MALCOLM C. A. WHITE

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EDUCATION

University of Southern California 2016 - 2021
PhD in Geological Sciences
Department of Earth Sciences

Carleton University 2007 - 2013
BSc in Computational Geophysics
Department of Earth Sciences

EMPLOYMENT

Massachusetts Institute of Technology (Cambridge, MA, USA) 2021 - present
Postdoctoral Associate

Sattler College (Boston, MA, USA) 2021
Adjunct Professor

University of Southern California (Los Angeles, CA, USA) 2016 - 2021
Graduate Research/Teaching Assistant

Scripps Institution of Oceanography (La Jolla, CA, USA) 2013 - 2016
Seismic Analyst

Pacific Geoscience Center (Sidney, BC, Canada) 2011 - 2013
Undergraduate Research Assistant

Geological Survey of Canada (Ottawa, ON, Canada) 2010 - 2011
Undergraduate Research Assistant

GRANTS AND AWARDS

1. SCEC Award #22145 ($32 363) 2022
   Do ultra-shallow nanoseisms exist, and are they observable?

SPEAKING ENGAGEMENTS

1. **Guest Lecture**, DSCI 552, University of Southern California 2022
2. Seismological Society of America Annual Meeting 2022
3. American Geophysical Union Annual Meeting 2021
4. Seismological Society of America Virtual Tomography Sessions 2021
5. American Geophysical Union Annual Meeting 2020
6. **Invited**, Earthquake Science Center Seminar, United States Geological Survey 2020
7. **Invited**, Southern California Earthquake Center Community Velocity Model Workshop 2020
8. Lithospheric Dynamics Seminar, University of Southern California 2020
9. American Geophysical Union Annual Meeting 2019

10. Seismological Society of America Annual Meeting 2019
11. Seismology Student Workshop, Lamont-Doherty Earth Observatory 2019
12. **Invited**, Friday Informal Seminar Hour, MIT EAPS 2019
13. **Invited**, Brown University, Geophysics Seminar 2018
14. Lithospheric Dynamics Seminar, University of Southern California 2018

TEACHING

Statistics and Data Science 2021
Professor
Developed and instructed introductory course on statistics and data science using an "inverted" classroom model. Introduced students with little or no programming experience to Python via Jupyter notebooks.

The Nature of Scientific Inquiry 2018
Teaching Assistant
Led three lab sections, each for one and a half hours per week. Prepared weekly quizzes to test students' comprehension. Held weekly office hours to assist students with lecture material.

Earthquakes 2018
Teaching Assistant
As above.

The Nature of Scientific Inquiry 2017
Teaching Assistant
As above.

SERVICE

1. Organizing Committee, MIT EAPS Department Lecture Series 2022 - present
2. Referee, Tectonics 2021
3. Referee, Geophysical Journal International 2021
4. Referee, Physics of the Earth and Planetary Interiors 2021
5. Referee, Pure and Applied Geophysics 2021
6. Referee, Seismological Research Letters 2021
7. Referee, Geophysical Journal International 2020
8. Referee, Public Library of Science 2020

MENTORSHIP

1. Ryan Zaff (Undergraduate, Pennsylvania State University) 2022 - present
2. Kevin Krahn (Undergraduate, Sattler College) 2021 - present

PROFESSIONAL SOCIETY MEMBERSHIPS

American Geophysical Union 2016 - present
Seismological Society of America 2016 - present

PUBLICATIONS IN REVIEW

1. **White, M. C. A.**, Sharma, K., Li, A., Kumar, T. K. S., & Nakata, N. (In Review) FastMapSVM: Classifying abstract objects using the FastMap algorithm and Support-Vector Machines. *Communications Engineering*
2. **White, M. C. A.**, Zhang Z., Bai T., Qiu H., Chang H. & Nakata N. (In Review) HDF5eis: A Solution for Storage and Access to Big, Multidimensional Data from Environmental Sensors. *GEOPHYSICS*
3. Nakata N., Nakata R., Kato A., Xue Z., & **White, M. C. A.** (In Review) Enigmatic doubly scattered tube waves at a crosswell seismic survey. *Geophysical Journal International*
4. Zhang, Z., **White, M. C. A.**, Bai, T., Qiu, H., & Nakata, N. (In Review) Characterizing Microseisms Induced by Hydraulic Fracturing with Hybrid Borehole DAS and Three-Component Geophone Data. *GEOPHYSICS*

