

DOYEON KIM

ETH Zürich
Institute of Geophysics

Email: doyeon.kim@erdw.ethz.ch
Webpage: <http://doyeonkim.us/>

I am a terrestrial and planetary seismologist with a background in both engineering and earth / planetary science. My scientific interests center on improving our understanding of processes within planetary interiors that involve interactions between contrasting materials, from the regolith and crust of the Moon and asteroids which potentially contain valuable geological resources including lava tubes and void spaces, ice deposits, and magma-tectonic systems, to largely unexplored core-mantle boundary regions in deep planetary interiors. My ongoing research areas largely include leveraging geophysical techniques developed for studying Earth structures in order to investigate the internal structures, dynamics and evolution of the planetary bodies in our solar system.

PROFESSIONAL BACKGROUND

2018-2021	Postdoctoral Fellow, <i>Department of Geology</i> , University of Maryland
2013-2018	Ph.D. <i>Earth and Atmospheric Sciences</i> , Cornell University
2010-2012	M.S. <i>Civil and Environ. Engineering</i> , Yonsei University, S. Korea
Sept 2010	B.A. <i>Civil and Environ. Engineering</i> , Yonsei University, S. Korea

CURRENT POSITIONS

2021-present	Senior Scientist, ETH Zürich
2021-present	Visiting Assistant Professor, University of Maryland

PUBLICATIONS

- | | |
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| 2023 | [36]Drilleau, M., et al., Structure of the Martian crust below InSight from surface waves and body waves generated by nearby meteoroid impacts, <i>in internal review</i> . |
| | [35]Herret, M.-T., et al., Decoupling of short-lived radiogenic and helium isotopes in the Marquesas hotspot, <i>in review</i> . |
| | [34]Maguire, R., et al., Moment tensor estimation of event S1222a and implications for tectonics near the dichotomy boundary in southern Elysium Planitia, Mars, <i>in review</i> . |
| | [33]Ceylan, S., et al., Revisiting the seismicity of Mars as recorded by InSight, <i>in review</i> . |
| | [32]Kim, D., et al., Global average crustal thickness revealed by surface waves orbiting Mars, GRL , <i>accepted</i> . |
| | [31]Irving, J. C. E., et al., First observation of core-transiting seismic phases on Mars, PNAS : https://doi.org/10.1073/pnas.2217090120 |
| 2022 | [30]Kim, D., et al., Structure along the martian dichotomy constrained by Rayleigh and Love waves and their overtones, GRL : https://doi.org/10.1029/2022GL101666 |
| | [29]Knapmeyer, M., et al., The global seismic moment rate of Mars after Event S1222a, GRL : https://doi.org/10.1029/2022GL102296 |
| | [28]Kim, D., et al., Surface waves and crustal structure on Mars, Science : https://doi.org/10.1126/science.abq7157 |
| | [27]Posiolova, L. et al., Large hypervelocity impact on Mars co-located by orbital imaging and surface seismic recording, Science : https://doi.org/10.1126/science.abq7704 |
| | [26]Stähler C. S., et al., Tectonics of Cerberus Fossae unveiled by marsquake, Mars, Nature Astronomy : https://www.nature.com/articles/s41550-022-01803-y |
| | [25]Ceylan, S., et al., The marsquake catalogue from InSight, sols 0-1011, PEPI : https://doi.org/10.1016/j.pepi.2022.106943 |
| | [24]Huang, Q., et al., Seismic detection of the Martian mantle transition zone by InSight, PNAS : https://doi.org/10.1073/pnas.2204474119 |
| | [23]Dahmen, N. L., et al. MarsQuakeNet: A more complete marsquake catalogue obtained by deep learning techniques. JGR : https://doi.org/10.1029/2022JE007503 |
| | [22]Duran, C., et al., Observation of a core-diffracted P-wave and implications for the lower mantle structure of Mars, GRL : https://doi.org/10.1029/2022GL100887 |
| | [21]Li, J., et al., Crustal Structure constraints from the detection of the SsPp Phase on Mars, |

