

CURRICULUM VITAE

YAN ZHAN

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EDUCATION

- 2015-2020 Ph.D. **Geophysics**, University of Illinois at Urbana-Champaign, IL.
Advisor: Patricia Gregg
Title: Modeling volcanic unrest by data assimilation
- 2012-2015 M.S. **Structural Geology**, Peking University, Beijing, China.
Advisor: Guiting Hou
Title: Geodynamics of earthquake initiation in the eastern North China craton
- 2008-2012 B.S. **Geochemistry**, Peking University, Beijing, China.

HONORS & AWARDS

- 2019 R. James Kirkpatrick Award for Outstanding Graduate Research in Geology, funded by the College of Liberal Arts and Sciences, University of Illinois
- 2018-2019 NASA Earth and Space Science Fellowship (NESSF) Program
- 2016 Summer US Student NASA Funding for Goldschmidt 2016
- 2015-2016 Geology Department Ph.D. Fellowship, University of Illinois
- 2015 Outstanding Master Graduates of Peking University
- 2014 PetroChina Scholarship
- 2014 First prize of oral presentation in Geology Forum, School of Earth and Space Science
- 2014 First prize of oral presentation in Structural Geology Forum for graduates, School of Earth and Space Science
- 2013 Merit Students of Peking University
- 2013 First prize of oral presentation in Geology Forum, School of Earth and Space Science
- 2013 Second prize of oral presentation in Structural Geology Forum for graduates, School of Earth and Space Science
- 2012 Outstanding Graduates of Peking University
- 2012 Outstanding Graduates of Beijing

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FIELDWORK

2018	Field trip in Scotland, UK.
2017	Field trip in Arizona and California.
2016	Research Vessel Atlantis cruise (31-day). OASIS experiment involving multibeam mapping, dredging, Sentry AUV operation, and rock sampling using HOV Alvin at off- axis Siqueiros seamounts, East Pacific Rise.
2014	Active fault investigation in Hebei and Shandong, East China.
2013	Active fault investigation in Xinjiang, Northwest China.
2012	Excursion for Orogenic Geology in European Alps, France.
2011	Excursion for Integrative Geology in Shanxi and Hubei, China.
2010	Excursion for Regional Geology in Liaoning, Northeast China.

SERVICE

2019-2020	School of Earth, Society, & Environment Annual research review committee chair, University of Illinois
2018	Convener for the AGU 2018 Fall Meeting: (V23G) Combining Monitoring Data with Models to Investigate Volcanic Unrest
2016	The 50th Annual Meeting of GSA's North-Central Section Student Volunteer.
2012-2015	Administrator of the Tectonophysics Numerical Simulation Lab, Peking University.
2008-2009	Vice minister of academic department of Student Union, Peking University.

INVITED TALKS

2020	The Fourth International Young Scholars Geo-Symposium (Webinar), Peking University
2020	Invited talk in International Volcanic Seminar (Zoom): Modeling volcanic unrest by data assimilation (Record)
2018	Invited talk in Peking University: From weather forecast to volcanic eruption forecast
2016	Invited talk in Peking University: Using data assimilation to optimize volcano geodesy strategy.

TEACHING & MENTORING EXPERIENCE

2020	Mentor of Summer Undergraduate Research Opportunities Program (SUROP), University of Illinois.
2019	Tutorial on data assimilation, CIDER workshop, Berkeley, CA, USA
2019 Fall	Co-Lecture, GEOL593: Mid-Ocean ridge Tectonics, UIUC
2019 Spring	Guest Lecture, GEOL350: UIUC, Volcanos

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- 2018-2020 Co-advisor for Brooke Dykstra (UIUC, B.S. expected 2021). Project: Effect of a trans-lithospheric weak zone on the magnitude of Paleozoic flexural uplift: a case study of the Ozark dome. (2019 GSA poster)
- 2015-2017 Co-advisor for Sean Griffin (UIUC, B.S. May 2017; Currently Geologist at Citizen Energy, Denver, CO). Senior thesis: Investigating volcanic unrest and eruption potential at the Three Sisters Volcanoes in the Oregon Cascades

