

# Hui-Wen Lai

## Personal information

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## Education

2023 **Ph.D. in Physical Geography**, University of Gothenburg, Sweden

Dissertation: Towards an improved understanding of precipitation variations over the Tibetan Plateau

Advisor: Dr. Deliang Chen

2018 **M.S. in Atmospheric Sciences and Meteorology**, The Pennsylvania State University, Pennsylvania

Dissertation: An observation and modeling study of Arctic multilayered mixed-phase boundary layer clouds

Co-advisors: Dr. Eugene E. Clothiaux and Dr. Fuqing Zhang

## Work experience

2023 - **Postdoctoral researcher**, Department of Earth Sciences, University of Gothenburg present

2018 - **Chapter Scientist**, IPCC Sixth Assessment Report Working Group I Chapter 1

2021 Responsibilities: Assisted the Coordinating Lead Authors in coordinating the communications and schedules, as well as supporting the author team in compiling chapter contributions.

Supervisor: Dr. Deliang Chen

2014 - **Research Assistant**, Center for Space and Remote Sensing Research, National Central 2015 University, Taiwan

Responsibilities: Applied data assimilation (DA) to assimilate GPS radio occultation into the Weather Research and Forecasting (WRF) Model to improve tropical cyclone simulation with Gridpoint Statistical Interpolation (GSI) system.

Supervisor: Dr. Chian-Yi Liu

## Publications

 (Google scholar h-index: 7 on 2023-10-19; \* denotes shared first authorship)

2023 Chen, D. and **H.-W. Lai**, 2023: Water and Climate Change. In Hellberg, S., Söderbaum, F., Swain, A., & Öjendal, J. (Eds.), *Routledge Handbook of Water and Development (1st ed.)*. Routledge, doi:10.4324/9781003095545-28.

+ Lin, Q., J. Chen, T. Ou, **H.-W. Lai**, A. F. Prein, and D. Chen, 2023: Performance of the WRF model at the convection-permitting scale in simulating snowfall and lake-effect snow over the

- Tibetan Plateau. *J. Geophys. Res. Atmos.*, 128(16), e2022JD038433, doi:10.1029/2022JD038433.
- + Kukulies J.\* , **H.-W. Lai\***, J. Curio, Z. Feng, C. Lin, P. Li, T. Ou, S. Sugimoto, and D. Chen, 2023: Mesoscale convective systems in the third pole region: Characteristics, mechanisms and impact on precipitation. *Front. Earth Sci.*, 11, 1143380, doi:10.3389/feart.2023.1143380.
  - + Ou, T., D. Chen, J. Tang, C. Lin, X. Wang, J. Kukulies, and **H.-W. Lai**, 2023: Wet bias of summer precipitation in the northwestern Tibetan Plateau in ERA5 is linked to weakened lower-level southerly wind over the plateau. *Clim Dyn*, 61, 2139-2153, doi:10.1007/s00382-023-06672-3.
- 2022 Prein, A. F., N. Ban, T. Ou, J. Tang, K. Sakaguchi, E. Collier, S. Jayanarayanan, L. Li, S. Sobolowski, X. Chen, X. Zhou, **H.-W. Lai**, S. Sugimoto, L. Zou, S. Hasson, M. Ekstrom, P. K. Pothapakula, B. Ahrens, R. Stuart, H. C. Steen-Larsen, R. Leung, D. Belusic, J. Kukulies, J. Curio and D. Chen, 2022: Towards Ensemble-Based Kilometer-Scale Climate Simulations over the Third Pole Region. *Clim Dyn*, 60, 4055-4081, doi:10.1007/s00382-022-06543-3.
- + Ehlers, T. A., D. Chen, E. Appel, T. Bolch, F. Chen, B. Diekmann, M. A. Dippold, M. Giese, G. Guggenberger, **H.-W. Lai**, X. Li, J. Liu, Y. Liu, Y. Ma, G. Miehe, V. Mosbrugger, A. Mulch, S. Piao, A. Schwalb, L. G. Thompson, Z. Su, H. Sun, T. Yao, X. Yang, K. Yang and L. Zhu, 2022: Past, present, and future geo-biosphere interactions on the Tibetan Plateau and implications for permafrost. *Earth-Sci. Rev.*, 234, 104197, doi:10.1016/j.earscirev.2022.104197.
  - + Shaw, T. E., E. S. Miles, D. Chen, A. Jouberton, M. Kneib, S. Fugger, T. Ou, **H.-W. Lai**, K. Fujita, W. Yang, S. Fatichi and F. Pellicciotti, 2022: Multi-decadal monsoon characteristics and glacier response in high mountain Asia. *Environ. Res. Lett.*, 17(10), 104001, doi:10.1088/1748-9326/ac9008.
  - + Slättberg, N., **H.-W. Lai**, X. Chen, Y. Ma, and D. Chen, 2022: Spatial and temporal patterns of planetary boundary layer height during 1979–2018 over the Tibetan Plateau using ERA5. *Int. J. Climatol.*, 42(6), 3360-3377, doi:10.1002/joc.7420.
  - + Pang, G., D. Chen, X. Wang, and **H.-W. Lai**, 2022: Spatiotemporal variations of land surface albedo and associated influencing factors on the Tibetan Plateau. *Sci. Total Environ.*, 804, 150100, doi:10.1016/j.scitotenv.2021.150100.
- 2021 Chen, D. and **H.-W. Lai**, 2021, Interpretation of the IPCC AR6 WGI report in terms of its context, structure, and methods. *Climate Change Research*, 17(6), 636-643, doi:10.12006/j.issn.1673-1719.2021.224.
- + Minola, L., H. Reese, **H.-W. Lai**, C. Azorin-Molina, J. A. Guijarro, S.-W. Son, and D. Chen, 2021: Wind stilling-reversal across Sweden: The impact of land-use and large-scale atmospheric circulation changes. *Int. J. Climatol.*, 42(2), 1049-1071, doi:10.1002/joc.7289.
  - + **Lai, H.-W.**, H. W. Chen, J. Kukulies, T. Ou, and D. Chen 2021: Regionalization of seasonal precipitation over the Tibetan Plateau and associated large-scale atmospheric systems. *J. Clim.*, 34(7), 2635-2651, doi:10.1175/JCLI-D-20-0521.1.
- 2020 Ou, T., D. Chen, X. Chen, C. Lin, K. Yang, **H.-W. Lai**, and F. Zhang, 2020: Simulation of summer precipitation diurnal cycles over the Tibetan Plateau at the gray-zone grid spacing for cumulus parameterization. *Clim. Dyn.*, 54, 3525–3539, doi:10.1007/s00382-020-05181-x.
- + **Lai, H.-W.**, F. Zhang, E. E. Clothiaux, D. R. Stauffer, B. J. Gaudet, J. Verlinde, and D. Chen, 2020: Modeling Arctic Boundary Layer Cloud Streets at Grey-zone Resolutions. *Adv. Atoms. Sci.*, 37(1), 42-56, doi:10.1007/s00376-019-9105-y.
- 2019 He, J., F. Zhang, X. Chen, X. Bao, D. Chen, H. M. Kim, **H.-W. Lai**, L. R. Leung, X. Ma, Z. Meng, T. Ou, Z. Xiao, E.-G. Yang, and K. Yang, 2019: Development and evaluation of an ensemble-based

