

Hans Chen

+46 31-772 23 44
✉ hans.chen@chalmers.se
🌐 <https://hanschen.org>

Chalmers University of Technology
Department of Environmental and Energy Sciences
412 96 Gothenburg, Sweden

EDUCATION

- 2018 **Ph.D. in Meteorology and Atmospheric Science**, Department of Meteorology and Atmospheric Science, The Pennsylvania State University, University Park, Pennsylvania
Dissertation: Toward improved regional estimates of carbon dioxide sources and sinks through coupled carbon-atmospheric data assimilation
Advisor: Fuqing Zhang | Co-advisors: Richard B. Alley and Thomas Lauvaux
- 2012 **M.S. in Atmospheric Sciences, Oceanography and Climate**, Department of Meteorology, Stockholm University, Stockholm, Sweden
Thesis: The Barents Oscillation and its impact on the Arctic climate
Advisor: Heiner Körnich | Co-advisor: Qiong Zhang
- 2010 **B.S. in Meteorology**, Department of Meteorology, Stockholm University, Stockholm, Sweden
Thesis: Local impact of soot on surface temperature in India and Sweden
Advisor: Annica Ekman | Co-advisor: Henning Rodhe

EMPLOYMENT

- 2023–present **Assistant Professor**, Department of Environmental and Energy Sciences (*formerly Department of Space, Earth and Environment*), Chalmers University of Technology, Gothenburg, Sweden
- 2020–2022 **Researcher**, Department of Physical Geography and Ecosystem Science, Lund University, Lund, Sweden
- 2018–2020 **Postdoctoral Fellow**, Department of Physical Geography and Ecosystem Science, Lund University, Lund, Sweden

HONORS AND AWARDS

- 2023 **Young Researchers 2023**, Hasselblad Foundation
Including research funding
- 2020 **NASA Group Achievement Award**, NASA Langley Research Center
For exceptional scientific achievements of the ACT-America Earth Venture Suborbital mission
- 2020 **Stiftelsen Landshövding Per Westlings Minnesfond**, Lund University
- 2018 **Outstanding Student Paper Award**, American Meteorological Society, 20th Conference on Atmospheric Chemistry
- 2016 **Öfverdirektör Elis Sidenbladhs Fond**, Royal Swedish Academy of Sciences
- 2016 **Top 5 Most Highly Cited Papers 2014–2016 in Environmental Development**, Environmental Development, Elsevier

2014 **Hans Neuberger Award**, The Pennsylvania State University
For excellent teaching of meteorology

GRANTS

- 2026–2028 **Participating Researcher**, Ministry of Science and Technology of the People’s Republic of China, research grant
Cooperative research on monitoring of greenhouse gases and pollutants and their environmental risks in Arctic permafrost regions
- 2025–2030 **Co-Investigator**, European Space Agency, Biomass Calibration/Validation, Announcement of Opportunity
Biomass calibration and validation at selected sites in the Amazonas, Borneo and China
- 2025–2028 **Participating Researcher**, National Natural Science Foundation of China, research grant
Variations and mechanisms of dry-wet patterns in the northeastern Tibetan Plateau over the last millennium and future projections: Insights from paleoclimate data and climate simulations
- 2024–2025 **Research Consultant**, SPASCI, funding received through CNES
Technical specifications of next-generation satellites designed to detect and measure human-induced carbon dioxide emissions
- 2024–2026 **Primary Supervisor**, European Commission, Marie Skłodowska-Curie Actions Postdoctoral Fellowship, main applicant: Ziqian Zhong
Unveiling the impacts of vapor pressure deficit on forest productivity (VAPOR)
- 2024–2027 **Participating Researcher**, Formas, Research projects for early-career researchers, career grant
Drivers for rapid climate change in the Arctic: The role of warm and moist air intrusions and clouds
- 2024–2026 **Principal Investigator**, Hasselblad Foundation, Grant for young researchers, research grant
Arctic carbon cycle dynamics
- 2023–2026 **Co-Investigator**, Shanghai Action Plan for Science, Technology and Innovation, International Science and Technology Cooperation Program, mobility grant
Understanding the differences in the processes driving permafrost soil carbon emissions between the Arctic and Tibetan Plateau
- 2023–2026 **Participating Researcher**, European Commission, Horizon Europe, research grant
Attributing and Verifying European and National Greenhouse Gas and Aerosol Emissions and Reconciliation with Statistical Bottom-up Estimates (AVENGERS)
- 2022–2025 **Principal Investigator**, Swedish National Space Agency, Call 2021-C, career grant
Monitoring anthropogenic carbon dioxide emissions from space
- 2022–2025 **Principal Investigator**, Formas, Research projects for early-career researchers, career grant (declined)
Improved monitoring of carbon dioxide emissions in Scandinavia using satellite and ground-based observations
- 2021–2023 **Co-Investigator**, Strategic Research Area Biodiversity and Ecosystem services in a Changing Climate, research grant
The impact of warming-induced summer vegetation drought on the vegetation greening, tree growth and carbon fluxes in Sweden
- 2021–2024 **Principal Investigator**, Stiftelsen för internationalisering av högre utbildning och forskning, Joint China–Sweden Mobility, mobility grant
High-resolution carbon cycle data assimilation with multiple satellite observations

