

# TAN Yen Joe

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## RESEARCH AND ACADEMIC POSITIONS

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<b>The Chinese University of Hong Kong</b> , Hong Kong Assistant Professor, Earth and Environmental Sciences, Faculty of Science	07/2020 – present
<b>Lamont-Doherty Earth Observatory of Columbia University</b> , USA Adjunct Associate Research Scientist	07/2020 – present
<b>Stanford University</b> , USA Postdoctoral Scholar, Department of Geophysics	07/2019 – 07/2020
<b>Université Savoie Mont Blanc</b> , France Visiting Researcher, Institut des Sciences de la Terre	10/2018 – 05/2019

## EDUCATION

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<b>Columbia University</b> , USA M.A., M.Phil., Ph.D., Geophysics <i>Thesis title:</i> Earthquake and volcanic processes at mid-ocean ridges <i>Thesis advisors:</i> Maya Tolstoy & Felix Waldhauser	07/2014 – 05/2019
<b>Lafayette College</b> , USA B.S., Geology & A.B., Anthropology and Sociology <i>Summa Cum Laude</i>	09/2010 – 01/2014

## HONORS AND AWARDS

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Croucher Tak Wah Mak Innovation Award	2022
Most downloaded paper in 2021 for Seismological Society of America journals	2022
NSFC Excellent Young Scientists Fund 優秀青年科學基金 (港澳)	2021
AGU Outstanding Student Presentation Award (oral)	2018
New York Community Trust Edward Prince Goldman Scholarship in Science	2018
President Macron's "Make Our Planet Great Again" Fellowship	2018
Chateaubriand Fellowship	2018
Science-Corps Teaching Fellowship (declined)	2018
Los Alamos National Lab Applied Machine Learning Research Fellowship	2018
Columbia University Dean's Fellowship	2014
Phi Beta Kappa (Academic Honor Society)	2013
AGU Outstanding Student Presentation Award (poster)	2013
Lafayette College James L. Dyson Geology Award	2013
Woods Hole Oceanographic Institution Summer Student Fellowship	2013
Geological Society of America / ExxonMobil Field Camp Scholar Award	2012

## PUBLICATIONS

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(Annotations: equal contributions, #student, ^postdoc)

19. ^Zhang, Z., **Tan, Y.J.**, Walter, F., He, S., Chmiel, M., and Su, J., Landslide-dammed lakes in the Tibetan plateau triggered earthquakes and seismically silent outburst floods, submitted.

