

# MALCOLM C. A. WHITE

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<https://malcolmw.github.io>

## EDUCATION

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<b>University of Southern California</b> Ph.D. in Geological Sciences Department of Earth Sciences	2016 - 2021
<b>Carleton University</b> B.Sc. in Computational Geophysics Department of Earth Sciences	2007 - 2013

## EMPLOYMENT

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<b>Massachusetts Institute of Technology</b> (Cambridge, MA, USA) Postdoctoral Associate	2021 - present
<b>Sattler College</b> (Boston, MA, USA) Adjunct Professor	2021
<b>University of Southern California</b> (Los Angeles, CA, USA) Graduate Research/Teaching Assistant	2016 - 2021
<b>Scripps Institution of Oceanography</b> (La Jolla, CA, USA) Seismic Analyst	2013 - 2016
<b>Pacific Geoscience Center</b> (Sidney, BC, Canada) Undergraduate Research Assistant	2011 - 2013
<b>Geological Survey of Canada</b> (Ottawa, ON, Canada) Undergraduate Research Assistant	2010 - 2011

## GRANTS AND AWARDS

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

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1. <b>Guest Lecture</b> , 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. <b>Invited</b> , Earthquake Science Center Seminar, United States Geological Survey	2020
7. <b>Invited</b> , 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. <b>Invited</b> , Friday Informal Seminar Hour, MIT EAPS	2019
13. <b>Invited</b> , Brown University, Geophysics Seminar	2018
14. Lithospheric Dynamics Seminar, University of Southern California	2018

## TEACHING

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### **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

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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

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

## PROFESSIONAL SOCIETY MEMBERSHIPS

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<b>American Geophysical Union</b>	2016 - present
<b>Seismological Society of America</b>	2016 - present

## PEER-REVIEWED PUBLICATIONS

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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. 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*
4. 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
5. 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
6. **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
7. **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
8. **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
9. 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
10. 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
11. 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
12. 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
13. 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

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## CONFERENCE PROCEEDINGS

1. **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.

2. 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
3. **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
4. **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.
5. **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.
6. **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
7. **White, M. C. A.**, Fang, H., Catchings, R. D., Goldman, M. R., Steidl, J. H., & Ben-Zion, Y. (2020). Detailed traveltimes 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.
8. 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.
9. 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.
10. **White, M. C. A.**, Fang, H., Catchings, R. D., Goldman, M. R., Steidl, J. H., & Ben-Zion, Y. (2020). Detailed traveltimes tomography and seismicity around the 2019 M7.1 Ridgecrest, CA, earthquake using dense rapid-response seismic data. Poster Presentation at 2020 SCEC Annual Meeting.
11. 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.
12. **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 Francisco, CA, 9-13 December.
13. 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.
14. **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
15. **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.

16. **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
17. **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.
18. **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.
19. **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.
20. **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
21. 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
22. 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.
23. 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.
24. 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.
25. 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.