Luca Dal Zilio

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PERSONAL INFORMATION

- Born in Treviso, Italy, on January 25th, 1989
- Nationality: Italian

EDUCATION

- **ETH Zurich** — *Zurich, Switzerland*
  PhD in Geophysics (*with distinction*) — *Feb 2015 – Jan 2019*
- **University of Padova** — *Padova, Italy*
  M.S. in Geophysics (*summa cum laude*) — *Oct 2012 – Oct 2014*
- **University of Padova** — *Padova, Italy*
  B.S. in Geology — *Sep 2009 – Jul 2012*

RESEARCH EXPERIENCE

- **ETH Zurich** — *Zurich, Switzerland*
  Senior Researcher (Oberassistent) — *Sep 2021 – present*
  Computational Earthquake Physics group
- **California Institute of Technology (Caltech)** — *Pasadena (CA), USA*
  Cecil and Sally Drinkward Post-Doctoral Fellow in Geophysics and Solid Mechanics — *Feb 2019 – Aug 2021*
  Advisors: Prof. Nadia Lapusta, Prof. Jean–Philippe Avouac
- **ETH Zurich** — *Zurich, Switzerland*
  Graduate Research Assistant (Advisor: Taras Gerya, Ylona van Dinther) — *Feb 2015 – Jan 2019*
  Cross–Scale Modeling of Mountain Building and the Seismic Cycle
- **University of Padova** — *Padova, Italy*
  Undergraduate Research Assistant (Advisor: Manuele Faccenda, Fabio Capitanio) — *Oct 2012 – Oct 2014*
  Supercontinent break-up induced by deep subduction

VISITING

- Visiting researcher, Earth Observatory of Singapore (EOS) (1 month) — *1/2018*
- Visiting researcher, École Normale Supérieure (ENS), Paris, France (3 weeks, 2x) — *6/2017; 7/2018*

FUNDED PROJECTS

- Swiss National Science Foundation project – 1 PhD (PI, sole proposal writer) — *2022*
- USGS Earthquake Physics Research proposal w/ N. Lapusta (co–PI, main writer) — *2020*
- Postdoc Mobility fellowship, Swiss National Science Foundation (PI, sole proposal writer) — *2020*
- Early Postdoc Mobility fellowship, Swiss National Science Foundation (PI, sole proposal writer) — *2019*
- SINERGIA AlpArray, 1–yr–ext. PhD, Swiss National Science Foundation (sole proposal writer) — *2017*
- SINERGIA AlpArray, 3–yr PhD proposal, Swiss National Science Foundation (collaborative proposal) — *2015*
- University of Padua fellowship, 3 months research assistant post MSc thesis (PI, main writer) — *2014*

STUDENTS AND POSTDOCS

- Xiaoyu Wang (postdoc co–advisor, advisor: Prof. D. Kammer, ETH Zurich) — *2021 – present*
- Betti Hegyi (PhD student co–supervisor, supervisor: Prof. W. Behr, ETH Zurich) — *2021 – present*
- Fabian Kistler (MSc student supervisor Computational Science, ETH Zurich) — *2021 – present*
- Danyang Jiang (MSc thesis supervisor, ETH Zurich) — *2021 – present*
- Jiayi Ye (MSc thesis supervisor, ETH Zurich) — *2021 – present*
- Mario D'Acquisto (MSc thesis supervisor, ETH Zurich, now PhD student at Utrecht University) — *2018 – 2019*
- Julian Stypulkowski (MSc thesis supervisor, ETH Zurich) — *2018*
- Eleonora Ficini (MSc thesis and PhD co–supervisor, Sapienza University of Rome) — *2015 – 2018*

TEACHING

- Finite Element Modelling in Geosciences (ETH Zurich, MSc level), Lecturer *2022*
- Continuum Mechanics (Caltech, Undergrad level), Teaching Assistant and Lecturer *2021*
- Fracture Mechanics (Caltech, Undergrad level), Teaching Assistant and Guest Lecturer *2020*
- Introduction to Structural Geology (Caltech, Undergrad level), Teaching Assistant *2020*
- Seismotectonics (ETH Zurich, MSc level), Guest Lecturer *2017*

PUBLICATIONS

(10 first–author; 7 co–author; *students primary advised)