PEER-REVIEWED PUBLICATIONS

1. Fang, H., **White, M. C. A**., Lu, Y., & Ben-Zion, Y. (2022). Seismic traveltime tomography of Southern California using Poisson-Voronoi cells and 20 years of data. *Journal of Geophysical Research: Solid Earth*. doi: 10.1029/2021JB023307
2. Jiang, C., Zhang, P., **White, M. C. A.**, Pickle, R., & Miller, M. S. (2022). A Detailed Earthquake Catalog for Banda Arc–Australian Plate Collision Zone Using Machine-Learning Phase Picker and an Automated Workflow. *The Seismic Record, 2*(1), 1–10. doi: 10.1785/0320210041
3. **White, M. C. A.**, Fang, H., Catchings, R. D., Goldman, M. R., Steidl, J. H., & Ben-Zion, Y. (2021). Detailed traveltime tomography and seismic catalogue around the 2019 M w7.1 Ridgecrest, California, earthquake using dense rapid-response seismic data. *Geophysical Journal International, 227*(1), 204–227. doi: 10.1093/gji/ggab224
4. **White, M. C. A.**, Fang, H., Nakata, N., & Ben-Zion, Y. (2020). PyKonal: A Python package for solving the Eikonal equation in spherical and Cartesian coordinates using the Fast Marching Method. *Seismological Research Letters, 91*(4), 2378-2389. doi: 10.1785/0220190318
5. **White, M. C. A.**, Ben-Zion, Y., & Vernon, F. L. (2019). A Detailed Earthquake Catalog for the San Jacinto Fault-Zone Region in Southern California. *Journal of Geophysical Research: Solid Earth, 124*, 6908–6930. doi: 10.1029/2019JB017641
6. Burdick, S., Vernon, F. L., Martynov, V., Eakins, J., Cox, T., Tytell, J., ... van der Hilst, R. D. (2017). Model Update May 2016: Upper-Mantle Heterogeneity beneath North America from Travel-Time Tomography with Global and USArray Data. *Seismological Research Letters, 88*(2A), 319–325. doi: 10.1785/0220160186
7. Ross, Z. E., Ben-Zion, Y., **White, M. C.**, & Vernon, F. L. (2016). Analysis of earthquake body wave spectra for potency and magnitude values: implications for magnitude scaling relations. *Geophysical Journal International, 207*(2), 1158–1164. doi: 10.1093/gji/ggw327
8. Ross, Z. E., **White, M. C.**, Vernon, F. L., & Ben-Zion, Y. (2016). An Improved Algorithm for Real-Time S -Wave Picking with Application to the (Augmented) ANZA Network in Southern California. *Bulletin of the Seismological Society of America, 106*(5), 2013–2022. doi: 10.1785/0120150230
9. Ben-Zion, Y., Vernon, F. L., Ozakin, Y., Zigone, D., Ross, Z. E., Meng, H., ... Barklage, M. (2015). Basic data features and results from a spatially dense seismic array on the San Jacinto fault zone. *Geophysical Journal International, 202*(1), 370–380. doi: 10.1093/gji/ggv142
10. Astiz, L., Eakins, J. A., Martynov, V. G., Cox, T. A., Tytell, J., Reyes, J. C., ... Vernon, F. L. (2014). The Array Network Facility Seismic Bulletin: Products and an Unbiased View of United States Seismicity. *Seismological Research Letters, 85*(3), 576–593. doi: 10.1785/0220130141

