

Martijn van den Ende

Personal Information

Born	24 th of September, 1990
Nationality	Dutch
E-mail	martijn.vandenende@oca.eu
Website	martijnvandenende.nl
ResearchGate	researchgate.net/profile/Martijn_Van_Den_Ende
Twitter	@martijnende



Education & Academic Activities

- 2018 – present Postdoctoral research fellow at Université Côte d’Azur (Géoazur, Lagrange)
 - 2020 IRIS/NSF Workshop “2020 Distributed Acoustic Sensing (DAS) Virtual Workshop”
 - 2019 Certified autumn school “Deep Learning for Inverse Problems” (Bremen University)
Five days of lectures on the latest deep learning techniques for inverse modelling and data-driven regularisation approaches
 - 2014 – 2018 PhD Candidate at Utrecht University
Thesis title: Microphysically based modelling of fault friction and earthquake rupture
Supervisors: André Niemeijer, Chris Spiers
 - 2015 Certified course “Introduction to High Performance Computing”
 - 2011 – 2013 MSc Earth, Structure & Dynamics, at Utrecht University
Distinction “Cum Laude” – 4.0 GPA
Thesis title: A micromechanical model for fault rock friction and the role played by shear bands in determining macroscale behaviour
 - 2012 – 2013 Laboratory internship Experimental Rock Deformation
Funded by the Royal Netherlands Academy of Arts & Sciences
 - 2008 – 2011 BSc Earth Sciences at Utrecht University
-

Publications & Research Output

Open & Inclusive Science statement *Good scientific work is verifiable, reproducible, and accessible to all. Whenever possible I make my research Open Access (OA) available, be it through Gold OA publishing or through preprint archiving (EarthArxiv). My data, scripts, and numerical results are available from public data repositories, and instructions to access these are included in the corresponding publications. For my data figures I choose colour schemes that permit an unbiased representation of the data, and that are interpretable by colour vision deficient readers. I give priority to journals that support Open Science when submitting my manuscripts or accepting reviewer positions.*

- Yuan S., **van den Ende M.P.A.**, Liu J., Noh H. Y., Clapp R., Richard C., Biondi B. (2023): *Spatial Deep Deconvolution U-Net for Traffic Analyses With Distributed Acoustic Sensing*, IEEE Transactions on Intelligent Transportation Systems, doi:10.1109/TITS.2023.3322355
- Trabattoni A., Biagioli F., Strumia C., **van den Ende M.P.A.**, ... Stutzmann E. (2023): *From strain to displacement: using deformation to enhance distributed acoustic sensing applications*, Geophysical Journal International 235(3), doi:10.1093/gji/ggad365
- Khacef Y., **van den Ende M.P.A.**, Ferrari A., Richard C., Sladen A. (2022): *Self-Supervised Velocity Field Learning for High-Resolution Traffic Monitoring with Distributed Acoustic Sensing*, proceedings of the 2022 Asilomar conference on Signals, Systems, and Computers
- Rowe, C., Agius M., Convers J., *et al.* (2022): *The launch of Seismica: a seismic shift in publishing* (editorial), Seismica 1(1), doi:10.26443/seismica.v1i1.255
- **van den Ende M.P.A.**, Ferrari A., Sladen A., Richard C. (2022): *Deep Deconvolution for Traffic Analysis with Distributed Acoustic Sensing Data*, IEEE Transactions on Intelligent Transportation Systems, doi:10.1109/TITS.2022.3223084
- **van den Ende M.P.A.**, Ferrari A., Sladen A., Richard C. (2022): *Deep Deconvolution Applied to Distributed Acoustic Sensing for Traffic Analysis*, proceedings of the 2022 European Signal Processing Conference (invited)
- Beall A., **van den Ende M.P.A.**, Ampuero J.-P., Capitanio F.A., Fagereng A. (2022): *Linking earthquake magnitude-frequency statistics and stress in visco-frictional fault zone models*, Geophysical Research Letters 49(20), doi:10.1029/2022GL099247
- Niemeijer A.R., **van den Ende M.P.A.**, Marone C., Elsworth D., Spiers C.J. (2022): *Frictional sliding on brine-penetrated faults in salt*, in: The Mechanical Behaviour of Salt X, 2022, doi:10.1201/9781003295808
- Guerin G., Rivet D., **van den Ende M.P.A.**, Stutzmann E., Sladen A., Ampuero J.-P. (2022): *Quantifying microseismic noise generation from coastal reflection of gravity waves recorded by seafloor DAS*, Geophysics Journal International 231, doi:10.1093/gji/ggac200 (**GJI student paper award**)
- Giese C.-C., ten Kate I.L., **van den Ende M.P.A.**, *et al.* (2022): *Experimental and Theoretical Constraints on Amino Acid Formation from PAHs in Asteroidal Settings*, Earth and Space Chemistry 6(3), doi:10.1021/acsearthspacechem.1c00329
- **van den Ende M.P.A.**, Ferrari A., Sladen A., Richard C. (2021): *Next-Generation Traffic Monitoring with Distributed Acoustic Sensing Arrays and Optimum Array Processing*, proceedings of the 2021 Asilomar conference on Signals, Systems, and Computers

