

# Zhongwang Wei, Ph.D.

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updated: 2024/08/31



I am primarily engaged in research related to terrestrial water cycling and associated ecological and atmospheric circulation coupling. My work mainly involves observing and simulating the exchange of water vapor between water bodies and the atmosphere, as well as researching stable water vapor isotopes through observation, simulation, and application. At present, my main focus is on the development of the land surface process model CoLM. I teach or participate in undergraduate courses such as Introduction to Earth System Science, Fundamentals of Hydrology, Earth Water Cycle, as well as graduate courses on Scientific computing, data visualization, basic principles, and Applications of land surface hydrological models.

## Research Experience

2019.9 – now	<b>Associate Professor.</b> School of Atmospheric Sciences, Sun Yat-Sen University, China
2019.8 – now	<b>Cooperative Research Fellow.</b> Institute of Industrial Science, University of Tokyo
2019.6 – 2019.12	<b>Scientific Assistance.</b> Soil and Terrestrial Environmental Physics Group, Institute of Biogeochemistry and Pollutant Dynamics, ETH Zurich
2018.4 – 2019.6	<b>Project Researcher.</b> River and Environmental Engineering Laboratory, Department of Civil Engineering, The University of Tokyo
2016.4 – 2018.3	<b>Postdoc Researcher.</b> Yale School of Forestry & Environmental Studies, Yale University
2013.4 – 2016.3	<b>Research assistant.</b> Atmosphere and Ocean Research Institute, The University of Tokyo
2011.4 – 2013.3	<b>Research assistant.</b> Graduate School of Life and Environmental Sciences, University of Tsukuba

## Education

2013.4 – 2016.3	<b>Ph.D. The University of Tokyo, Japan</b> in Natural Environmental Studies. Thesis title: <i>Study on Atmospheric and Terrestrial Water Circulation Processes Using Stable Water Isotopes.</i>
2011.4 – 2013.3	<b>M.Sc. University of Tsukuba, Japan</b> in Geosciences. Thesis title: <i>Estimation of Surface Fluxes Using Bulk Transfer Methods over Lake Surface: An Example of Lake Kasumigaura.</i>

## Research Publications

### Journal Articles

- 1 Bong, H., Cauquoin, A., Okazaki, A., Chang, E.-C., Werner, M., **Wei, Z.**, ... Yoshimura, K. (2024). Process-based intercomparison of water isotope-enabled models and reanalysis nudging effects. *Journal of Geophysical Research: Atmospheres*, 129(1), e2023JD038719.
- 2 Cui, J., Ding, J., Lian, X., **Wei, Z.**, Li, S., Peng, J., ... Piao, S. (2024). Observational constraints and attribution of global plant transpiration changes over the past four decades. *Geophysical Research Letters*, 51(11), e2024GL108302.
- 3 Fan, H., Xu, Q., Bai, F., **Wei, Z.**, Zhang, Y., Lu, X., ... Dai, Y. (2024). An unstructured mesh generation tool for efficient high-resolution representation of spatial heterogeneity in land surface models. *Geophysical Research Letters*, 51(6), e2023GL107059. **Corresponding author.**