PEER-REVIEWED PUBLICATIONS

* indicates corresponding author

- 2026 Wu, M.*, O. Sonnentag*, M. J. Lara, Y. Ran*, **H. W. Chen**, W. Zhang, P. Ciais, B. Elberling, X. Li, A. Chen, S. Wang, Y. Yi, C. Peng, and D. Chen, 2026: Vegetation browning patterns under compound soil and atmospheric dryness in northern permafrost ecosystems. *Nature Communications*, accepted.
- 2026 Su, B., H. Feng, D. Chen, G. Yang, X. Yan, X. Wang, **H. W. Chen**, Z. Zhong, L. Wang-Erlandsson, J. C. Rocha, T. Ou, A. L. Lovecraft, X. Li, B. He, S. Xu, H. Zhao, C. Yang, J. Wang, T. Dou, M. Ding, B. Chen, and C. Xiao*, 2026: Poleward expansion of human activities exacerbates Arctic ecological crisis. *Geography and Sustainability*, **100481**, <https://doi.org/10.1016/j.geosus.2026.100481>.
- 2026 Cai, Z., Q. You*, J. A. Screen, **H. W. Chen**, R. Zhang, Z. Zuo, D. Chen, J. Cohen, S. Kang*, W. Ma, S. K. Gulev, G. W. K. Moore, and R. Zhang, 2026: Role of Atlantic multidecadal variability in modulating Arctic sea ice loss and wetting. *Science Advances*, **12**, eady7595, <https://doi.org/10.1126/sciadv.ady7595>.
- 2026 Gao, S., Y. Chen, K. Li, **H. W. Chen**, and B. He, 2026: Urban compound heatwaves substantially offset by cooling from urbanization-promoted vegetation growth. *Sustainable Cities and Society*, 107249, <https://doi.org/10.1016/j.scs.2026.107249>.
- 2026 Yan, X., J. Chen, **H. W. Chen**, Y. Zhang, Y. Jiang, Q. Wang, G. Wang, K. Jia, Z. Chen, W. Dong, J. Fan, and C. Zhao, 2026: Exploring global aerosol size dynamics from 2001 to 2024 using the Pretrained Remote sensing pXel-based Spatial-teMporal Deep Neural Network. *Environmental Science & Technology*, <https://doi.org/10.1021/acs.est.5c13469>.
- 2026 He, M., Y. Yi, X. Li, J.-P. Wigneron, J. S. Kimball, R. Reichle, L. Fan, and **H. W. Chen**, 2026: Divergent responses of multi-frequency vegetation optical depth products to climate variations in China. *Journal of Remote Sensing*, **6**, 1028, <https://doi.org/10.34133/remotesensing.1028>.
- 2025 Holmgren E., and **H. W. Chen***, 2025: A climatology of atmospheric rivers over Scandinavia and associated precipitation. *Weather and Climate Dynamics*, **6**, 1831–1856, <https://doi.org/https://doi.org/10.5194/wcd-6-1831-2025>.
- 2025 Xu, H., **H. W. Chen**, D. Chen, C. Xiao, J. Xiao, B. He, A. Lv, L. Guo, W. Yuan, Y. Fu, X. Hao, Z. Zhong, L. Huang, T. Li, R. Tang, X. He, X. Guo, and Y. Chu, 2025: The critical role of snowmelt onset-driven vapor pressure deficit variations in wildfire dynamics of northern latitudes. *Earth's Future*, **13**, e2025EF006367, <https://doi.org/10.1029/2025EF006367>.
- 2025 Zhong, Z., **H. W. Chen***, A. Dai, T. Zhou, B. He, and B. Su, 2025: Sub-diurnal asymmetric warming has amplified atmospheric dryness since the 1980s. *Nature Communications*, **16**, 8247, <https://doi.org/10.1038/s41467-025-63672-z>.
- 2025 Chen, J., **H. W. Chen**, Z. Li, Q. Wang, G. Wang, K. Jia, and X. Yan*, 2025: Divergent radiative forcing of fine-mode aerosols across tree genera during wildfires in North America and Europe. *Journal of Hazardous Materials*, **495**, 138881, <https://doi.org/j.jhazmat.2025.138881>.