- **van den Ende M.P.A.**, Lior I., Ampuero J.-P., Sladen A., Ferrari A., Richard C. (2021): *A Self-Supervised Deep Learning Approach for Blind Denoising and Waveform Coherence Enhancement in Distributed Acoustic Sensing Data*, IEEE Transactions on Neural Networks and Learning Systems, doi:10.1109/TNNLS.2021.3132832
- **van den Ende M.P.A.**, and Ampuero J.-P. (2021): *Evaluating seismic beamforming capabilities of Distributed Acoustic Sensing Arrays*, Solid Earth 12, doi:10.5194/se-12-915-2021
- Mattéo L. et al. (2021): *Automatic mapping of fractures and faults in optical remote sensing images and Digital Surface Models with deep learning*, Journal of Geophysical Research: Solid Earth 126(4), doi:10.1029/2020JB021269
- Cornou C. et al (2021): *Rapid response to the Mw 4.9 earthquake of November 11, 2019 in Le Teil, Lower Rhône Valley, France*, Comptes Rendus Geosciences, doi:10.5802/crgeos.30
- **van den Ende M.P.A.**, Scuderi M.M., Cappa F., and Ampuero J.-P. (2020): *Extracting microphysical fault friction parameters from laboratory- and field injection experiments*, Solid Earth 11, doi:10.5194/se-11-2245-2020
- Verberne B.A., **van den Ende M.P.A.**, Chen J., Niemeijer A.R., and Spiers C.J. (2020): *The physics of fault friction: Insights from experiments on simulated gouges at low shearing velocities*, Solid Earth 11, doi:10.5194/se-11-2075-2020
- **van den Ende M.P.A.**, and Ampuero J.-P. (2020): *Automated seismic source characterization using deep graph neural networks*, Geophysical Research Letters 47(17), doi:10.1029/2020GL088690
- **van den Ende M.P.A.**, Chen J., Niemeijer A.R., and Ampuero J.-P. (2020): *Rheological transitions facilitate fault-spanning ruptures on seismically active and creeping faults*, Journal of Geophysical Research: Solid Earth 125(8), doi:10.1029/2019JB019328
- **van den Ende M.P.A.**, and Ampuero J.-P. (2020): *On the statistical significance of foreshock sequences in Southern California*, Geophysical Research Letters 47(3), doi:10.1029/2019GL086224
- Chen J., **van den Ende M.P.A.**, and Niemeijer A.R. (2020): *Microphysical model predictions of fault restrengthening under room-humidity and hydrothermal conditions: from logarithmic to power-law healing*, Journal of Geophysical Research: Solid Earth, doi:10.1029/2019JB018567
- Erickson et al. (2020): *The community code verification exercise for simulating sequences of earthquakes and aseismic slip (SEAS)*, Seismological Research Letters 91(2A), doi:10.1785/0220190248
- **van den Ende M.P.A.**, and Niemeijer A.R. (2019): *An investigation into the role of time-dependent cohesion in interseismic fault restrengthening*, Scientific Reports 9, doi:10.1038/s41598-019-46241-5
- **van den Ende M.P.A.**, Niemeijer A.R., and Spiers C.J. (2019): *Influence of grain boundary structural evolution on pressure solution creep rates*, Journal of Geophysical Research: Solid Earth 124(10), doi:10.1029/2019JB017500
- Giese C.-C., King H.E., **van den Ende M.P.A.**, Plümper O., ten Kate I.L., and Tielens A.G.G.M. (2018): *In situ nanoscale investigation of step retreat on fluoranthene crystal surfaces*, Earth & Space Chemistry, doi:10.1021/acsearthspacechem.8b00120
- **van den Ende M.P.A.**, and Niemeijer A.R. (2018): *Time-dependent compaction as a mechanism for regular stick-slips*, Geophysical Research Letters 45(12), doi:10.1029/2018GL078103
- **van den Ende M.P.A.**, Chen J., Ampuero J.-P., and Niemeijer A.R. (2018): *A comparison between rate-and-state friction and microphysical models, based on numerical simulations of fault slip*, Tectonophysics 733(9), doi:10.1016/j.tecto.2017.11.040

- **van den Ende M.P.A.**, Marketos G., Niemeijer A.R., and Spiers C.J. (2018): *Investigating compaction by intergranular pressure solution using the Discrete Element Method*, Journal of Geophysical Research: Solid Earth 123(1), doi:10.1002/2017JB014440
- Luo Y., Ampuero J.-P., Galvez P., **van den Ende M.P.A.**, and Idini B. (2017): *QDYN: a Quasi-DYNAMIC earthquake simulator (v1.1)*, doi:10.5281/zenodo.322459
- Takahashi M., **van den Ende M.P.A.**, Niemeijer A.R., and Spiers C.J. (2017): *Shear localization in a mature mylonitic rock analogue during fast slip*, Geochemistry, Geophysics, Geosystems 18(2), doi:10.1002/2016GC006687