- 4 Jiang, S. & **Wei, Z.** (2024). Urbanization exacerbated the rapid growth of summer cooling demands in china from 1980 to 2023. *Sustainable Cities and Society*, 106, 105382.
- 5 Li, L., Dai, Y., **Wei, Z.**, Shangguan, W., Wei, N., Zhang, Y., ... Li, X.-X. (2024). Enhancing deep learning soil moisture forecasting models by integrating physics-based models. *Advances in Atmospheric Sciences*, 1–16.
- 6 Li, L., Dai, Y., **Wei, Z.**, Shangguan, W., Zhang, Y., Wei, N. & Li, Q. (2024). Enforcing water balance in multitask deep learning models for hydrological forecasting. *Journal of Hydrometeorology*, 25(1), 89–103.
- 7 Li, Q., Xiao, Q., Zhang, C., Zhu, J., Chen, X., Yan, Y., ..., Li, L. et al. (2024). Improving global soil moisture prediction through cluster-averaged sampling strategy. *Geoderma*, 449, 116999.
- 8 Li, Q., Zhang, C., Shangguan, W., **Wei, Z.**, Yuan, H., Zhu, J., ..., Liu, P. et al. (2024). Landbench 1.0: A benchmark dataset and evaluation metrics for data-driven land surface variables prediction. *Expert Systems with Applications*, 243, 122917.
- 9 Wang, S., Qian, Y., Yoshimura, K., Bong, H., Risi, C., **Wei, Z.**, ..., Xing, M. et al. (2024). Skill of isotope-enabled climate models for daily surface water vapour in east asia. *Global and Planetary Change*, 239, 104502.
- 10 Xu, Q., Liang, H., **Wei, Z.**, Zhang, Y., Lu, X., Li, F., ... Dai, Y. (2024). Assessing climate change impacts on crop yields and exploring adaptation strategies in northeast china. *Earth's Future*. **Corresponding author.**
- 11 Yuan, Y., Wang, L., **Wei, Z.**, Ajami, H., Wang, H. & Du, T. (2024). Using median point in keeling plot to reduce the uncertainty of the isotopic composition of evapotranspiration. *Journal of Hydrometeorology*, 25(4), 637–649.
- 12 Cui, J., He, M., Lian, X., **Wei, Z.** & Wang, T. (2023). Spatial pattern of plant transpiration over china constrained by observations. *Geophysical Research Letters*, 50(20), e2023GL105489.
- 13 Li, J., Zhang, S., Obulkasim, O., Lu, X., **Wei, Z.**, Yuan, H., ... Dai, Y. (2023). Impact of reservoirs on local precipitation-temperature coupling relationships. *Geophysical Research Letters*, 50(14), e2023GL103453.
- 14 Liao, J., Hang, J., Luo, Q., Luo, H., Ma, T., **Wei, Z.** & Yuan, H. (2023). Seasonal variability of forest cooling and warming effects and response to drought in mid-to-high latitudes of the northern hemisphere. *Forest Ecology and Management*, 546, 121324.
- 15 Lin, W., Yuan, H., Dong, W., Zhang, S., Liu, S., Wei, N., ... Dai, Y. (2023). Reprocessed modis version 6.1 leaf area index dataset and its evaluation for land surface and climate modeling. *Remote Sensing*, 15(7), 1780.
- 16 Liu, S., Zeng, X., Dai, Y., Yuan, H., Wei, N., **Wei, Z.**, ... Li, X.-X. (2023). Scale-dependent estimability of turbulent flux in the unstable surface layer for land surface modeling. *Journal of Advances in Modeling Earth Systems*, 15(8), e2022MS003567.
- 17 Wang, D., Tian, L., Risi, C., Wang, X., Cui, J., Bowen, G. J., ... Li, L. Z. (2023). Vehicle-based in situ observations of the water vapor isotopic composition across china: Spatial and seasonal distributions and controls. *Atmospheric Chemistry and Physics*, 23(6), 3409–3433.
- 18 Dong, Z., Hu, H., **Wei, Z.**, Liu, Y., Xu, H., Yan, H., ... Khan, M. Y. A. (2022). Estimating the actual evapotranspiration of different vegetation types based on root distribution functions. *Frontiers in Earth Science*, 10, 893388.
- 19 Huang, L., Zhang, S., Niu, G.-Y., Wei, N., Yuan, H., **Wei, Z.**, ... Dai, Y. (2022). A catchment-based hierarchical spatial tessellation approach to a better representation of land heterogeneity for hyper-resolution land surface modeling. *Water Resources Research*, 58(5), e2021WR031589.
- 20 Li, L., Dai, Y., Shangguan, W., Wei, N., **Wei, Z.** & Gupta, S. (2022). Multistep forecasting of soil moisture using spatiotemporal deep encoder–decoder networks. *Journal of Hydrometeorology*, 23(3), 337–350.