17. Jiang, J., Erickson, B., Lambert, V., Ampuero, J.P., Ando, R., Barbot, S., Cattania, C., **Dal Zilio, L.**, Duan, B., Dunham, E. M., Gabriel, A.A., Lapusta, N., Li, D., Liu, D., Liu, Y., Ozawa, S., Pranger, C. & van Dinther, Y. (2022). Community-driven code comparisons for three-dimensional dynamic modeling of sequences of earthquakes and aseismic slip (SEAS). *Journal of Geophysical Research: Solid Earth*, 124(12), 12854–12881 *doi*.
16. **Dal Zilio, L.**, Lapusta, N., Avouac, J.P., Gerya, T. (2022). Subduction earthquake cycles in a nonlinear visco-elasto-plastic megathrust. *Geophysical Journal International*, 229(2) *doi*.
15. Brizzi, S., Becker, T. W., Faccenna, C., van Zelst, I., **Dal Zilio, L.**, van Dinther, Y., (2021). The role of sediment subduction and buoyancy on subduction dynamics and geometry. *Geophysical Research Letters*, 48(20), *doi*
14. Michel, S., Jolivet, R., Rollins, C. Jara, J., and **Dal Zilio, L.** (2021). Seismogenic potential of the Main Himalayan Thrust constrained by coupling segmentation and earthquake scaling. *Geophysical Research Letters*, *doi*
13. **Dal Zilio, L.**, Hetényi, G., Hubbard, J., & Bollinger, L. (2021). Building the Himalaya from tectonic to earthquake scales. *Nature Reviews Earth and Environment*, 2(4), 251-268, *doi*
12. **Dal Zilio, L.**, Ruh, J., Avouac, J-P. (2020). Structural evolution of orogenic wedges: interplay between erosion and weak décollements. *Tectonics*, 39(10), *doi*
11. **Dal Zilio, L.**, Kissling, E., Gerya, T., and van Dinther, Y. (2020). Slab Rollback Orogeny Model: A Test of Concept. *Geophysical Research Letters*, 47(18), *doi*
10. D'Acquisto, M.*****, **Dal Zilio, L.**, van Dinther, Y., Kissling, E., and Gerya, T. (2020) Tectonics and seismicity in the Northern Apennines driven by slab retreat and crustal delamination. *Tectonophysics*, *doi*
9. **Dal Zilio, L.**, Lapusta, N., Avouac, J-P. (2020). Unraveling scaling properties of slow-slip events. *Geophysical Research Letters*, 47(10), *doi*
8. **Dal Zilio, L.**, Jolivet, R., and van Dinther, Y. (2020). Segmentation of the Main Himalayan Thrust Illuminated by Bayesian Inference of Interseismic Coupling. *Geophysical Research Letters*, 47 *doi*
7. **Dal Zilio, L.**, van Dinther, Y., Gerya, T., Avouac, J.-P. (2019) Bimodal seismicity in the Himalaya controlled by fault friction and geometry. *Nature Communications*, *doi*
6. **Dal Zilio, L.** (2018). Subduction-driven Earth machine. *Nature Geoscience (News and Views), Retrospective,* 11, 229, *doi*
5. **Dal Zilio, L.**, van Dinther, Y., and Gerya, T. V., (2018). Seismic behaviour of mountain belts controlled by plate convergence rate. *Earth and Planetary Science Letters.* 482, 81-92, *doi*
4. **Dal Zilio, L.**, Faccenda, M., and Capitanio, F. A., (2018). The role of deep subduction in supercontinent breakup. *Tectonophysics*, *doi*
3. Ficini, E.*****, **Dal Zilio, L.**, Doglioni, C., and Gerya, T. V., (2017). Horizontal mantle flow controls subduction dynamics. *Scientific Reports* 7, *doi*
2. Faccenda, M., and **Dal Zilio, L.**, (2017). The role of solid–solid phase transitions in mantle convection. *Lithos* 268, 198–224, *doi*
1. Meyzen, C.M., Massironi, M., Pozzobon. R., and **Dal Zilio, L.**, (2015). Are plumes on motionless plates analogues to Martian plume feeding the giant shield volcanoes? - Volcanism and Tectonism Across the Inner Solar System, *Geological Society of London*. v. 401, *doi*

SYNERGISTIC ACTIVITIES

- **Co–chair** of the Seismic Cycle Working Group, *Computational Infrastructure for Geodynamics* (CIG) *2022 – present*
- **Editorial board**, *Nature Communications Earth and Environment* *2021 – present*
- **Associate Editor**, *AGU Tectonics* *2020 – present*
- **Topic Editor**, *Frontiers in Earth Science* (Solid Earth Geophysics) *2019 – present*
- **Judge** for Outstanding Student Poster Awards at AGU and EGU *2019 – present*
- **Blog Editor** for the European Geosciences Union (EGU) – Geodynamic Division *2017 – 2020*
- **Consultant** (Seismic Risk Assessment) for *UNICEF* and *Swiss Embassy in Nepal* *2018 – 2019*