- 2025 Liu, Y., Q. Tang*, L. R. Leung, D. Chen, J. A. Francis, C. Zhang, **H. W. Chen**, and S. C. Sherwood, 2025: Changes in atmospheric circulation amplify extreme snowfall fueled by Arctic sea ice loss over high-latitude land. *Weather and Climate Extremes*, <https://doi.org/10.1016/j.wace.2025.100802>.
- 2025 Zhong, Z., **H. W. Chen***, B. He, and B. Su, 2025: Contrasting vegetation productivity responses in arid and humid zones to recent changes in diurnal temperature range. *The Innovation Geoscience*, **3**, 100163, <https://doi.org/10.59717/j.xinn-geo.2025.100163>.
- 2025 Zou, J., **H. W. Chen**, H. Li, Q. Wang, G. Wang, K. Jia, Z. Chen, C. Zhao, W. Shi, Y. Yang, Y. Tang, J. Chen, Y. Zhang, T. Xu, Y. Wang, G. Liu, and X. Yan*, 2025: Amplified urban heat island effect in southern China's old towns following atmospheric regulation policies. *Sustainable Cities and Society*, **131**, 106675, <https://doi.org/10.1016/j.scs.2025.106675>.
- 2025 Peng, W., Y. Yi*, U. Mishra, K. Bakian-Dogaheh, J. S. Kimball, M. Moghaddam, and **H. W. Chen**, 2025: Characterizing spatial variability of soil organic carbon through improved machine-learning modeling with in situ data resampling: A case study in Alaska. *IEEE Transactions on Geoscience and Remote Sensing*, **63**, 1–14, <https://doi.org/10.1109/TGRS.2025.3572344>.
- 2025 Ye, K.*, J. Cohen, **H. W. Chen**, S. Zhang, D. Luo, and M. E. Hamouda, 2025: Attributing climate and weather extremes to Northern Hemisphere sea ice and terrestrial snow: progress, challenges and ways forward. *npj Climate and Atmospheric Science*, **8**, 1–22, <https://doi.org/10.1038/s41612-025-01012-0>.
- 2025 Cai, Z., Q. You*, J. A. Screen, **H. W. Chen**, R. Zhang, Z. Zuo, D. Chen, J. Cohen, S. Kang, and R. Zhang, 2025: Lessened projections of Arctic warming and wetting after correcting for model errors in global warming and sea ice cover. *Science Advances*, **11**, eadr6413, <https://doi.org/10.1126/sciadv.adr6413>.
- 2025 Shen, C., Z.-B. Li*, F. Liu, **H. W. Chen**, and D. Chen*, 2025: A robust reduction in near-surface wind speed after volcanic eruptions: Implications for wind energy generation. *The Innovation*, **6**, <https://doi.org/10.1016/j.xinn.2024.100734>.
- 2024 Li, T., B. He*, D. Chen, **H. W. Chen**, L. Guo*, W. Yuan, K. Fang, F. Shi, L. Liu, H. Zheng, L. Huang, X. Wu, X. Hao, X. Zhao, and W. Jiang, 2024: Increasing sensitivity of tree radial growth to precipitation. *Geophysical Research Letters*, **51**, e2024GL110003, <https://doi.org/10.1029/2024GL110003>.
- 2024 Xu, H., **H. W. Chen**, D. Chen, Y. Wang, X. Yue, B. He*, L. Guo, W. Yuan, Z. Zhong, L. Huang, F. Zheng, T. Li, and X. He, 2024: Global patterns and drivers of post-fire vegetation productivity recovery. *Nature Geoscience*, **17**, 874–881, <https://doi.org/10.1038/s41561-024-01520-3>.
- 2024 Yan, X., C. Zuo, Z. Li*, **H. W. Chen**, Y. Jiang, Q. Wang, G. Wang, K. Jia, Y. A, Z. Chen, and J. Chen, 2024: Substantial underestimation of fine-mode aerosol loading from wildfires and its radiative effects in current satellite-based retrievals over the United States. *Environmental Science & Technology*, **58**, 15661–15671, <https://doi.org/10.1021/acs.est.4c02498>.
- 2024 Yan, X., Z. Zang*, Z. Li*, **H. W. Chen**, J. Chen, Y. Jiang, Y. Chen, B. He, C. Zuo, T. Nakajima, and J. Kim, 2024: Deep learning with pretrained framework unleashes the power of satellite-based global fine-mode aerosol retrieval. *Environmental Science & Technology*, **58**, 14260–14270, <https://doi.org/10.1021/acs.est.4c02701>.