- 21 Li, L., Dai, Y., Shangguan, W., **Wei, Z.**, Wei, N. & Li, Q. (2022). Causality-structured deep learning for soil moisture predictions. *Journal of Hydrometeorology*, 23(8), 1315–1331.
- 22 Liu, R., Liu, S., Huang, H., Dai, Y., Zeng, X., Yuan, H., ..., Zhang, S. et al. (2022). The effect of surface heating heterogeneity on boundary layer height and its dependence on background wind speed. *Journal of Geophysical Research: Atmospheres*, 127(19), e2022JD037168.
- 23 Liu, S., Zeng, X., Dai, Y., Yuan, H., Wei, N., **Wei, Z.**, ... Zhang, S. (2022). A surface flux estimation scheme accounting for large-eddy effects for land surface modeling. *Geophysical Research Letters*, 49(23), e2022GL101754.
- 24 Liu, X., Lu, X., Zhang, S., **Wei, Z.**, Wei, N., Zhang, S., ..., Huang, J. et al. (2022). Plant drought tolerance trait is the key parameter in improving the modeling of terrestrial transpiration in arid and semi-arid regions. *Atmospheric and Oceanic Science Letters*, 15(1), 100139.
- 25 Liu, Y., Zhang, Y., Shan, N., Zhang, Z. & **Wei, Z.** (2022). Global assessment of partitioning transpiration from evapotranspiration based on satellite solar-induced chlorophyll fluorescence data. *Journal of Hydrology*, 612, 128044.
- 26 Liu, Z., Risi, C., Codron, F., Jian, Z., **Wei, Z.**, He, X., ..., Ma, W. et al. (2022). Atmospheric forcing dominates winter barents-kara sea ice variability on interannual to decadal time scales. *Proceedings of the National Academy of Sciences*, 119(36), e2120770119.
- 27 Moiz, A., **Wei, Z.**, Naseer, A., Kawasaki, A., Acierto, R. A. & Koike, T. (2022). Improving snow-process modeling by evaluating reanalysis vertical temperature profiles using a distributed hydrological model. *Journal of Geophysical Research: Atmospheres*, 127(18), e2021JD036174.
- 28 Nan, Y., He, Z., Tian, F., **Wei, Z.** & Tian, L. (2022). Assessing the influence of water sampling strategy on the performance of tracer-aided hydrological modeling in a mountainous basin on the tibetan plateau. *Hydrology and Earth System Sciences*, 26(15), 4147–4167.
- 29 Wu, H., Fu, C., Zhang, C., Zhang, J., **Wei, Z.** & Zhang, X. (2022). Temporal variations of stable isotopes in precipitation from yungui plateau: Insights from moisture source and rainout effect. *Journal of Hydrometeorology*, 23(1), 39–51.
- 30 Xu, N., Ma, Y., **Wei, Z.**, Huang, C., Li, G., Zheng, H. & Wang, X. H. (2022). Satellite observed recent rising water levels of global lakes and reservoirs. *Environmental Research Letters*, 17(7), 074013.
- 31 Yan, H., Hu, H., Liu, Y., Tudaji, M., Yang, T., **Wei, Z.**, ... Chen, Z. (2022). Characterizing the groundwater storage–discharge relationship of small catchments in china. *Hydrology Research*, 53(5), 782–794.
- 32 Zeng, J., Li, J., Lu, X., **Wei, Z.**, Shangguan, W., Zhang, S., ... Zhang, S. (2022). Assessment of global meteorological, hydrological and agricultural drought under future warming based on cmip6. *Atmospheric and Oceanic Science Letters*, 15(1), 100143.
- 33 Zhang, S., Zhou, L., Zhang, L., Yang, Y., **Wei, Z.**, Zhou, S., ..., Zhang, Y. et al. (2022). Reconciling disagreement on global river flood changes in a warming climate. *Nature Climate Change*, 12(12), 1160–1167.
- 34 Bonetti, S., **Wei, Z.** & Or, D. (2021). A framework for quantifying hydrologic effects of soil structure across scales. *Communications Earth & Environment*, 2(1), 107.
- 35 He, X., Bryant, B. P., Moran, T., Mach, K. J., **Wei, Z.** & Freyberg, D. L. (2021). Climate-informed hydrologic modeling and policy typology to guide managed aquifer recharge. *Science Advances*, 7(17), eabe6025.
- 36 Hu, Y., Xiao, W., **Wei, Z.**, Welp, L. R., Wen, X. & Lee, X. (2021). Determining the isotopic composition of surface water vapor flux from high-frequency observations using flux-gradient and keeling plot methods. *Earth and Space Science*, 8(3), e2020EA001304.