18. #Song, Z., **Tan, Y.J.**, and Roman, D.C., Deep long-period earthquakes at Akutan Volcano from 2005-2017 better track magma influxes than volcano-tectonic earthquakes, *Geophysical Research Letters*, 50, e2022GL101987.
17. Chiaraluce, L., Michele, M., Waldhauser, F., **Tan, Y.J.**, Hermann, M., et al., A comprehensive suite of earthquake catalogues for the 2016-2017 Central Italy seismic sequence, *Scientific Data*, 9, 710.
16. ^Zhu, G.H., Yang, H., **Tan, Y.J.**, Jin, M., Yang, J., and Yang W. (2022), The cascading foreshock sequence of the Ms 6.4 Yangbi Earthquake in Yunnan, China, *Earth and Planetary Science Letters*, 591, 117594.
15. #Barkat, A., Javed, F., **Tan, Y.J.**, Ali, A., Javed, M.T., Ahmad, N., Awais, M., Shah, M.A., and Iqbal, T. (2022), 2019 Mw 5.9 Mirpur, Pakistan earthquake: Insights from integrating geodetic, seismic, and field observations, *Seismological Research Letters*, 93(4), 2015-2026.
14. Zhou, P., Ellsworth, W.L., Yang, H., **Tan, Y.J.**, Beroza, G., and Chu, R. (2021), Machine learning facilitated earthquake detections near the Weiyuan shale gas reservoir, Sichuan, China, *Earth and Planetary Physics*, 5(6), 501-519.
13. **Tan, Y.J.**, Waldhauser, F., Ellsworth, W.L., Zhang, M., Zhu, M., Michele, M., Chiaraluce, L., Beroza, G., and Segou, M. (2021), Machine-learning-based high-resolution earthquake catalog reveals how complex fault structures were activated during the 2016-2017 central Italy sequence, *The Seismic Record*, 1(1), 11-19.
12. **Tan, Y.J.** and Marsan, D. (2020), Connecting a broad spectrum of transient slip on the San Andreas fault, *Science Advances*, 6, eabb2489.
11. Waldhauser, F., Wilcock, W.S.D., Tolstoy, M., Baillard, C., **Tan, Y.J.**, and Schaff, D.P. (2020), Precision seismic monitoring and analysis at Axial Seamount using a real-time double-difference system, *Journal of Geophysical Research: Solid Earth*, 125, e2019JB018796.
10. Marsan, D. and **Tan, Y.J.** (2020), Maximum earthquake size and seismicity rate from an ETAS model with slip budget, *Bulletin of the Seismological Society of America*, 110(2), 874-885.
9. Scholz, C.H., **Tan, Y.J.**, and Albino, F. (2019), The mechanism of tidal triggering of earthquakes at mid-ocean ridges, *Nature Communications*, 10(1), 2526.
8. Yuan, B., **Tan, Y.J.**, Mudunuru, M.K., Marcillo, O.E., Delorey, A.A., Roberts, P.M., Webster, J.D., Gammans, C.N.L., Karra, S., Guthrie, G.D., and Johnson, P.A. (2019), Using machine learning to discern eruption in noisy environments: A case study using CO<sub>2</sub>-driven cold-water geyser in Chimayó, New Mexico, *Seismological Research Letters*, 90(2A), 591-603.
7. **Tan, Y.J.**, Waldhauser, F., Tolstoy, M., and Wilcock, W.S.D. (2019), Axial Seamount: Periodic tidal loading reveals stress dependence of the earthquake size distribution (b value), *Earth and Planetary Science Letters*, 512, 39-45.
6. Tolstoy, M., Wilcock, W.S.D., **Tan, Y.J.**, and Waldhauser, F. (2018), A tale of two eruptions: How data from Axial Seamount led to a discovery on the East Pacific Rise, *Oceanography*, 31(1), 124-126.
5. Wilcock, W.S.D., Dziak, R.P., Tolstoy, M., Chadwick, W.W., Nooner, S.L., Bohnenstiehl, D.R., Caplan-Auerbach, J., Waldhauser, F., Arnulf, A., Baillard, C., Lau, K., Haxel, J.H., **Tan, Y.J.**,

Garcia, C., Levy, S., Mann, M.E. (2018), The recent volcanic history of Axial Seamount: Geophysical insights into past eruption dynamics with an eye toward enhanced observations of future eruptions, *Oceanography*, 31(1), 114-123.

4. **Tan, Y.J.**, Tolstoy, M., Waldhauser, F., and Bohnenstiehl, D.R. (2018), Tidal triggering of microearthquakes over an eruption cycle at 9°50'N East Pacific Rise, *Geophysical Research Letters*, 45, 1825-1831.
3. **Tan, Y.J.** and Maharjan, R. (2018), What googling trends tell us about public interest in earthquakes, *Seismological Research Letters*, 89(2A), 653-657.
2. Wilcock, W.S.D., Tolstoy, M., Walhauser, F., Garcia, C., **Tan, Y.J.**, Bohnenstiehl, D.R., Caplan-Auerbach, J., Dziak, R.P., Arnulf, A.F., and Mann, M.E. (2016), Seismic constraints on caldera dynamics from the 2015 Axial Seamount eruption, *Science*, 354(6318), 1395-1399.
1. **Tan, Y.J.**, Tolstoy, M., Waldhauser, F., and Wilcock, W.S.D. (2016), Dynamics of a seafloor spreading episode at the East Pacific Rise, *Nature*, 540, 261-265.