PUBLICATIONS

- Unpublished **Zhan, Y.**, Gregg, P.M., Lu, Z., and Power, P., Modeling magma system evolution during 2005-2007 volcanic unrest of Atka volcanic center, Alaska. In prepare.
- Gregg, P.M., **Zhan, Y.**, Amelung, F., Geist, D., Mothes, P., Koric, S., Yunjun, Z., Forecasting the June 26, 2018 Eruption of Sierra Negra Volcano, Galápagos – Ecuador. S. In prepare.
- Romano, V., Gregg, P.M., **Zhan, Y.**, Fornari, D.J., Perfit, M.R., Wanless, V.D., Battaglia, M., Tectonic impacts on mantle melting in the vicinity of oceanic transform faults: The formation of the 8°20' N Seamount Chain, East Pacific Rise. In prepare.
- Published **Zhan Y.**, Gregg P. M., Mével H. L., Miller C. A. and Cardona C. (2019) Integrating Reservoir Dynamics, Crustal Stress, and Geophysical Observations of the Laguna del Maule Magmatic System by FEM Models and Data Assimilation. *Journal of Geophysical Research: Solid Earth* 124, 13547–13562. ([LINK](#))
- Zhan Y.** and Gregg P. M. (2019) How Accurately Can We Model Magma Reservoir Failure With Uncertainties in Host Rock Rheology? *Journal of Geophysical Research: Solid Earth* 124, 8030–8042. ([LINK](#))
- Gregg P. M., Le Mével H., **Zhan Y.**, Dufek J., Geist D. and Chadwick Jr. W. W. (2018) Stress Triggering of the 2005 Eruption of Sierra Negra Volcano, Galápagos. *Geophysical Research Letters* 45, 13,288-13,297. ([LINK](#))
- Zhan, Y.**, Gregg, P.M., Chaussard, E., Aoki, Y., 2017. Sequential Assimilation of Volcanic Monitoring Data to Quantify Eruption Potential: Application to Kerinci Volcano, Sumatra. *Front. Earth Sci.* 5. ([LINK](#))
- Zhan Y.** and Gregg P. M. (2017) Data assimilation strategies for volcano geodesy. *Journal of Volcanology and Geothermal Research* 344, 13–25. ([LINK](#))
- Zhan Y.**, Hou G., Kusky T. and Gregg P. M. (2016) Stress development in heterogeneous lithosphere: Insights into earthquake processes in the New Madrid Seismic Zone. *Tectonophysics* 671, 56–62. ([LINK](#))
- Zhan Y.**, Hou G., Hari K. R. and Shu W. (2015) Geochemical and isotopic constraints on the evolution of Late Paleozoic dyke swarms in West Junggar, Xinjiang, China. *Journal of Asian Earth Sciences* 113, 126–136. ([LINK](#))
- Zhan Y.**, Hou G., Sun X., Ju W., Shen Y., Zhao W., Ren K. and Zhang P. (2014) Quantitative Prediction of Tectonic Fractures of Jurassic Sandstones in the

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Eastern Kuche Depression. Geological Journal of China Universities 20, 294–302. ([LINK](#))

SELECTED CONFERENCE ABSTRACTS (*undergraduate mentee)

- 2019
- Y. Zhan, P. M. Gregg, and Z. Lu, Modeling magma system evolution during 2005-2007 volcanic unrest of Atka volcanic center, Alaska, AGU Fall Meeting, 2019.
 - P. M. Gregg, Y. Zhan, F. Amelung, D. Geist, P. Mothes, S. Koric, Z. Yujun, Forecasting the June 26, 2018 eruption of Sierra Negra, Galapagos, AGU Fall Meeting, 2019.
 - P. M. Gregg, Y. Zhan, H. Le Mével, C. Miller, Linking thermomechanical models with geophysical observations to assess magma reservoir evolution at Laguna del Maule, Chile, AGU Fall Meeting, 2019.
 - E. Lev, C. Conroy, J. Birnbaum, Y. Zhan, Combining probabilistic methods and deterministic models to estimate uncertainties in lava flow parameters inferred from observations, AGU Fall Meeting, 2019.
 - J. Muller, S. Kemmerlin, J. Gonzalez-Santana, H. Shamloo, Y. J. Tan, Y. Zhan, C. Smith, P. M. Gregg, G. Abers, M. Myers, D. Roman, P. Wallace, B. Andrews, K. Cooper, T. Plank, G. Bergantz, Tectonic and compositional controls on magma storage depths: Results from CIDER 2019, AGU Fall Meeting, 2019.
 - *B. A. Dykstra, Y. Zhan, S. Marshak, P. M. Gregg, A. M. Anders, Effect of a trans-lithospheric weak zone on the magnitude of Paleozoic flexural uplift: A case study of the Ozark Dome, GSA Annual Meeting, 2019.
 - *B. Dykstra, Y. Zhan, S. Marshak, P. M. Gregg, A. Anders, Analyzing the Effects of Lithospheric Faults on Flexural Uplift Magnitude of the Ozark Plateau During the Paleozoic, SESE Research Review, 2019.
 - P. M. Gregg, Y. Zhan, H. Le Mével, J. A. Albright, H. E. Cabaniss, Linking thermomechanical models with geodetic observations to assess magma reservoir evolution and stability, IUGG General Assembly, 2019.
 - P. M. Gregg, Y. Zhan, F. Amelung, D. Geist, P. Mothes, S. Koric, Z. Yujun, Forecasting the June 26, 2018 eruption of Sierra Negra, Galapagos, IUGG General Assembly, 2019.
- 2018
- Y. Zhan, P.M. Gregg, H Le Mével. Investigating the stability of the Laguna del Maule magmatic system by modeling the stress state using data assimilation. AGU Fall Meeting Abstracts, 2018.
 - Y. Zhan, P.M. Gregg, F. Amelung, D. Geist, P.A. Mothes. Model forecasts of the 26 June 2018 Eruption of Sierra Negra Volcano, Galápagos. AGU Fall Meeting Abstracts, 2018.
 - P. M. Gregg, Y. Zhan, F. Amelung, D. Geist, P. Mothes, Model forecasts of the 26 June 2018 Eruption of Sierra Negra Volcano, Galápagos, AGU Fall Meeting, 2018.