- 37 Jiang, S., Du, J. & **Wei, Z.** (2021). Impacts of continuously increasing urbanization ratios on warming rates and temperature extremes observed over the Beijing area. *Journal of Geophysical Research: Atmospheres*, 126(11), e2021JD034536.
- 38 Li, H., Lu, X., **Wei, Z.**, Zhu, S., Wei, N., Zhang, S., ..., Zhang, S. et al. (2021). New representation of plant hydraulics improves the estimates of transpiration in land surface model. *Forests*, 12(6), 722.
- 39 Lin, Y., Wang, D., Wang, G., Qiu, J., Long, K., Du, Y., ... Dai, Y. (2021). A hybrid deep learning algorithm and its application to streamflow prediction. *Journal of Hydrology*, 601, 126636.
- 40 Liu, Z., Risi, C., Codron, F., He, X., Poulsen, C. J., **Wei, Z.**, ... Bowen, G. J. (2021). Acceleration of western arctic sea ice loss linked to the Pacific North American pattern. *Nature communications*, 12(1), 1519.
- 41 Nan, Y., He, Z., Tian, F., **Wei, Z.** & Tian, L. (2021). Can we use precipitation isotope outputs of isotopic general circulation models to improve hydrological modeling in large mountainous catchments on the Tibetan plateau? *Hydrology and Earth System Sciences*, 25(12), 6151–6172.
- 42 Peng, L., **Wei, Z.**, Zeng, Z., Lin, P., Wood, E. F. & Sheffield, J. (2021). Reducing solar radiation forcing uncertainty and its impact on surface energy and water fluxes. *Journal of Hydrometeorology*, 22(4), 813–829.
- 43 Zeng, Z., Wang, D., Yang, L., Wu, J., Ziegler, A. D., Liu, M., ..., Chen, D. et al. (2021). Deforestation-induced warming over tropical mountain regions regulated by elevation. *Nature Geoscience*, 14(1), 23–29.
- 44 Cui, J., Tian, L., **Wei, Z.**, Huntingford, C., Wang, P., Cai, Z., ... Wang, L. (2020). Quantifying the controls on evapotranspiration partitioning in the highest alpine meadow ecosystem. *Water Resources Research*, 56(4), e2019WR024815.
- 45 He, X., Pan, M., **Wei, Z.**, Wood, E. F. & Sheffield, J. (2020). A global drought and flood catalogue from 1950 to 2016. *Bulletin of the American Meteorological Society*, 101(5), E508–E535.
- 46 Lehmann, P., Bickel, S., **Wei, Z.** & Or, D. (2020). Physical constraints for improved soil hydraulic parameter estimation by pedotransfer functions. *Water Resources Research*, 56(4), e2019WR025963.
- 47 Ma, W., **Wei, Z.**, Wang, P. & Asanuma, J. (2020). Transpiration and evaporation of grassland using land surface modelling. *Hydrological Processes*, 34(17), 3656–3668.
- 48 Wang, L., Tian, F., Han, S. & **Wei, Z.** (2020). Determinants of the asymmetric parameter in the generalized complementary principle of evaporation. *Water Resources Research*, 56(9), e2019WR026570.
- 49 Wang, L., Tian, F., Wang, X., Yang, Y. & **Wei, Z.** (2020). Attribution of the land surface temperature response to land-use conversions from bare land. *Global and Planetary Change*, 193, 103268.
- 50 **Wei, Z.**, He, X., Zhang, Y., Pan, M., Sheffield, J., Peng, L., ... Ikeuchi, K. (2020). Identification of uncertainty sources in quasi-global discharge and inundation simulations using satellite-based precipitation products. *Journal of Hydrology*, 589, 125180. **Corresponding author.**
- 51 Yang, X., Zhang, M., He, X., Ren, L., Pan, M., Yu, X., ... Sheffield, J. (2020). Contrasting influences of human activities on hydrological drought regimes over China based on high-resolution simulations. *Water Resources Research*, 56(6), e2019WR025843.
- 52 Zhang, Y., Schaap, M. G. & **Wei, Z.** (2020). Development of hierarchical ensemble model and estimates of soil water retention with global coverage. *Geophysical Research Letters*, 47(15), e2020GL088819.
- 53 Liang, J., **Wei, Z.**, Lee, X., Wright, J. S., Cui, X., Chen, H. & Lin, G. (2019). Evapotranspiration characteristics distinct to mangrove ecosystems are revealed by multiple-site observations and a modified two-source model. *Water Resources Research*, 55(12), 11250–11273.
- 54 Peng, L., Zeng, Z., **Wei, Z.**, Chen, A., Wood, E. F. & Sheffield, J. (2019). Determinants for the ratio of actual to potential evapotranspiration. *Global Change Biology*. doi:10.1111/gcb.14577