Submitted:

- Delouis B., **van den Ende M.P.A.**, Ampuero J.-P.: *Kinematic rupture model of the February 6th 2023 Mw7.8 Turkey earthquake from a large set of near-source strong motion records combined by GNSS offsets reveals intermittent supershear rupture*, submitted to BSSA (preprint doi:10.22541/essoar.168286647.71550161/v1)
- Ding X., Xu S., Xie Y., **van den Ende M.P.A.**, Premus J., Ampuero J.-P.: *The sharp turn: backward rupture branching during the 2023 Mw 7.8 Turkey earthquake*, submitted to Seismica (preprint doi:10.48550/arXiv.2307.06051)
- Khacef Y., **van den Ende M.P.A.**, Richard C., Ferrari A., Sladen A.: *Precision Traffic Monitoring: Leveraging Distributed Acoustic Sensing and Deep Neural Networks*, submitted to IEEE Transactions on Intelligent Transportation Systems

Invited Conference Contributions, Seminars & Lectures

- March 2023, guest lecture Tel Aviv University / Hebrew University: *"Fibre-optic sensing and Deep Learning"*
- February 2023, Siplab Heriot-Watt University: invited seminar titled *"This Wheel's on Fibre: using fibre-optic sensing for traffic monitoring"*
- October 2022, AI4Waves conference: invited contribution titled *"Deep Deconvolution for Traffic Analysis with Distributed Acoustic Sensing Data"*
- September 2022, European Signal Processing Conference: invited contribution titled *"Deep Deconvolution Applied to Distributed Acoustic Sensing for Traffic Analysis"*
- March 2022, ISTerre Grenoble: invited seminar titled *"Fibre-optic sensing for smart city seismology"*
- February 2022, ETH Zürich: invited seminar titled *"Earthquakes, fibre-optics, and a zebra: Self-supervised learning methods for Distributed Acoustic Sensing"*.
- December 2021, ETH Zürich: invited seminar titled *"What's that wiggle? The challenges (and solutions) of using fibre-optic cables as seismological antennas"*.
- October 2021, University of Oslo: invited seminar titled *"Earthquakes, fibre-optics, and a zebra: Intelligent solutions for tomorrow's seismology"*.
- September 2021, 3rd Corsica Earthquake School: keynote lecture and tutorials on rock friction modelling and earthquake cycle simulations.

- September 2021, Southern California Earthquake Center (SCEC): invited keynote talk titled *“The challenges (and solutions) of using fibre-optic cables as seismological antennas”*.
 - May 2021, University of California (San Diego, USA): invited seminar titled *“The challenges (and solutions) of using fibre-optic cables as seismological antennas”*.
 - December 2020, Michigan State University, USA: invited seminar titled *“Monitoring earthquakes with fibre-optic cables”*.
 - November 2020, La Sapienza University, Rome: invited seminar titled *“What’s wiggling? Using fibre-optic cables as an alternative to seismometer arrays”*.
 - February 2020, University College Dublin (UCD): invited seminar titled *“A μ m-scale perspective on km-scale earthquakes: The micromechanics of fault friction”*.
 - December 2019, American Geophysical Union Fall Meeting (AGU): invited oral presentation titled *“Sticking Together: Laboratory Observations of the Time-Dependence of Cohesion”*.
 - September 2019, International Centre for Theoretical Physics (ICTP): two days of lectures and tutorials on earthquake mechanics, seismic cycle modelling, and machine learning techniques.
-

Awards & Fellowships

- 2023 Victoires de la recherche de la ville de Nice
- 2021 Outstanding Reviewer award – Geophysical Journal International
- 2020 Editors’ Citation for Excellence in Refereeing – JGR-Solid Earth
- 3IA SophI.A Summit 2020 poster award
- 3IA Côte d’Azur 2-year fellowship
- Université Côte d’Azur ComUE 2-year fellowship: *“Individual Grants for Young Researchers”*
- Student Award in the Gordon Research Conference 2016: Rock Deformation

Teaching Experience

At Utrecht University (2014-2018) I acted as:

- Lecturer on numerical methods for the MSc-level course “Kinetic Processes”
- Teaching Assistant for various BSc and MSc-level courses (Continuum Mechanics & Rheology; Structural Analysis of Deformed Rocks; Mechanisms of Deformation & Transport in Rocks)
- Geological field instructor in the Spanish Pyrenees
- Supervisor for BSc and MSc thesis projects

Community Activities

- Lead initiator and editor of the *Seismica* Diamond Open Access journal (est. 2022)
- Member of the IRIS DAS machine learning working group
- Co-organiser of the GDR ISIS (2022) conference on “*Learning and Physical Modelling*”
- Session convener at the European Geoscience Union General Assembly (2021): “*Subduction zone slip styles - interplay of fluids and deformation*”
- Session convener at the European Seismological Commission General Assembly (2021): “*Machine learning solutions to seismic problems*”