- 2024 He, M., J. Cui*, Y. Yi*, **H. W. Chen**, Q. Zhang, L. Li, L. Huang, and S. Hong, 2024: Vegetation increases global climate vulnerability risk by shifting climate zones in response to rising atmospheric CO₂. *Science of The Total Environment*, **949**, 174810, <https://doi.org/10.1016/j.scitotenv.2024.174810>.
- 2024 Liu, Y., Q. Tang*, C. Zhang, D. Chen, J. A. Francis, L. R. Leung, and **H. W. Chen**, 2024: The disproportionate impact of enhanced evaporation from melting arctic sea ice on cold-season land precipitation trends. *npj Climate and Atmospheric Science*, **7**, 1–9, <https://doi.org/10.1038/s41612-024-00680-8>.
- 2024 Cai, Z., Q. You*, **H. W. Chen**, R. Zhang*, Z. Zuo, D. Chen, J. Cohen, and J. A. Screen, 2024: Assessing Arctic wetting: Performances of CMIP6 models and projections of precipitation changes. *Atmospheric Research*, **297**, 107124, <https://doi.org/10.1016/j.atmosres.2023.107124>.
- 2024 Lai, H.-W., D. Chen*, and **H. W. Chen**, 2024: Precipitation variability related to atmospheric circulation patterns over the Tibetan Plateau. *International Journal of Climatology*, **44**, 91–107, <https://doi.org/10.1002/joc.8317>.
- 2023 Zhong, Z., B. He*, **H. W. Chen**, D. Chen, T. Zhou, W. Dong, C. Xiao, S. Xie, X. Song, L. Guo, R. Ding, L. Zhang, L. Huang, W. Yuan, X. Hao, D. Ji, and X. Zhao, 2023: Reversed asymmetric warming of sub-diurnal temperature over land during recent decades. *Nature Communications*, **14**, 7189, <https://doi.org/10.1038/s41467-023-43007-6>.
- 2023 Wang, S., B. He*, **H. W. Chen**, D. Chen, Y. Chen, W. Yuan, F. Shi, J. Duan, W. Wu, T. Chen, L. Guo, Z. Zhong, W. Duan, Z. Li, W. Jiang, L. Huang, X. Hao, R. Tang, H. Liu, Y. Zhang, and X. Xie, 2023: Fire carbon emissions over Equatorial Asia reduced by shortened dry seasons. *npj Climate and Atmospheric Science*, **6**, 1–9, <https://doi.org/10.1038/s41612-023-00455-7>.
- 2023 Zhong, Z., B. He*, Y.-P. Wang, **H. W. Chen**, D. Chen, Y. H. Fu, Y. Chen, L. Guo, Y. Deng, L. Huang, W. Yuan, X. Hao, R. Tang, H. Liu, L. Sun, X. Xie, and Y. Zhang, 2023: Disentangling the effects of vapor pressure deficit on northern terrestrial vegetation productivity. *Science Advances*, **9**, eadf3166, <https://doi.org/10.1126/sciadv.adf3166>.
- 2023 Yan, X., C. Zuo, Z. Li, **H. W. Chen***, Y. Jiang, B. He, H. Liu, J. Chen, and W. Shi, 2023: Cooperative simultaneous inversion of satellite-based real-time PM_{2.5} and ozone levels using an improved deep learning model with attention mechanism. *Environmental Pollution*, **327**, 121509, <https://doi.org/10.1016/j.envpol.2023.121509>.
- 2023 Cai, Z., Q. You*, **H. W. Chen**, R. Zhang*, Z. Zuo, G. Dai, D. Chen, J. Cohen, O. Zolina, and S. K. Gulev, 2023: Interdecadal variability of the warm Arctic-cold Eurasia pattern linked to the Barents oscillation. *Atmospheric Research*, **287**, 106712, <https://doi.org/10.1016/j.atmosres.2023.106712>.
- 2023 **Chen, H. W.***, F. Zhang, T. Lauvaux, M. Scholze, K. J. Davis, and R. B. Alley, 2023: Regional CO₂ inversion through ensemble-based simultaneous state and parameter estimation: TRACE framework and controlled experiments. *Journal of Advances in Modeling Earth Systems*, **15**, e2022MS003208, <https://doi.org/10.1029/2022MS003208>.