- 55 Wang, P., Li, X.-Y., Xia, H., **Wei, Z.**, Wu, X., Tian, F., ... Deng, Y. (2019). Dynamical effects of plastic mulch on evapotranspiration partitioning in a mulched agriculture ecosystem: Measurements with numerical modeling. *Agricultural and Forest Meteorology*. doi:10.1016/j.agrformet.2019.01.014
- 56 **Wei, Z.** & Lee, X. (2019). The utility of near-surface water vapor deuterium excess as an indicator of atmospheric moisture source. *Journal of Hydrology*, 577, 123923. **Corresponding author.**
- 57 **Wei, Z.**, Lee, X., Aemisegger, F., Benetti, M., Berkelhammer, M., Casado, M., ... Yoshimura, K. (2019). A global database of water vapor isotopes measured with high temporal resolution infrared laser spectroscopy. *Scientific data*. **Corresponding author.** doi:10.1038/sdata.2018.3021
- 58 Fu, C., Lee, X., Griffis, T., Wang, G., **Wei, Z.** & Cardon, Z. (2018). Influences of root hydraulic redistribution on N<sub>2</sub>O emissions at five Ameriflux sites. *Geophysical Research Letters*, 45, 5135–5143. doi:10.1029/2018GL077789
- 59 Fu, C., Zhu, Q., Yang, G., Xiao, Q. & **Wei, Z.** (2018). Influences of extreme weather conditions on the carbon cycles of bamboo and tea ecosystems. *Forests*, 6, 1–17. doi:10.3390/f9100629
- 60 Wang, L., Lee, X., Schultz, N., Chen, S., **Wei, Z.**, Fu, C., ... Lin, G. (2018). Response of surface temperature to afforestation in the Kubuqi desert, Inner Mongolia. *Journal of Geophysical Research: Atmospheres*, 123. doi:10.1002/2017jd027522
- 61 Wang, P., Yamanaka, T., Li, X.-Y., Wu, X., Chen, B., Liu, Y., ... **Wei, Z.** (2018). A multiple time scale modeling investigation of leaf water isotope enrichment in a temperate grassland ecosystem. *Ecological Research*. doi:10.1007/s11284-018-1591-3
- 62 **Wei, Z.**, Lee, X. & Patton, E. (2018). ISOLESC: A coupled Isotope-LSM-LES-Cloud modeling system to investigate the water budget in the atmospheric boundary layer. *Journal of Advances in Modeling Earth Systems*, 10, 2589–2617. **Corresponding author.** doi:10.1029/2018MS001381
- 63 **Wei, Z.**, Lee, X., Seeboonruang, U., Koike, M. & Yoshimura, K. (2018). Influences of large-scale convection and moisture source on monthly precipitation isotope ratios observed in thailand, southeast asia. *Earth and Planetary Science Letter*, 181–192. **Corresponding author.** doi:10.1016/j.epsl.2018.02.015
- 64 **Wei, Z.**, Lee, X., Xiao, W. & Wen, X. (2018). Evapotranspiration partitioning for three agro-ecosystems with contrasting moisture conditions: A comparison of an isotope method and a two-source model calculation. *Agricultural and Forest Meteorology*, 252, 296–310. **Corresponding author.** doi:10.1016/j.agrformet.2018.01.019
- 65 Xiao, W., **Wei, Z.** & Wen, X. (2018). Evapotranspiration partitioning at the ecosystem scale using the stable isotope method - A review. *Agricultural and Forest Meteorology*, 263, 346–361. **Corresponding author.** doi:10.1016/j.agrformet.2018.09.005
- 66 Fu, C., Ji, Z. & **Wei, Z.** (2017). Spatial patterns of ENSO's interannual influences on lilacs vary with time and periodicity. *Atmospheric Research*, 186, 95–106. doi:10.1016/j.atmosres.2016.11.013
- 67 Wang, L., Lee, X., Wang, W., Wang, X., **Wei, Z.**, Fu, C., ... Lin, G. (2017). A meta-analysis of open-path eddy covariance observations of apparent CO<sub>2</sub> flux in cold conditions in FLUXNET. *Journal of Atmospheric and Oceanic Technology*, 34(11), 2475–2487. doi:10.1175/jtech-d-17-0085.1
- 68 **Wei, Z.**, Yoshimura, K., Wang, L., Miralles, D. G., Jasechko, S. & Lee, X. (2017). Revisiting the contribution of transpiration to global terrestrial evapotranspiration. *Geophysical Research Letters*, 44(6), 2792–2801. **ESI Highly Cited Paper, the top 1% of papers by field and publication year, Corresponding author.** doi:10.1002/2016gl072235
- 69 **Wei, Z.**, Miyano, A. & Sugita, M. (2016). Drag and bulk transfer coefficients over water surfaces in light winds. *Boundary-Layer Meteorology*, 160(2), 319–346. doi:10.1007/s10546-016-0147-8
- 70 **Wei, Z.**, Yoshimura, K., Okazaki, A., Ono, K., Kim, W., Yokoi, M. & Lai, C.-T. (2016). Understanding the variability of water isotopologues in near-surface atmospheric moisture over a humid subtropical rice