- Earth and Space Science*: <https://doi.org/10.1029/2022EA002416>
- [20]Panning, M. P., et al., Locating the largest event observed on Mars with multi-orbit surface waves, *GRL*: <https://doi.org/10.1029/2022GL101270>
- [19]Kawamura, T., et al., Largest Marsquake Ever Detected by InSight: S1222a, *GRL*: <https://doi.org/10.1029/2022GL101543>
- [18]Wieczorek, M. A., et al., InSight constraints on the global character of the Martian crust. *JGR*: <https://doi.org/10.1029/2022JE007298>
- [17]Horleston, A. C., et al., The Far Side of Mars: Two Distant Marsquakes Detected by InSight, *The Seismic Record*: <https://doi.org/10.1785/0320220007>
- 2021 [16] Karakostas, F., et al., Scattering attenuation of the Martian interior through coda wave analysis, *BSSA*: <https://doi.org/10.1785/0120210253>
- [15]Kim, D., et al., Improving subsurface constraints on Earth and Mars with PPs receiver functions, *JGR*: <https://doi.org/10.1029/2021JE006983>
- [14]Kim, D., et al., Potential pitfalls in the analysis and structural interpretation of Mars' seismic data from InSight, *BSSA*: <https://doi.org/10.1785/0120210123>
- [13]Stähler, S. C., et al., Seismic detection of the Martian core, *Science*: <https://doi.org/10.1126/science.abi7730>
- [12]Knapmeyer-Endrun, B., et al., Crustal thickness and layering of Mars from InSight seismic data, *Science*: <https://doi.org/10.1126/science.abf8966>
- [11]Khan, A., et al., Imaging the upper mantle structure of Mars with InSight seismic data, *Science*: <https://doi.org/10.1126/science.abf2966>
- [10]Schimmel, M., et al., Seismic Noise Autocorrelations on Mars. *Earth and Space Science*: <https://doi.org/10.1029/2021EA001755>
- [9]Compaire, N., et al., Autocorrelation of the ground vibration recorded by the SEIS InSight seismometer on Mars, *JGR*: <https://doi.org/10.1029/2020JE006498>
- 2020 [8]Kim, D., et al., Sequencing Seismograms: A panoptic view of scattering in core-mantle boundary region, *Science*: <https://doi.org/10.1126/science.aba8972>
- [7]Brown, L., and D. Kim, Extensive sills in the crust from deep seismic reflection profiling seismic data, *Geosciences*: <https://doi.org/10.3390/geosciences10110449>
- 2019 [6]Kim, D., and V. Lekic, Groundwater variations from autocorrelation and receiver functions, *GRL*: <https://doi.org/10.1029/2019GL084719>
- [5]Kim, D., et al., Enhanced resolution of the subducting plate interface in Central Alaska from autocorrelation of local earthquake coda, *JGR*: <https://doi.org/10.1029/2018JB016167>
- [4]Kim, D., and L. D. Brown, From trash to treasure: 3D basement imaging with “excess” data from oil and gas exploration, *AAPG Bulletin*: <https://doi.org/10.1306/12191817420>
- 2018 [3]Kim, D., et al., Magma “bright spots” mapped beneath Krafla, Iceland, using RVSP imaging of reflected waves from microearthquakes, *J. Volcanology and Geotherm. Res.*: <https://doi.org/10.1016/j.jvolgeores.2018.04.022>
- 2017 [2]Kim, D., et al., Magma reflection imaging in Krafla, Iceland, using microearthquake sources, *JGR*: <https://doi.org/10.1002/2016JB013809>
- 2016 [1]Quiros, D. A., L. D. Brown, and D. Kim Seismic interferometry of railroad induced ground motions: body and surface wave imaging, *GJI*: <https://doi.org/10.1093/gji/ggw033>

TEACHING EXPERIENCE

2022-present	Lecturer, ETH Seismic Wave
2021	Co-Lecturer, University of Maryland Introduction to Seismology
2017	Teaching Assistant, Cornell University Analysis of Sustainable Energy Systems
2016	Teaching Assistant, Cornell University Introduction to Seismology
2013-2014	Teaching Assistant, Cornell University Calculus for Engineers / Calculus II
2010-2012	Teaching Assistant, Yonsei University Basic surveying and practice

GRANTS/AWARDS

2023	SNSF Multidisciplinary Applied Research Ventures in Space (MARVIS) (submitted)
2023	AAAS Newcomb Cleveland Prize
2018	SSA 2018 Student Presentation Award
2018	Meyer Bender '29 and Stephen Bender '58 Memorial Award
2014-2017	Cornell University Graduate Conference Grant
2017	Sidney Kaufman Travel Funds, Earth and Atmospheric Sciences
2016	Graduate Research Travel Grant
2014-2016	Earth Energy IGERT Grant from NSF
2014	Long Fellowship, Cornell University

FIELDWORK EXPERIENCE

2016	Laguna del Maule, Chile Shallow lacustrine reflection profiling / servicing broadband seismic stations Pawnee, Oklahoma, USA Deployment of nodal instruments / servicing broadband seismic stations Syracuse, New York, USA Deployment of PASSCAL broadband seismic stations
2015	Ithaca, New York, USA Deployment of PASSCAL broadband seismic stations
2014	Ethiopia Deployment/Service PASSCAL broadband seismic stations
2014	Belen, New Mexico, USA Deployment/Service of PASSCAL TEXAN recorders

PROFESSIONAL SERVICE

2023	NASA's <i>InSightSeers</i> program https://astrobiology.nasa.gov/news/insightseers-program/
2021-present	InSight Marsquake Service frontline team https://doi.org/10.12686/a19
Spring 2020	Panelist for a NASA grant review committee
2014-2017	Cornell University Graduate Conference Grant
2020-2021	Session chair for a technical session at SSA
2019-present	Judge for the AGU Outstanding Student Paper Award
2018-present	Reviewer for Journal of Geophysical Research, Geophysical Research Letters, Geophysical Journal of International, Journal of Volcanology and Geothermal Research, Icarus, Earth and Planetary Science Letters, Nature, G-Cubed, Physics of the Earth and Planetary Interiors, NSF Research Proposals