- 2022 Wang, X., Y. Ran*, G. Pang, D. Chen*, B. Su, R. Chen, X. Li, **H. W. Chen**, M. Yang, X. Gou, M. T. Jorgenson, J. Aalto, R. Li, X. Peng, T. Wu, G. D. Clow, G. Wan, X. Wu, and D. Luo, 2022: Contrasting characteristics, changes, and linkages of permafrost between the Arctic and the Third Pole. *Earth-Science Reviews*, **230**, 104042, <https://doi.org/10.1016/j.earscirev.2022.104042>.
- 2022 Kaminski, T.*, M. Scholze, P. Rayner, S. Houweling, M. Voßbeck, J. Silver, S. Lama, M. Buchwitz, M. Reuter, W. Knorr, **H. W. Chen**, G. Kuhlmann, D. Brunner, S. Dellaert, H. Denier van der Gon, I. Super, A. Löscher, and Y. Meijer, 2022: Assessing the impact of atmospheric CO₂ and NO₂ measurements from space on estimating city-scale fossil fuel CO₂ emissions in a data assimilation system. *Frontiers in Remote Sensing*, **3**, <https://doi.org/10.3389/frsen.2022.887456>.
- 2022 Cai, Z., Q. You*, **H. W. Chen**, R. Zhang*, D. Chen, J. Chen, S. Kang, and J. Cohen, 2022: Amplified wintertime Barents Sea warming linked to intensified Barents oscillation. *Environmental Research Letters*, **17**, 044068, <https://doi.org/10.1088/1748-9326/ac5bb3>.
- 2022 Fang, M., X. Li*, **H. W. Chen***, and D. Chen, 2022: Arctic amplification modulated by Atlantic Multidecadal Oscillation and greenhouse forcing on multidecadal to century scales. *Nature Communications*, **13**, 1865, <https://doi.org/10.1038/s41467-022-29523-x>.
- 2022 Tang, R., B. He*, **H. W. Chen**, D. Chen, Y. Chen*, Y. H. Fu, W. Yuan, B. Li, Z. Li, L. Guo, X. Hao, L. Sun, H. Liu, C. Sun, and Y. Yang, 2022: Increasing terrestrial ecosystem carbon release in response to autumn cooling and warming. *Nature Climate Change*, **12**, 380–385, <https://doi.org/10.1038/s41558-022-01304-w>.
- 2022 He, B.*, C. Chen, S. Lin, W. Yuan*, **H. W. Chen**, D. Chen, Y. Zhang, L. Guo, X. Zhao, X. Liu, S. Piao, Z. Zhong, R. Wang, and R. Tang, 2022: Worldwide impacts of atmospheric vapor pressure deficit on the interannual variability of terrestrial carbon sinks. *National Science Review*, **9**, nwab150, <https://doi.org/10.1093/nsr/nwab150>.
- 2022 Kaminski, T.*, M. Scholze, P. Rayner, M. Voßbeck, M. Buchwitz, M. Reuter, W. Knorr, **H. Chen**, A. Agustí-Panareda, A. Löscher, and Y. Meijer, 2022: Assimilation of atmospheric CO₂ observations from space can support national CO₂ emission inventories. *Environmental Research Letters*, **17**, 014015, <https://doi.org/10.1088/1748-9326/ac3cea>.
- 2021 Cai, Z., Q. You*, F. Wu, **H. W. Chen**, D. Chen, and J. Cohen, 2021: Arctic warming revealed by multiple CMIP6 models: Evaluation of historical simulations and quantification of future projection uncertainties. *Journal of Climate*, **34**, 4871–4892, <https://doi.org/10.1175/JCLI-D-20-0791.1>.
- 2021 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. *Journal of Climate*, **34**, 2635–2651, <https://doi.org/10.1175/JCLI-D-20-0521.1>.
- 2020 Cohen, J.*, X. Zhang, J. Francis, T. Jung, R. Kwok, J. Overland, T. J. Ballinger, U. S. Bhatt, **H. W. Chen**, D. Coumou, S. Feldstein, H. Gu, D. Handorf, G. Henderson, M. Ionita, M. Kretschmer, F. Laliberte, S. Lee, H. W. Linderholm, W. Maslowski, Y. Peings, K. Pfeiffer, I. Rigor, T. Semmler, J. Stroeve, P. C. Taylor, S. Vavrus, T. Vihma, S. Wang, M. Wendisch, Y. Wu, and J. Yoon, 2020: Divergent consensus on Arctic amplification influence on midlatitude severe winter weather. *Nature Climate Change*, **10**, 20–29, <https://doi.org/10.1038/s41558-019-0662-y>.

