Leila Mizrahi

Postdoctoral Researcher, Swiss Seismological Service, ETH Zurich
Sonneggestrasse 5, 8092 Zurich, Switzerland
+41 78 717 9565 · leila.mizrahi@sed.ethz.ch

Education

Postdoctoral Researcher — *Dec 2022-present*
ETH Zurich (Switzerland), Swiss Seismological Service

PhD in Statistical Seismology — *Jul 2019-Nov 2022*
ETH Zurich (Switzerland), Swiss Seismological Service
Visiting scholar at University of Southern California (Sep 2021-Jan 2022)
PhD Thesis: "Towards Next Generation Time-Dependent Earthquake Forecasting"
Receiver of the ETH Medal for outstanding doctoral theses

MSc in Mathematics — *Feb 2014-Sep 2015*
University of Zurich (Switzerland)
Master's Thesis: "Thoroughly Formalizing an Uncommon Construction of the Real Numbers"

BSc in Mathematics — *Sep 2010-Feb 2014*
University of Zurich (Switzerland)

Professional Experience

Actuary Methods & Processes (Assistant Vice President) — *Mar 2019-Jun 2019*
Swiss Re Ltd., Underwriting Strategy department, Zurich, Switzerland

Underwriting Strategy Graduate (graduates@swissre program) — *Sep 2017-Feb 2019*
Swiss Re Ltd., Underwriting Strategy department, Zurich, Switzerland

Modelling Intern — *Feb 2016-Jan 2017*
Swiss Re Ltd., Underwriting Strategy department, Zurich, Switzerland

Other Relevant Experience

PhD student Advisor — *Dec 2022-present*
Department of Earth Science, ETH Zurich (Switzerland)
Students: Marta Han, Aron Mirwald

Lecturer — *May-Jun 2022*
Department of Earth Science, ETH Zurich (Switzerland)
Integrated Practical Course on Seismic Networks and Data

Co-Convener — *Apr 2022 and 2023*
SSA Annual Meeting
Session: New Methods and Models for More Informative Earthquake Forecasting (2023)
Session: New Developments in Physics- and Statistics-based Earthquake Forecasting (2022)

Reviewer — *Jun 2021-present*
Seismological Research Letters
Earth and Planetary Science Letters
Nature Communications Earth & Environment
Geophysical Journal International
IEEE Transactions on Geoscience and Remote Sensing
Frontiers in Applied Mathematics and Statistics

On-call Duty Seismologist — *Jun 2020-present*
Swiss Seismological Service, ETH Zurich (Switzerland)
Communicate with Swiss authorities and with the public in case earthquakes in Switzerland or abroad.

Teaching Assistant *Sep 2019-present*
Department of Earth Science, ETH Zurich (Switzerland)
Statistical Data Analysis with Matlab, Geophysical Field Course on Seismic Refraction

Fieldwork *Jun 2021*
Hengill geothermal area (Iceland), Swiss Seismological Service & Reykjavik Energy
Assisted with the installation of a 500 node seismic array.

Fieldwork *Aug 2020*
Hengill geothermal area (Iceland), Swiss Seismological Service & ISOR Icelandic Geosurvey
Assisted with the installation and dismantling of broadband seismic stations, including wind turbines and solar panels.

Teaching Assistant *Sep 2013-Sep 2015*
Institute of Mathematics, University of Zurich (Switzerland)
Analysis I&II, Number Theory, Logic and Set Theory

Publications

Articles

1. Ritz, V.A., **Mizrahi, L.,** Clasen Repollés, V., Rinaldi, A.P., Hjörleifsdóttir, V. and Wiemer, S., 2023. Pseudo-prospective forecasting of induced and natural seismicity in the Hengill geothermal field. *ESS Open Archive preprint.* 10.22541/essoar.168500354.49240043/v1

2. **Mizrahi, L.,** Nandan, S., Savran, W., Wiemer, S. and Ben-Zion, Y., 2023. Question-Driven Ensembles of Flexible ETAS Models. *Seismological Research Letters.* doi.org/10.1785/0220220230

3. **Mizrahi, L.,** Nandan, S. and Wiemer, S., 2021. Embracing Data Incompleteness for Better Earthquake Forecasting. *Journal of Geophysical Research: Solid Earth.* doi.org/10.1029/2021JB022379

4. **Mizrahi, L.,** Nandan, S. and Wiemer, S., 2021. The Effect of Declustering on the Size Distribution of Mainshocks. *Seismological Research Letters.* doi.org/10.1785/0220200231

Code Repositories

1. **Mizrahi, L.** and Schmid, N. and Han, M., 2023. lmizrahi/etas (3.2). *Zenodo.* doi.org/10.5281/zenodo.6583992

Selected Conference Presentations

1. **Mizrahi, L.,** Dallo, I. and Kuratle, L.D., 2023. Developing, testing and communicating earthquake forecasts: an expert elicitation. *Invited Talk,* IUGG Berlin General Assembly, July 12-19 2023, Berlin, Germany

2. **Mizrahi, L.,** Nandan, S., Danciu, L. and Wiemer, S., 2022. Calibration of ETAS-based operational earthquake forecasting models: A simple recipe applied to Switzerland. *Talk,* 3^{rd} European Conference for Earthquake Engineering and Seismology, September 5-9 2022, Bucharest, Romania

3. **Mizrahi, L.,** Nandan, S. Savran, W., Wiemer, S. and Ben-Zion, Y., 2022. Relaxing ETAS's Assumptions to Better Capture the Real Behavior of Seismicity. *Talk,* EGU General Assembly, May 23-27 2022, Vienna, Austria

4. **Mizrahi, L.,** Nandan, S. and Wiemer, S., 2021. Joint resolving of the fault plane ambiguity and anisotropic earthquake triggering in Southern California. *Poster,* AGU Fall Meeting, December 13-17 2021, New Orleans, LA

5. **Mizrahi, L.,** Nandan, S. and Wiemer, S., 2021. The Role of HPC in the Search of Next-Generation Earthquake Forecasting Models. *Talk,* Platform for Advanced Scientific Computing (PASC) Conference, July 5-9 2021, Geneva (Switzerland)

6. **Mizrahi, L.,** Nandan, S. and Wiemer, S., 2021. Embracing Data Incompleteness for Better Earthquake Forecasting. *Talk,* SSA Annual Meeting, April 19-23 2021, online
   Receiver of 2021 Student Presentation Award

7. **Mizrahi, L.,** Nandan, S. and Wiemer, S., 2020. The Effect of Declustering on the Size Distribution of Mainshocks. *Talk,* Swiss Geoscience Meeting, November 6-7 2020, online

Technical Skills

Sorted from most to least recently used

Python (pandas, numpy, matplotlib, scikit-learn, keras, PySpark, etc.), **Git** (GitLab, GitHub: lmizrahi), **COMP Superscalar** (pycompss), **distributed high performance computing** (using LSF workload management platform), **UNIX shell**, **LaTeX** (Overleaf), **Microsoft Excel**, **Matlab**, **JavaScript** (Observable, D3, AngularJS), **SQL**, **MongoDB**

Languages

German (native), **English** (fluent), **French** (advanced), **Spanish** (basic), **Hebrew** (beginner)