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- P. M. Gregg, Y. Zhan, J. A. Albright, Z. Lu, J. Freymueller, F. Amelung, Imaging volcano deformation sources through geodetic data assimilation, UNAVCO Science Workshop, 2018.
- P. M. Gregg, H. Le Mével, Y. Zhan, J. A. Albright, H. E. Cabaniss, Linking thermomechanical models with geodetic observations to assess magma reservoir evolution and stability, AGU Chapman Conference on Merging Geophysical, Petrochronologic, and Modeling Perspectives of Large Silicic Magma Systems, January 2018.
- 2017 Y. Zhan, P. M. Gregg, E. Chaussard, Y. Aoki. Investigation of volcanic unrest in Indonesia using statistical data assimilation with a two-source magma chamber model, IAVCEI, 2017.
- P.M. Gregg, D. J. Fornari, M. R. Perfit, V. Romano, D. Wanless, D. Geist, S. Shirey, W. Ridley, M. Smith, C. Lundstrom, Y. Zhan, E. McCully, C. Trim, H. Cabaniss, J. Albright, B. Boulahanis, Y. Tan, Emplacement of the 8° 20'N Seamount Chain: Preliminary results from the 2016 OASIS Expedition, IAVCEI Scientific Assembly, Portland, OR, 2017.
- *S. Griffin, P. M. Gregg, Y. Zhan, Investigating volcanic unrest and eruption potential at the Three Sisters Volcanoes in the Oregon Cascades, UIUC Undergraduate Research Symposium, 2017.
- *S. Griffin, P. M. Gregg, Y. Zhan, Investigating volcanic unrest and eruption potential at the Three Sisters Volcanoes in the Oregon Cascades, SESE Research Review, 2017.
- 2016 Y. Zhan and P. M. Gregg, Data assimilation strategies for volcano geodesy, Goldschmidt, 2016.
- Y. Zhan, P. M. Gregg, G. Hou, T. Kusky, Stress development in heterogenetic lithosphere: Insights into earthquake processes in the New Madrid Seismic Zone, GSA local conference, 2016.
- *S. Griffin, P. M. Gregg, Y. Zhan, T. Monical, Investigating volcanic unrest and eruption potential at the Three Sisters Volcanoes in the Oregon Cascades, UIUC Undergraduate Research Symposium, 2016.
- 2015 Y. Zhan, P. M. Gregg, G. Hou, T. Kusky, Stress development in heterogenetic lithosphere: Insights into earthquake processes in the New Madrid Seismic Zone, AGU Fall Meet. Suppl., 2015.
- J. C. Pettijohn, P. M. Gregg, and Y. Zhan, Sequential data assimilation strategies for utilizing ground deformation data to assess rapidly evolving magma reservoirs, AGU Fall Meet. Suppl., 2015.

GRANTS & FUNDING

- 2018/9-2020/8 NASA - Earth and Space Science Fellowship | **PI Y. Zhan**
Forecasting volcanic unrest of Atka volcanic center, Alaska, using the Ensemble Kalman Filter (\$90,000)
- 2015-2016 UIUC Dept. of Geology Ph.D. Fellowship (\$48,876).

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2016

NASA Funding for Goldschmidt (\$650)