## SHORT BIO

My research interests are (1) geochemical compositions of zircons from Earth, Moon, and Mars; (2) predicting internal structures of exoplanets with machine learning methods; (3) characterization of exoplanets atmospheres using spectroscopy.

Machine learning becomes unstoppable in various fields and has inherent advantages for processing huge data, which will greatly promote the development of planetary science in the future.
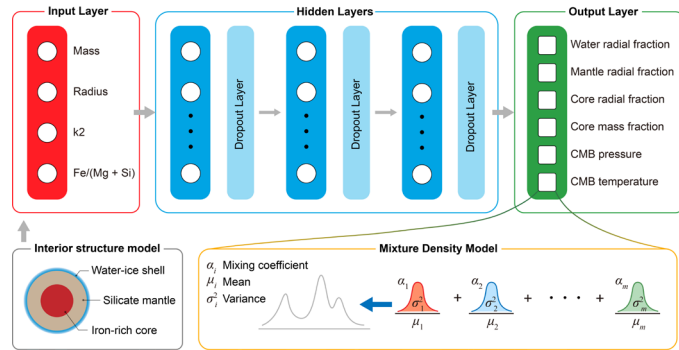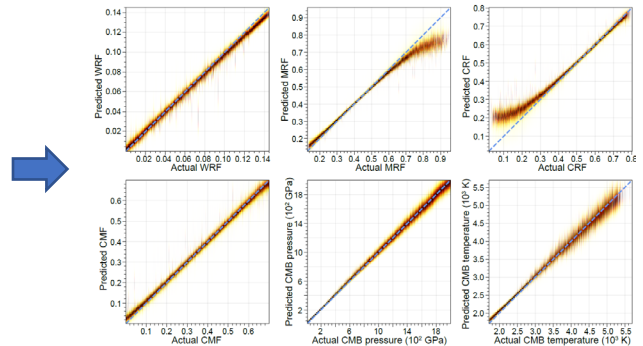
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PhD: GEOCHEMISTRY – Institute of Geology and Geophysics Chinese Academy of Sciences

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PUBLICATIONS

1. Zhao, Y., Ni, D., & Liu, Z. (2023). Machine learning inferences of the interior structure of rocky exoplanets from bulk observational constraints. The Astrophysical Journal Supplement Series, Accepted.

2. Zhao, Y., Zhang, Y., & Ni, D. (2023). Dynamic evolution of changbaishan volcanism in Northeast China illuminated by machine learning. Frontiers in Earth Science, 10. https://doi.org/10.3389/feart.2022.1084213

3. Zhao, Y., & Ni, D. (2022). Understanding the interior structure of gaseous giant exoplanets with machine learning techniques. Astronomy & Astrophysics, 658, A201. https://doi.org/10.1051/0004-6361/202142874

4. Zhao, Y., & Ni, D. (2021). Machine learning techniques in studies of the interior structure of rocky exoplanets. Astronomy & Astrophysics, 650, A177. https://doi.org/10.1051/0004-6361/202140375

5. Zhao, Y., Zhang, Y., Geng, M., Jiang, J., & Zou, X. (2019). Involvement of Slab-Derived Fluid in the Generation of Cenozoic Basalts in Northeast China Inferred from Machine Learning. Geophysical Research Letters, 46(10), 5234–5242. https://doi.org/10.1029/2019gl082322

6. Li, C., Shen, P., **Zhao, Y.**, Li, P., Zhang, L., & Pan, H. (2022). Mineral chemistry of chlorite in different geologic environments and its implications for porphyry Cu ± Au ± Mo deposits. Ore Geology Reviews, 149, 105112. https://doi.org/10.1016/j.oregeorev.2022.105112

7. Liu, W., Zhang, Y., Yin, Q.-Z., **Zhao, Y.**, & Zhang, Z. (2020). Magnesium partitioning between silicate melt and liquid iron using first-principles molecular dynamics: Implications for the early thermal history of the Earth's core. Earth and Planetary Science Letters, 531, 115934. https://doi.org/10.1016/j.epsl.2019.115934

8. Liu, X. L., Zhang, Q., Li, W. C., Yang, F. C., **Zhao, Y.**, Li, Z., et al. (2018). Applicability of large-ion lithophile and high field strength element basalt discrimination diagrams. International Journal of Digital Earth, 11(7), 752–760. https://doi.org/10.1080/17538947.2017.1365959

9. Zhang, Q., Sun, W., **Zhao, Y.**, Yuan, F., Jiao, S., & Chen, W. (2019). New discrimination diagrams for basalts based on big data research. Big Earth Data, 3(1), 45–55. https://doi.org/10.1080/20964471.2019.1576262

PROFESSIONAL EXPERIENCE

2020 - 2022 *Macau University of Science and Technology – Postdoc*
2022 - present *Macau University of Science and Technology – Assistant Professor*

PRESENTATIONS

Annual Meeting of Chinese Geoscience Union (CGU), Beijing, 2016
16th International Workshop on the Frontiers of Computational Geodynamics, Beijing, 2019
National Planetary Science Conference, Suzhou, 2021

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