CONFERENCE PROCEEDINGS

1. Dobson P., Stringfellow W., Sonnenthal E., Spycher N., Stokes-Draut J., Millstein D., Busse M., Camarillo M. K., Nakata N., Nayak A., **White M. C. A.**, Rodríguez Tribaldos V., McKibben M., Brounce M., Humphreys J., Garg S., Kim K. & Araya N. (2023) Overview of Improved Quantification of Li Resources for Lithium Valley Project. Accepted for presentation at 2023 Society for Mining, Metallurgy & Exploration Annual Meeting.
2. **White, M. C. A.**, Nakata, N., Rodríguez Tribaldos, V., Nayak, A., & Dobson, P. Seismotectonic Evolution and Geothermal Energy Production in the Salton Sea Geothermal Field (2023) Accepted for presentation at 2023 Stanford Geothermal Workshop.
3. **White, M. C. A.**, Nakata, N., Rodríguez Tribaldos, V., Nayak, A., & Dobson, P. (2022). Assessing the impact of geothermal energy production on seismicity in the Salton Sea Geothermal Field. Poster Presentation at 2022 SCEC Annual Meeting.
4. Bai T., Zhang Z., **White, M. C. A.**, Qiu H., Williamson P., & Nakata N. (2022) A "sliding box" automatic relocation method based on geometric-mean reverse-time migration, *SEG Technical Program Expanded Abstracts*: 1516-1520. doi: 10.1190/image2022-3747339.1
5. **White, M. C. A.**, Sharma, K., Li, A., Kumar, T. K. S., & Nakata, N. (2022) FastMapSVM: Classifying seismograms using the FastMap algorithm and Support-Vector Machines *Seismological Research Letters, 93*(2B), p. 1302. doi: 10.1785/0220220087
6. **White, M. C. A.**, & Nakata, N. (2021). FastMapSVM: Classifying seismograms using FastMap and Support-Vector Machines. S31A-02 presented at 2021 Fall Meeting, AGU, New Orleans, LA, 13-17 December.
7. **White, M. C. A.**, Ben-Zion, Y., & Vernon, F. L. (2021). A Detailed Earthquake Catalog for the San Jacinto Fault-Zone Region in Southern California and the period 2008-2020. Poster Presentation at 2021 SCEC Annual Meeting.
8. **White, M. C. A.**, Ben-Zion, Y., & Vernon, F. (2021). Catalog Update: A Detailed Earthquake Catalog for the San Jacinto Fault Zone Region in Southern California. *Seismological Research Letters, 92*(2B), p. 1430. doi: 10.1785/0220210025
9. **White, M. C. A.**, Fang, H., Catchings, R. D., Goldman, M. R., Steidl, J. H., & Ben-Zion, Y. (2020). Detailed traveltime tomography and seismicity around the 2019 M7.1 Ridgecrest, CA, earthquake using dense rapid-response seismic data. S070-08 presented at 2020 Fall Meeting, AGU, San Francisco, CA, 1-17 December.
10. Fang, H., **White, M. C. A.**, Lu, Y., van der Hilst, R. D., & Ben-Zion, Y. (2020). Regional seismic velocity models for Southern California based on travel time tomography with Poisson Voronoi cells parameterization. S070-04 presented at 2020 Fall Meeting, AGU, San Francisco, CA, 1-17 December.
11. Luckie, T., Gase, A., Jacobs, K., **White, M. C. A.**, Henrys, S. A., Okaya, D. A., Van Avendonk, H. J., Bangs, N. L., Barker, D. H. N., Bassett, D., Kodaira, S., Arai, R., Fujie, G., & Yamamoto, Y. (2020). P-wave velocity structure of the northern Hikurangi margin from travel time tomography. T017-0010 presented at 2020 Fall Meeting, AGU, San Francisco, CA, 1-17 December.
12. **White, M. C. A.**, Fang, H., Catchings, R. D., Goldman, M. R., Steidl, J. H., & Ben-Zion, Y. (2020). Detailed traveltime tomography and seismicity around the 2019 M7.1 Ridgecrest, CA, earthquake using dense rapid-response seismic data. Poster Presentation at 2020 SCEC Annual Meeting.
13. Catchings, R. D., Goldman, M. R., **White, M. C. A.**, Qiu, H., & Ben-Zion, Y. (2020). Results from dense nodal-array recordings of the 2019 Ridgecrest Sequence aftershocks. Oral Presentation at 2020 SCEC Annual Meeting.
14. **White, M. C. A.**, Fang, H., van der Hilst, R. D., & Ben-Zion, Y. (2019). The distribution of microseismicity correlates closely with velocity structure in the San Jacinto fault-zone region of Southern California. S21C-07 presented at 2019 Fall Meeting, AGU, San Fransisco, CA, 9-13 December.