data assimilation system for regional reanalysis over the Tibetan Plateau and surrounding regions *J. Adv. Model. Earth Syst.*, 11, 2503-2522, doi:10.1029/2019MS001665.

## Contributions

2021 **Contributing Author** to IPCC Sixth Assessment Report Working Group I Chapter 1

2021 **Graphical contribution** to the Royal Swedish Academy of Science (KVA) publication:  
Vetenskapen säger – om klimatet

**Reviewer** to the journals: Hydrology and Earth System Sciences, Journal of  
Hydrometeorology, Climate Dynamics

## Honors and Scholarships

2020 Travel scholarship from Adlerbertska Stipendiestiftelsen

2019 Travel fund to International Conference on Regional Climate-CORDEX 2019

2018 Research fund from Professor Sven Lindqvists forskningsstiftelse för  
doktorandstudier

2017 Chi Epsilon Pi, the National Meteorology Honor Society

2011 Scholarship from Chinese Society of Photogrammetry and Remote Sensing

## Teaching

2021 - **Teaching Assistant**, Department of Earth Sciences, University of Gothenburg, Sweden  
present \* Climate change in an Earth System perspective

2017 **Teaching Assistant**, Department of Meteorology and Atmospheric Science, The Pennsylvania  
State University, Pennsylvania  
\* Introduction to Weather Analysis  
\* Atmospheric Thermodynamics

2012 - **Teaching Assistant**, Center for General Education, National Central University, Taiwan

2014 \* An Introduction to Global Environmental Change

2012 **Teaching Assistant**, Department of Atmospheric Science, National Central University, Taiwan  
\* Atmospheric Physics

## Presentations

2023 High-resolution atmospheric simulation of precipitation over mainland Southeast Asia  
(poster), VII Convective Permitting Climate Modelling workshop 2023, Norway.

2023 Precipitation variations and related atmospheric processes over the Tibetan Plateau (invited  
talk), 21 Feb 2023, Department of Atmospheric Science, National Central University, Taiwan.

- 2021 Regionalization of seasonal precipitation over the Tibetan Plateau (oral presentation), EGU General Assembly 2021, online, 19–30 Apr 2021, EGU21-13259,  
<https://doi.org/10.5194/egusphere-egu21-13259>.
- 2019 Downscaled summer convective activities and precipitation over the Tibetan Plateau through ensemble-based data assimilation (poster), International Conference on Regional Climate-CORDEX 2019, China.
- 2018 Sensitivity of Arctic boundary layer cloud streets to modeling resolution (poster), AGU Fall Meeting 2018, Washington, D.C., USA
- 2018 An observation and modeling study of a multi-layered Arctic mixed-phase boundary layer cloud (poster), 2018 ARM/ASR PI meeting, Virginia, USA.
- 2017 Dynamic and thermodynamic processes in a multi-layered Arctic mixed-phase boundary layer cloud: A case study (poster), 2017 Gordon Research Conferences/Seminar on Radiation and Climate, Maine, USA.
- 2017 Apply modeling and polarimetric radar studies of single- and multi-layered Arctic mixed-phase clouds. (poster), 2017 ARM/ASR PI meeting, Virginia, USA.
- 2015 Evaluation of GPS Radio Occultation Data Impact in the Upper Air for Typhoon Prediction. (oral presentation), The International Symposium on Remote Sensing, Taiwan.
- 2013 Apply GSMap Global Rainfall Data to Improve I-TRaP Approach over Taiwan. (oral presentation), 34th Asian Conference on Remote Sensing, Indonesia.