## RESEARCH GRANTS

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5. Tracking Deep Long-Period Volcanic Earthquakes (PI, Hong Kong Research Grants Council General Research Fund, HK\$783,000) 2023 – present
4. Probing Earthquake and Volcanic Processes on the Seafloor (PI, Croucher Tak Wah Mak Innovation Award, HK\$5,000,000) 2022 – present
3. Oceanic Transform Faults Behavior and Properties (PI, NSFC Excellent Young Scientists Fund 優秀青年科學基金, RMB\$2,000,000) 2022 – present
2. Earthquakes and Slow Slips on the Blanco Oceanic Transform Fault (PI, Hong Kong Research Grants Council Early Career Scheme Grant, HK\$721,000) 2022 – present
1. Collaborative Research: Caldera Dynamics and Eruption Cycles at Axial Seamount (Co-I, NSF Division of Ocean Sciences) 2020 – present

## INVITED TALKS

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Institute of Mountain Hazards and Environment, Chinese Academy of Sciences.	10/2022
University of Washington School of Oceanography	02/2022
The Australian National University Research School of Earth Sciences	10/2021
Institute of Geology and Geophysics, Chinese Academy of Sciences	09/2021
University of Cambridge	10/2020
Zhejiang University	07/2020
UC Berkeley Seismological Laboratory	04/2020
Stanford University	01/2020
Lamont-Doherty Earth Observatory of Columbia University	05/2019
EGU General Assembly	04/2019
Géoazur Laboratory	04/2019
Massachusetts Institute of Technology	03/2019
Institut de Physique du Globe de Paris	02/2019
Université Savoie Mont Blanc	11/2018
Université Grenoble Alpes/Institut des Sciences de la Terre	11/2018

Caltech Seismological Laboratory	10/2018
The Chinese University of Hong Kong	09/2018
South China Sea Institute of Oceanology	09/2018
Southern University of Science and Technology	09/2018
Lamont-Doherty Earth Observatory of Columbia University	01/2018
Cooperative Institute for Dynamic Earth Research (CIDER) Pre-AGU Workshop	12/2017
Lamont-Doherty Earth Observatory of Columbia University	02/2017

## STUDENTS/POSTDOCS SUPERVISED

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### CUHK Postgraduates

- Zilin SONG, Ph.D., 2020-present
- Adnan BARKAT, Ph.D., 2020-present
- Hui LIU, Ph.D., 2021-present
- Yiyuan ZHONG, Ph.D., 2022-present
- Peifeng WANG, Ph.D., 2022-present
- Joanne HO Chung Yang, M.Phil., 2022-present

### Postdocs

- Nicholas ADIMAH, 2022-present
- Zhen ZHANG, 2022-present
- Min LIU, 2023-present

### Visiting Students

- Zhangbao CHENG, MPhil from South China Sea Institute of Oceanology, 2021
- Zinan LYU, undergraduate from Sun Yat-sen University, 2021

## TEACHING EXPERIENCE

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### The Chinese University of Hong Kong

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| • Fundamental Geoscience Fieldwork (Taiwan)                                | 2023 – present |
| • Oceanography   | 2022 – present |
| • Volcanoes: Formation, Unrest, and Eruption                               | 2021 – present |
| • Hydrogeology   | 2020 – present |
| • Morningside College GEMC1001 (guest lecture about earthquakes)           | 2022 – present |
| • Introduction to Computational Earth System Science                       | 2022           |
| • Statistical Methods and Data Analysis for Earth and Atmospheric Sciences | 2021           |

### Columbia University

Teaching Assistant (delivered guest lecture, led discussion sections, held office hours, and graded problem sets, papers, and exams)

