

## 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** 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 † Co-First Author \*Corresponding Author

I have published 41 SCI papers, with an h-index of 27 and a total of >5,000 citations.

### Selected publications:

1. **Z Deng**<sup>†</sup>, 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.
2. **Z Deng**<sup>†</sup>, P Ciais<sup>†</sup>, L Hu, A Martinez, M Saunio, R L. Thompson, K Tibrewal, W Peters, B Byrne, G Grassi, P I. Palmer, I T. Lujikx, 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.
3. Y Zou, M Shi, Z Chen, **Z Deng**<sup>\*</sup>, 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.

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: 4]
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: 110]
6. Z Liut<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: 77]
7. Z Liut<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: 1059]
8. Z Liut<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: 195]

## PROFESSIONAL ACTIVITIES

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IPCC Expert Meeting on Reconciling Land Use Change Emissions	<i>Ispira, Italy, 2024</i>
Global Youth Summit on Net-Zero Future	<i>Beijing, China, 2021</i>
2021 Sino-American Youth Dialogue	<i>Beijing, China, 2021</i>
ESA-CCI RECCAP2 progress meeting	<i>Virtual meeting, 2021</i>

## SELECTED HONORS & AWARDS

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