- 2019 **Chen, H. W.**, L. N. Zhang, F. Zhang*, K. J. Davis, T. Lauvaux, S. Pal, B. Gaudet, and J. P. DiGangi, 2019: Evaluation of regional CO₂ mole fractions in the ECMWF CAMS real-time atmospheric analysis and NOAA CarbonTracker Near-Real-Time reanalysis with airborne observations from ACT-America field campaigns. *Journal of Geophysical Research: Atmospheres*, **124**, 8119–8133, <https://doi.org/10.1029/2018JD029992>.
- 2019 **Chen, H. W.**, F. Zhang*, T. Lauvaux, K. J. Davis, S. Feng, M. P. Butler, and R. B. Alley, 2019: Characterization of regional-scale CO₂ transport uncertainties in an ensemble with flow-dependent transport errors. *Geophysical Research Letters*, **46**, 4049–4058, <https://doi.org/10.1029/2018GL081341>.
- 2016 **Chen, H. W.***, R. B. Alley, and F. Zhang, 2016: Interannual Arctic sea ice variability and associated winter weather patterns: A regional perspective for 1979–2014. *Journal of Geophysical Research: Atmospheres*, **121**, 14,433–14,455, <https://doi.org/10.1002/2016JD024769>.
- 2016 **Chen, H. W.***, F. Zhang, and R. B. Alley, 2016: The robustness of midlatitude weather pattern changes due to Arctic sea ice loss. *Journal of Climate*, **29**, 7831–7849, <https://doi.org/10.1175/JCLI-D-16-0167.1>.
- 2013 **Chen, H. W.**, Q. Zhang, H. Körnich, and D. Chen*, 2013: A robust mode of climate variability in the Arctic: The Barents Oscillation. *Geophysical Research Letters*, **40**, 2856–2861, <https://doi.org/10.1002/grl.50551>.
- 2013 Chen, D.*, and **H. W. Chen**, 2013: Using the Köppen classification to quantify climate variation and change: An example for 1901–2010. *Environmental Development*, **6**, 69–79, <https://doi.org/10.1016/j.envdev.2013.03.007>.