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|---|------------|
| • Solid Earth Dynamics                        | 2018       |
| • Earth Resources and Sustainable Development | 2015, 2017 |
| • Introduction to Seismology                  | 2016       |

### Lafayette College

Lab Teaching Assistant (set up and assisted students in hands-on lab exercises)

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| • Earth and Planetary Materials (Mineralogy) | 2013 |
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Peer Tutor (provided individual tutoring)

- Earth Surface Processes (Geomorphology) 2013
- Advanced Chinese 2013

## FIELD EXPERIENCE

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- Axial Seamount 2022
- 6-day RV *Marcus G. Langseth* cruise deploying 5 broadband and 10 short-period ocean bottom seismometers and a hydrophone mooring
- East Pacific Rise 2016
- 31-day OASIS experiment RV *Atlantis* cruise involving multibeam mapping, dredging, Sentry AUV operation, and rock sampling using HOV Alvin at the Siqueiros seamounts
- Okavango Delta, Botswana 2014
- 18-day PRIDE SeisORZ active-source seismic experiment to understand the initiation and evolution of the East African continental rift system
- Offshore Oregon, USA 2014
- 14-day Cascadia Initiative RV *Thompson* cruise recovering ocean bottom seismometers
- Wyoming, USA 2013
- 5-day field mapping at the Bighorn Basin for a Structural Geology class
- Alaska, USA 2012
- 14-day International Volcanology Field School at the Katmai National Park
- Langkawi, Malaysia 2011
- 10-day field survey as part of a marine mammals conservation effort

## UNIVERSITY, COLLEGE, AND DEPARTMENT SERVICES

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- Member, General Education Committee, Morningside College 2021 – present
- Member, Student Disciplinary Committee, Faculty of Science 2020 – present
- Member, Undergraduate Committee, Earth System Science Programme 2020 – present
- Coordinator, Library Committee, Earth System Science Programme 2020 – present

## PROFESSIONAL SERVICES

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Handling Editor for *Seismica* 2022 – present

IAVCEI Committee on Submarine Volcanism Early Career Representative 2022 – present

Reviewer for *Acta Oceanologica Sinica*, *Bulletin of the Seismological Society of America*, *Earth and Planetary Science Letters*, *Earth, Planets and Space*, *Earthquake Science*, *G-Cubed*, *Geomatics Natural Hazards and Risk*, *Geophysical Journal International*, *Geophysical Research Letters*, *Geoscience Frontiers*, *Journal of Geophysical Research: Solid Earth*, *Journal of Volcanology and Geothermal Research*, *Pure and Applied Geophysics*, *Science Advances*, *Scientific Reports*, *Seismological Research Letters*, *Seismica*, *Terra Nova*, *Waves in Random and Complex Media*, US National Science Foundation.

EGU General Assembly Outstanding Student Presentation judge 2023 – present

AGU Fall Meeting Outstanding Student Presentation Award judge	2019 – present
Session convener and chair for international meetings	
• AGU Fall Meeting: V020 Submarine Volcanism	2021
• AGU Fall Meeting: S42B Seismological contributions – Earthquakes I	2017

## **OUTREACH ACTIVITIES**

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CUHK Earth Month Turkey-Syria Earthquake Seminar speaker	2023
Mentoring	
• GradMAP Philippines Advisory Board member	2022 – present
• GradMAP Philippines STEM mentor	2020 – 2022
• Stanford Science Penpals for 6 – 12 <sup>th</sup> graders	2019 – 2020
• Columbia University Summer Internship for high-school students	2015, 2016
• Resident advisor (McKeen Hall, Lafayette College)	2013
Science exhibitions	
• Columbia University Girls Science Day (wave propagation)	2015, 2017
• Lamont-Doherty Earth Observatory Open House (seafloor mapping)	2016

## **OTHERS**

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Language: English (fluent), Mandarin (fluent), Cantonese (working proficiency), Malay (limited working proficiency)