- **Journal Reviewer** (frequency: ∼2/month): *Nature Geoscience*, *Science Advances*, *Nature Communications*, *Geology*, *Geosphere*, *Geophysical Research Letters*, *JGR: Solid Earth*, *Tectonics*, *Earth and Planetary Science Letters*, *Scientific Reports*, *Tectonophysics*, *Earth-Science Reviews*, *Terra Nova*, *EGU Solid Earth*, *Geophysical Journal International*, *Journal of Geodynamics*
- **Agency / project funding**: *US Department of Energy ASCR Leadership Computing Challenge*, *National Science Centre Poland*, *Swiss National Science Foundations (SNSF)*, *National Research Development and Innovation of Hungary*, *National Geographic*
- **Book Reviewer**: *Times Higher Education (THE)*

Organization of international conferences as chair and (co–)convener:

- AGU–2019 / EGU–2020 / EGU–2021 / EGU–2022: Seismic and aseismic slip on seismogenic faults
- AGU–2020: The role of fluids in aseismic and seismic slip on faults
- AGU–2019: Cross–scale and multi–scale building of the Himalaya
- EGU–2019: Integrated approaches to bridge long-term tectonics and earthquake cycles
- EGU–2018: The Interplay between earthquakes, the seismic cycle and long–term deformation

COMMITTEES

- PhD research plan defense of Betti Hegyi (ETH Zurich) *2021*
- PhD research plan defense of Castellano Merino Miguel (ETH Zurich) *2021*

AWARDS AND HONOURS

- Prix Schläfli from the Swiss Academy of Sciences (SCNAT) (link) *2022*
- Early career Giorgio Dal Piaz award from the Italian Geological Society (link) *2020*
- Silver Medal from ETH Zurich for outstanding doctoral thesis (link) *2020*
- Best overall poster presentation at SCEC annual meeting, Palm Springs, California *2019*
- Cecil and Sally Drinkward Distinguished Postdoctoral Fellow, Caltech *2019*
- Springer Nature Thesis Award *2019*
- Best annual Blog Article by European Geosciences Union *2018*
- Outstanding Student Poster Award by European Geosciences Union *2018*
- Best Geostory award by Nature Geoscience journal *2018*
- Nominated by ETH Zurich for the Global Young Scientists Summit, Singapore *2018*
- Invited keynote speaker at TEDx Event *2017*

RECENT INVITED SEMINARS

- Université de Neuchâtel (Department seminar) *2022*
- Université Côte d'Azur (Department seminar) *2022*
- University of Leeds (Department seminar) *2022*
- Ludwig Maximilian University of Munich (LMU) (Department seminar) *2021*
- TecTask – Tectonics and Structural Geology (monthly webinar) *2021*
- Utrecht University (Earth System Sciences weekly webinar) *2021*
- University of Rome, La Sapienza (TECTONIC webinar) *2020*
- University of California, Berkeley (SeismoLab seminar) *2020*
- California Institute of Technology (SeismoLab seminar) *2020*
- University of Milan (Department seminar) *2020*
- University of Southern California (Department seminar) *2019*
- University of California, Los Angeles (Department seminar) *2019*

RECENT INVITED PRESENTATIONS

- **Dal Zilio, L.** (2020). *Unrevealing scaling properties of slow-slip events and their interplay with large megathrust earthquakes.* AGU Fall Meeting 2020.
- **Dal Zilio, L.** (2020). *Exploring slow-slip events and their scaling in 3-D simulation of fault slip.* 106th National Congress of the Italian Physical Society.
- **Dal Zilio, L.** (2020). *Episodic fluid pressure cycling controls the interplay between Slow Slip Events and Large Megathrust Earthquakes.* JpGU–AGU Joint Meeting, Chiba, Japan.
- **Dal Zilio, L.** (2020). *Anatomy of the Main Himalayan Thrust: Relating long-term tectonics and short-term seismicity.* 36th International Geological Congress, Delhi, India.
- **Dal Zilio, L.** (2020). *Slip complexity on faults with heterogeneous friction.* SCEC Workshop on Advancing Simulations of Sequences of Earthquakes and Aseismic Slip (SEAS) workshop, Pomona, CA.
- **Dal Zilio, L.** (2019). *The influence of tectonics on seismicity of mountain belts: A case study from the Himalayas.* CIG Crustal Deformation Modeling Workshop, Golden, Colorado.