OTHER PUBLICATIONS

- 2023 Marshall, J., F. Reum, G. Broquet, E. Potier, A. Berchet, A. Fortems-Cheiney, E. Koene, D. Brunner, S. Houweling, E. Ioannidis, A. Segers, A. Kaiser-Weiss, A. Sunkisala, V. Bruch, T. Rösch, M. Gałkowski, P. Sekuła, G. Monteil, **H. Chen**, P. Palmer, T. Scarpelli, A. G. Mengistu, and T. Aalto, 2023: Intercomparison of national-scale inversions. *CoCO2 Consortium*, <https://coco2-project.eu/node/412>.
- 2023 Marshall, J., A. Berchet, N. Bousserez, G. Broquet, D. Brunner, **H. Chen**, L. Feng, J. Hakkarainen, G. Monteil, P. Palmer, and E. Potier, 2023: Ensemble of estimates for assimilation into prototype. *CoCO2 Consortium*, <https://coco2-project.eu/node/387>.
- 2020 Scholze, M., **H. Chen**, T. Kaminski, and M. Voßbeck, 2020: Inversion strategy based on joint QND assessments. *CHE Consortium*. <https://coco2-project.eu/node/387>.
- 2018 **Chen, H.**, and M. Scholze, 2018: Progress in characterizing uncertainty for fossil fuel emissions. *CHE Consortium*. <https://coco2-project.eu/node/387>.
- 2018 Ying, Y., X. Chen, Y. Zhang, M. Minamide, R. Nystrom, **H. Chen**, J. Poterjoy, C. Melhauser, Y. Weng, Z. Meng, A. Aksoy, and F. Zhang, 2018: PSU WRF EnKF/4DVar hybrid regional data assimilation system: Technical notes. *Department of Meteorology and Atmospheric Science, and Center for Advanced Data Assimilation and Predictability Techniques, The Pennsylvania State University, University Park, Pennsylvania*. <https://climatedynamics.group/wp/wp-content/uploads/ying-2018-psu.pdf>.

- 2018 Cohen, J., X. Zhang, J. Francis, T. Jung, R. Kwok, J. Overland, P. C. Taylor, S. Lee, F. Laliberte, S. Feldstein, W. Maslowski, G. Henderson, J. Stroeve, D. Coumou, D. Handorf, T. Semmler, T. Ballinger, M. Hell, M. Kretschmer, S. Vavrus, M. Wang, S. Wang, Y. Wu, T. Vihma, U. Bhatt, M. Ionita, H. Linderholm, I. Rigor, C. Routson, D. Singh, M. Wendisch, D. Smith, J. Screen, J. Yoon, Y. Peings, **H. Chen**, and R. Blackport, 2018: Arctic change and possible influence on mid-latitude climate and weather: A US CLIVAR white paper. *US CLIVAR*, <https://doi.org/10.5065/D6TH8KGW>.