paddy in Tsukuba, Japan. *Journal of Hydrology*, 533, 91–102. **Corresponding author.**  
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- 72 **Wei, Z.**, Yoshimura, K., Okazaki, A., Kim, W., Liu, Z. & Yokoi, M. (2015). Partitioning of evapotranspiration using high-frequency water vapor isotopic measurement over a rice paddy field. *Water Resources Research*, 51(5), 3716–3729. **Corresponding author.** doi:10.1002/2014wr016737
- 73 Sugita, M., Ikura, H., Miyano, A., Yamamoto, K. & **Wei, Z.** (2014). Evaporation from Lake Kasumigaura: Annual totals and variability in time and space. *Hydrological Research Letters*, 8(3), 103–107. doi:10.3178/hrl.8.103
- 74 **Wei, Z.**, Okazaki, A., Maeda, H. & Yoshimura, K. (2014). Investigating vegetation-atmosphere water exchange by using high frequency spectroscopy vapor isotope observations. *JSCE*, 58, 181–186. **Corresponding author.** doi:10.2208/jscejhe.70.1\_181

## Books and Chapters

- 1 Aho, K., Chakraborty, T., Fang, B., Huang, K., Liang, J., Schultz, N., ... Lee, X. (2017). *Fundamentals of boundary-layer meteorology: Solutions manual*. Yale University.
- 2 He, X., Kim, H., Kirstetter, P.-E., Yoshimura, K., **Wei, Z.**, Chang, E.-C., ... Oki, T. (2016). *Evaluating the diurnal cycle of precipitation representation in West African monsoon region with different convection schemes*. CRC Press. doi:10.1201/9781315370392-11

## Skills

Languages	Strong reading, writing and speaking competencies for English, Mandarin Chinese, Japanese.
Coding	MATLAB, Python, Fortran, L <sup>A</sup> T <sub>E</sub> X, C, C++, Python, VBA, MPI, NCL, CDO, Julia
Databases	MySQL
Software	ArcGIS, GrADS, AutoCAD, SPSS, Grapher, Origin, Surfer
Web Dev	HTML, CSS, JavaScript.
	The Stable Water Vapor Isotope Database (SWVID) website archives high-frequency vapor isotope data collected with instruments based on infrared isotopic spectroscopy. Please visit: <a href="http://vapor-isotope.yale.edu/">http://vapor-isotope.yale.edu/</a>
Observation	<ol style="list-style-type: none"> <li>1. Familiar with remote sensing data products</li> <li>2. Three years eddy covariance Observation experience over Lake surface</li> <li>3. Three years eddy flux and isotopic observation experience at a rice paddy field using new laser spectroscopic isotopic measurement system</li> </ol>