15. Nakata, N., Fang, H., **White, M. C. A.**, & Pitarka, A. (2019). Shallow crustal heterogeneity in Southern California estimated from earthquake coda waves. Poster Presentation at 2019 SCEC Annual Meeting.
16. **White, M. C. A.**, Ben-Zion, Y., & Vernon, F. L. (2019). Focal Mechanisms of Microseismicity in the San Jacinto Fault Zone Region of Southern California. *Seismological Research Letters, 90*(2B), p. 1042. doi: 10.1785/0220190061
17. **White, M. C. A.**, Ben-Zion, Y., & Vernon, F. L. (2018). Detailed seismic catalog for the San Jacinto fault zone region (2008-2016) from automated processing of raw waveform data. Poster Presentation at 2018 SCEC Annual Meeting.
18. **White, M. C. A.**, Ross, Z. E., Vernon, F. L., & Ben-Zion, Y. (2017). A Detailed Automatic Seismicity Catalog (1998-2015) for the San Jacinto Fault Zone Region. *Seismological Research Letters, 88*(2B), p. 569. doi: 10.1785/0220170035
19. **White, M. C. A.**, Ross, Z. E., Ben-Zion, Y., & Vernon, F. L. (2017). A detailed, automatically-derived, seismicity catalog for the San Jacinto fault zone (1998-2016). Poster Presentation at 2017 SCEC Annual Meeting.
20. **White, M. C. A.**, Ross, Z. E., Vernon, F. L., & Ben-Zion, Y. (2016). A detailed automatic 1998-2015 earthquake catalog of the San Jacinto fault zone region. Poster Presentation at 2016 SCEC Annual Meeting.
21. **White, M. C. A.**, Ross, Z. E., Vernon, F. L., & Ben-Zion, Y. (2015). A Large Scale Automatic Earthquake Location Catalog in the San Jacinto Fault Zone Area Using An Improved Shear-Wave Detection Algorithm. S11A-2775 presented at 2015 Fall Meeting, AGU, San Francisco, CA, 14-18 December.
22. **White, M. C. A.**, Ross, Z. E., Reyes, J. C., Vernon, F. L., & Ben-Zion, Y. (2015). An Improved Algorithm for Automatic Picking of Seismic S-wave Arrivals in Continuous Data with Application to the San Jacinto Fault Zone. *Seismological Research Letters, 86*(2B), p. 731. doi: 10.1785/0220150017
23. Ben-Zion, Y., Vernon, F. L., Ozakin, Y., Zigone, D., Ross, Z., Meng, H., **White, M. C. A.**, Reyes, J. C., Hollis, D., & Barklage, M. (2015). Basic Wave Propagation Results from a Highly-Dense Seismic Array on the San Jacinto Fault Zone. *Seismological Research Letters, 86*(2B), p. 594. doi: 10.1785/0220150017
24. Vernon, F. L., Reyes, J. C., **White, M. C. A.**, Davis, G. A., Meyer, J. C., Sahakian, V. J., Mancinelli, N. J., Ben-Zion, Y., Zigone, D., Harris, C. W., Liu, X., Qiu, H., Share., P.-E., Ozakin, Y., Hollis, D., & Barklage, M. (2014). Observations at a San Jacinto Fault Zone site (Sage Brush Flat) Using a Nodal Seismic High Frequency Array. T11F-08 presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 December.
25. Tytell, J. E., Cox, T. A., **White, M. C. A.**, Martynov, V. G., Eakins, J., & Vernon, F. L. (2014). The ANF Catalog of Central United States Seismicity. S51A-4381 presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 December.
26. Mulder, T., Brillon, C., Bentkowski, W., **White, M. C. A.**, Rosenberger, A., Rogers, G. C., Vernon, F. L., & Kao, H. (2013). Analysis of the 2012 Oct 27 Haida Gwaii Aftershock Sequence. S32A-08 presented at 2013 Fall Meeting, AGU, San Francisco, CA, 9-13 December.
27. Mulder, T., Brillon, C., Bentkowski, W., **White, M. C. A.**, Rosenberger, A., Rogers, G. C., Vernon, F. L., & Kao, H. (2011). WaveHRL: a high resolution, modular seismic event system and its application to the L'Aquila 2009 earthquake sequence. S32A-08 presented at 2011 Fall Meeting, AGU, San Francisco, CA, 5-9 December.