COMMISSION OF TRUST

- 2026 **Grant Proposal Reviewer**, Swedish Space Research School
- 2025–present **Deputy Board Member**, Swedish Strategic Research Area Modelling the Regional and Global Earth system (MERGE)
- 2024–2025 **Board Member**, Swedish Strategic Research Area Modelling the Regional and Global Earth system (MERGE)
- 2021–2023 **Deputy**, Copernicus CO2 General Assembly

INVITED TALKS

- 2026 Atmospheric rivers: What they are and how they influence precipitation over Scandinavia, *Department of Civil and Industrial Engineering, Uppsala University*
- 202f Atmospheric rivers over Scandinavia: Pathways and precipitation, *Department of Earth Sciences, Uppsala University, and Swedish Centre for Impacts of Climate Extremes*
- 2024 Klimatforskaren om dagens krisläge, *Stora Hållbarhetsdagen Göteborg*
- 2024 Space activities to monitor greenhouse gas emissions, *Kick-off for Chalmers' new thematic areas: Towards a healthy planet – tackling the pollution of our Land, Oceans and Space*
- 2023 Atmospheric modeling and data assimilation to support greenhouse gas emissions monitoring, *National Central University, Department of Atmospheric Sciences Seminar*
- 2022 Ensemble-based simultaneous state and parameter estimation for monitoring greenhouse gas emissions and removals, *2nd International Association of Meteorological Education and Sciences Annual Conference and the 9th COAA International Conference on Atmosphere, Ocean, and Climate Change*
- 2021 Monitoring anthropogenic carbon dioxide emissions from space, *Swedish Space Researchers 2022*
- 2021 Assessing the uncertainty in top-down greenhouse gas emissions estimates, *Asia Oceania Geosciences Society Virtual 18th Annual Meeting*
- 2020 Coupled carbon–atmospheric data assimilation through ensemble-based simultaneous state and parameter estimation, *Fuqing Zhang Symposium* (canceled due to Covid-19)

- 2018 Monitoring Earth's carbon cycle and human fossil fuel emissions with the help of advanced data assimilation methods, *Second ADAPT Symposium on Advanced Understanding, Monitoring and Prediction of Weather, Climate and Environmental systems*
- 2018 Constraining surface carbon dioxide fluxes using advanced data assimilation techniques, *98th American Meteorological Society Annual Meeting*
- 2016 Nonlinear atmospheric response to Arctic sea-ice loss under different sea ice scenarios, *ADAPT Symposium on Advanced Assimilation and Uncertainty Quantification in BigData Research for Weather, Climate and Earth System Monitoring and Prediction*

TEACHING EXPERIENCE

- 2023–present **Chalmers University of Technology**
 - Examiner and Instructor
 - The Earth System (Spring 2024–present)
 - Instructor
 - Science of Environmental Change (Fall 2024–present)
 - The Climate: The Science, Measures and Policy (Spring 2023–present)
 - The Earth System (Spring 2023)
 - Guest Lecturer
 - Climate Modelling (Fall 2024)
 - Arctic in a Changing Climate (Fall 2025)
- 2019–2022 **Lund University**
 - Instructor
 - The Climate System (Spring 2022)
 - Theory and Methods of Physical Geography (Fall 2019–2022)
- 2013–2017 **The Pennsylvania State University**
 - Lead Instructor
 - Introduction to Programming Techniques for Meteorology (Spring 2015)
 - Co-Instructor
 - Applications of Computers to Meteorology (Fall 2013)
 - Teaching Assistant
 - