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Research Experience

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

Education

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

Research Publications

Journal Articles

- 1 Cui, J., Tian, L., **Wei, Z.**, Wang, L., Wang, P., Cai, Z., ... Huntingford, C. (2020). Quantifying the controls on evapotranspiration partitioning in the highest alpine meadow zones. *Water Resources Research*. Accepted. doi:10.1029/2019WR024815
- 2 He, X., Pan, M., **Wei, Z.**, Wood, E. F. & Sheffield, J. (2020). A global drought and flood catalogue for the past seven decades (1950-2016). *Bulletin of the American Meteorological Society*. Accepted. doi:10.1175/BAMS-D-18-0269.1
- 3 Lehmann, P., Bickel, S., **Wei, Z.** & Dani, O. (2020). Physical constraints for improved soil hydraulic parameter estimation by pedotransfer functions. *Water Resources Research*. Accepted. doi:10.1029/2019WR025963
- 4 Liang, j., **Wei, Z.**, Lee, X., Wright, J., S., Cui, X., Lin, G. & Yan, G. (2019). Unique characteristics of evapotranspiration in mangrove ecosystems revealed by multiple-site observations and a modified two-source model. *Water Resources Research*, 55, 11250–11273. doi:10.1029/2019WR024729
- 5 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

- 6 Wang, L., Lee, X., Feng, D., Fu, C., Chen, S., **Wei, Z.**, ... Lin, G. (2019). Impact of large-scale afforestation on surface temperature: A case study in the Kubuqi Desert, Inner Mongolia based on the WRF model. *Forests*.
- 7 Wang, P., Deng, Y. & **Wei, Z.** (2019). Modeling investigation of diurnal variations in water flux and its components with stable isotopic tracers. *Atmosphere*. doi:10.3390/atmos10070403
- 8 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
- 9 **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**. doi:10.1016/j.jhydrol.2019.123923
- 10 **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, Cover article**. doi:10.1038/sdata.2018.3021
- 11 Fu, C., Lee, X., Griffis, T., Wang, G., **Wei, Z.** & Cardon, Z. (2018). Influences of root hydraulic redistribution on N₂O emissions at five Ameriflux sites. *Geophysical Research Letters*, 45, 5135–5143. doi:10.1029/2018GL077789
- 12 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
- 13 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
- 14 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
- 15 **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
- 16 **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
- 17 **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
- 18 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
- 19 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
- 20 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 CO₂ flux in cold conditions in FLUXNET. *Journal of Atmospheric and Oceanic Technology*, 34(11), 2475–2487. doi:10.1175/jtech-d-17-0085.1
- 21 **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:10.1002/2016g1072235

- 22 **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
- 23 **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.** doi:10.1016/j.jhydrol.2015.11.044
- 24 Wang, P., Yamanaka, T., Li, X. & **Wei, Z.** (2015). Partitioning evapotranspiration in a temperate grassland ecosystem: Numerical modeling with isotopic tracers. *Agricultural and Forest Meteorology*, 208(0), 16–31. doi:10.1016/j.agrformet.2015.04.006
- 25 **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
- 26 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
- 27 **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 ^A T _E 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: http://vapor-isotope.yale.edu/ |
| Observation | ■ 1. Familiar with remote sensing data products
2. Three years eddy covariance Observation experience over Lake surface
3. Three years eddy flux and isotopic observation experience at a rice paddy field using new laser spectroscopic isotopic measurement system |





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 ROSETTA₃ 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_{3.0} 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 ROSETTA₃ 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)

Honors

Awards and Achievements

- 2015-2016  **Academic Research Grant**, Graduate School of Frontier Sciences Academic Research fund for outstanding students, University of Tokyo
- 2014-2015  **Academic Research Grant**, Grant for GSFS Doctor Course Students from University of Tokyo
-  **Internal fund for outstanding students' travel abroad**, Uchida Ocean foundation, Atmosphere and Ocean Research Institute, University of Tokyo
- 2011-2015  **JASSO Honors Scholarship**, Monbukagakusho JASSO Honors Scholarship from Japan Government.