## Skills (continued)

### Models

1. IsoLESC (The isotope and Cloud microphysics enabled large eddy simulation model, developer)
2. SiLSMv3 (The simple isotopic land surface model, developer)
3. IsoHysplit (The isotope enabled HYbrid Single-Particle Lagrangian Integrated Trajectory model, developer)
4. IsoGSM (The isotope-enabled general circulation model, user)
5. IsoRSM (The isotope-enabled regional circulation model, user)
6. IsoMATSIRO (The isotope-enabled Minimal Advanced Treatments of Surface Interaction and Runoff model, user)
7. CLM (Community Land Model, user)
8. WRF (Weather Research and Forecasting Model, user)
9. SWAT (Soil and Water Assessment Tool, user)
10. WEB-DHM-ROSETTA (Water and energy budget-based distributed hydrological model with coupling ROSETTA<sub>3</sub> Soil Hydraulic Functions model, developer)
11. Iso-WRF (Isotopes enabled Weather Research and Forecasting Model, developer (with help of Prof Xuhui Lee))
12. VIC (Variable Infiltration Capacity (VIC) Macroscale Hydrologic Model, user)
13. CAM (CAM<sub>3.0</sub> COMMUNITY ATMOSPHERE MODEL, user)
14. mHM (The mesoscale Hydrologic Model, user)
15. CaMa-Flood (Catchment-based Macro-scale Floodplain model, user, work with Prof. Dai Yamazaki)
16. NOAH-MP-ROSETTA (Noah-Multiparameterization Land Surface Model with coupling ROSETTA<sub>3</sub> Soil Hydraulic Functions model, developer)
17. OLAM (Ocean-Land-Atmosphere Model, user)
18. CoLM-CaMa (The Common Land Model coupling with Catchment-based Macro-scale Floodplain model, developer)

## Awards and Achievements

2023-2024	<b>Inspirational Teacher</b> , School of Atmospheric Sciences, Sun Yat-sen University
2021-2022	<b>Inspirational Teacher</b> , School of Atmospheric Sciences, Sun Yat-sen University
2021-2025	<b>Guangdong Zhujiang River Scholar Youth Top Talent Program</b>
2015-2016	<b>Academic Research Grant</b> , Graduate School of Frontier Sciences Academic Research fund for outstanding students, University of Tokyo
2014-2015	<b>Academic Research Grant</b> , Grant for GSFS Doctor Course Students from University of Tokyo <b>Internal fund for outstanding students' travel abroad</b> , Uchida Ocean Foundation, Atmosphere and Ocean Research Institute, University of Tokyo
2011-2015	<b>JASSO Honors Scholarship</b> , Monbukagakusho JASSO Honors Scholarship from Japan Government.

## Projects

2020-2024	<b>Development of a Three-Dimensional Land Surface Hydrological Model Based on Unstructured Grids</b> , National Natural Science Foundation of China General Project, Principal Investigator, 590,000 RMB
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## Projects (continued)

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2020-2020	<b>Impact of Climate Change on Agricultural Patterns in Northeast China</b> , Liaoning Provincial Development and Reform Commission Project, Principal Investigator, 200,000 RMB
2023-2025	<b>Development of Canopy Interception Scheme in Land Surface Models</b> , Guangdong Provincial Project, Principal Investigator, 200,000 RMB
2020-2024	<b>Earth System Numerical Simulation Device Project (Regional System Model Numerical Simulation System)</b> , Chinese Academy of Sciences Computer Network Information Center Project, Participant
2021-2025	<b>High-Resolution Land Surface Environment Simulation and Prediction Research</b> , Guangdong Provincial Department of Science and Technology Strategic Special Fund for Science and Technology Innovation, Participant