

# Zhu Deng (鄧鑄), Dr.

Research interests: Climate Change; Greenhouse Gas Budget; AI and Spatial Big Data

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## WORKING EXPERIENCE

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**Post-doctoral Research Fellow** 2024-present

*Department of Geography, The University of Hong Kong, Hong Kong SAR, China*

Supervised by Prof. Peng Gong

Supported by the RGC Postdoctoral Fellowship Scheme (HKD1,260,000)

**Senior Algorithm Engineer & Research Assistant** 2022-2024

*Alibaba Innovative Research, Alibaba Cloud, Hangzhou, China*

## EDUCATIONS

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**Ph.D., Ecology** 2016-2022

*Department of Earth System Science, Tsinghua University, Beijing, China*

Dissertation: Research on Near-real-time Accounting for Anthropogenic CO<sub>2</sub> Emissions

Supervised by Prof. Zhu Liu & Prof. Philippe Ciais

**B.S., Geographic Information System & Remote Sensing** 2012-2016

*School of Geography and Planning, Sun Yat-sen University, Guangzhou, China*

## PUBLICATIONS

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Legend: ESI Hot Paper ESI Highly Cited Paper <sup>†</sup> Co-First Author <sup>\*</sup>Corresponding Author

I have published 44 SCI papers, with an h-index of 30 and a total of >6,500 citations.

### Selected publications:

1. **Z Deng**, B Zhu, P Ciais, S Davis, D Guan, P Gong, and Z Liu. Global carbon emissions and decarbonization in 2024. *Nature Reviews Earth & Environment*. 2025. [Citations: 65]
2. **Z Deng**, P Ciais, L Hu, A Martinez, M Saunois, R L. Thompson, K Tibrewal, W Peters, B Byrne, G Grassi, P I. Palmer, I T. Luijkx, Z Liu, J Liu, X Fang, T Wang, H Tian, K Tanaka, A Bastos, S Sitch, B Poulter, C Albergel, A Tsuruta, S Maksyutov, R Janardanan, Y Niwa, B Zheng, J Thanwerdas, D Belikov, A Segers, and F Chevallier. Global greenhouse gas reconciliation 2022. *Earth System Science Data*. 2025. [Citations: 11]
3. Y Zou, M Shi, Z Chen, **Z Deng\***, X Lei, Z Zeng, S Yang, H Tong, L Xiao, W Zhou. ESGReveal: An LLM-based approach for extracting structured data from ESG reports. *Journal of Cleaner Production*. 2025. [Citations: 50]

4. B Zhu<sup>†</sup>, **Z Deng**<sup>†</sup>, X Song<sup>†</sup>, W Zhao, D Huo, T Sun, P Ke, D Cui, C Lu, H Zhong, C Hong, J Qiu, SJ Davis, P Gentine, P Ciais, Z Liu. CarbonMonitor-Power near-real-time monitoring of global power generation on hourly to daily scales. *Scientific Data*. 2023. [Citations: 9]
5. **Z Deng**<sup>†</sup>, P Ciais<sup>†</sup>, ZA Tzompa-Sosa, M Saunois, C Qiu, C Tan, T Sun, P Ke, Y Cui, K Tanaka, X Lin, RL Thompson, H Tian, Y Yao, Y Huang, R Lauerwald, AK Jain, X Xu, A Bastos, S Sitch, PI Palmer, T Lauvaux, A d'Aspremont, C Giron, A Benoit, B Poulter, J Chang, R Petrescu, SJ Davis, Z Liu, G Grassi, C Albergel, and F Chevallier. Comparing national greenhouse gas budgets reported in UNFCCC inventories against atmospheric inversions. *Earth System Science Data*. 2022.  [Citations: 159]
6. Z Liu<sup>†</sup>, **Z Deng**<sup>†</sup> (Co-first author, advisor listed as first), P Ciais, J Tan, B Zhu, SJ Davis, RM Andrew, O Boucher, SB Arou, JG Canadell, X Dou, P Friedlingstein, R Guo, C Hong, RBJackson, D Kammen, P Ke, C Le Quéré, C Monica, G Janssens-Maenhout, GP Peters, K Tanaka, Y Wang, B Zheng, H Zhong, T Sun, H Schellnhuber, P Gentine. Global patterns of daily CO<sub>2</sub> emissions reductions in the first year of COVID-19. *Nature Geoscience*. 2022. [Citations: 128]
7. Z Liu<sup>†</sup>, P Ciais<sup>†</sup>, **Z Deng**<sup>†</sup> (Co-first author, advisor listed as first), R Lei, SJ Davis, S Feng, B Zheng, D Cui, X Dou, P He, B Zhu, C Lu, P Ke, T Sun, Y Wang, X Yue, Y Wang, Y Lei, H Zhou, Z Cai, Y Wu, R Guo, T Han, J Xue, O Boucher, F Chevallier, E Boucher, Y Wei, Q Zhang, D Guan, P Gong, DM Kammen, K He, and HJ Schellnhuber. Near-real-time monitoring of global CO<sub>2</sub> emissions reveals the effects of the COVID-19 pandemic. *Nature Communications*. 2020.  [Citations: 1249]
8. Z Liu<sup>†</sup>, P Ciais<sup>†</sup>, **Z Deng**<sup>†</sup> (Co-first author, advisor listed as first), SJ Davis, B Zheng, Y Wang, Y Lei, D Cui, B Zhu, X Dou, P Ke, T Sun, R Guo, C Lu, R Guo, O Boucher, F-M Bréon, E Boucher, and F Chevallier. Carbon Monitor: a near-real-time daily dataset of global CO<sub>2</sub> emission from fossil fuel and cement production. *Scientific Data*. 2020.  [Citations: 280]
9. Z Liu, Z Deng, G He, H Wang, X Zhang, J Lin, Y Qi, X Liang. Challenges and opportunities for carbon neutrality in China. *Nature Reviews Earth & Environment*. 2021.  [Citations: 1456]

## PROFESSIONAL ACTIVITIES

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COP 30 – Global daily CO <sub>2</sub> emission report 2025	Belém, Brazil, 2025
IPCC Expert Meeting on Reconciling Land Use Change Emissions	Ispra, Italy, 2024
Global Youth Summit on Net-Zero Future	Beijing, China, 2021
2021 Sino-American Youth Dialogue	Beijing, China, 2021

## SELECTED HONORS & AWARDS

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The RGC Postdoctoral Fellowship Scheme (PDFS), University Grants Committee	2024
Jiang Nanxiang (Presidential) Scholarship, Tsinghua University	2021