hazards and how societies prepare for these rare but dramatic events. (Fall 2014, 2016, 2018, 2020, 2022)

GEOL 447 & 647: Observational Geophysics. Upper-level undergraduate / first-year graduate course on instrument design/performance, signal processing, data analysis and geophysical inverse theory. (Fall 2013-2018, 2020, Spring 2022)

GEOL 457 & 657: Seismology and Seismic Wave Propagation. Upper level undergraduate / first-year graduate course on earthquakes and seismic wave generation and propagation. (Spring 2013, 2014, 2016, 2018, 2021)

GEOL 789E: Inverse Problem Theory. Graduate seminar on the theory and practice of framing and solving inverse problems across a range of problems in the Earth sciences. (Spring 2017)

GEOL 789M: Machine Learning in Geoscience. Graduate introduction to machine learning and its application across problems in the solid Earth geosciences. (Spring 2020, 2022)

SELECTED PUBLICATIONS (LAST 5 YEARS): †/* denotes graduate student/postdoc under supervision

Moulik*, P., Lekic, V., Romanowicz, B., Ma, Z., Schaeffer, A., Ho, T., Beucler, E., Debayle, E., Deuss, A., Durand, S., Ekström, G., Lebedev, S., Masters, G., Priestley, K., Ritsema, J., Sigloch, K., Trampert, J. and A. M. Dziewonski. (2022) Global reference seismological data sets: multimode surface wave dispersion. *Geophys. J. Int.*, 228(3), pp.1808-1849, https://doi.org/10.1093/gji/ggab418

Kim*, D., V. Lekic, J. Irving, N. Schmerr, B. Knapmeyer-Endrun, R. Joshi, M. Panning, B. Tauzin, F. Karakostas, R. Maguire, Q. Huang, A. Khan, D. Giardini, M. Wieczorek, P. Lognonne and W. B. Banerdt. (2021a) Improving constraints on Planetary Interiors with PPs Receiver Functions, *J. Geophys. Res. – Planets,* 126(11), e2021JE006983, https://doi.org/10.1029/2021JE006983

Kim*, D., Lekić, V., Ménard, B., Baron, D. and M. Taghizadeh-Popp (2020). Sequencing seismograms: A panoptic view of scattering in the core-mantle boundary region. *Science*, 368(6496), 1223-1228, https://doi.org/10.1126/science.aba8972

Ritsema, J. and V. Lekic (2020) Heterogeneity of Seismic Wave Velocity in Earth's Mantle, *Ann. Rev. Earth Planet. Sci.,* 48, *377-401,* https://doi.org/10.1146/annurev-earth-082119-065909

Cunningham†, E. and V. Lekic (2020), Constraining properties of sedimentary strata using receiver functions: An example from the Atlantic Coastal Plain of the southeastern United States, *Bull. Seismol. Soc. Am.,* 110 (2): 519–533*,* https://doi.org/10.1785/0120190191

Kim*, D. and V. Lekic (2019) Groundwater Variations from Autocorrelation and Receiver Functions, *Geophys. Res. Lett., 46, 13,722–13,729.* https://doi.org/10.1029/2019GL084719

Gao†, C. and V. Lekic (2018), Consequences of parameterization choices in surface wave inversion: Insights from transdimensional Bayesian methods, *Geophys. J. Int.* 215(2)*,* 1037–1063, https://doi.org/10.1093/gji/ggy310

Irving, J.M.E., Cottaar, S. and V. Lekic (2018), Seismically determined elastic parameters for Earth's outer core, *Science Advances,* 4(6), eaar2538*,* https://doi.org/10.1126/sciadv.aar2538

Lekic, V. and K.M. Fischer (2017), On Interpreting Spatially Stacked Sp Receiver Functions, Geophys. J. Int., https://doi.org/10.1093/gji/ggx206

Burdick*, S. and V. Lekic (2017), Velocity Variations and Uncertainty from Transdimensional P-wave Tomography of North America, Geophys. J. Int., 209 (2): 1337-1351, https://doi.org/10.1093/gji/ggx091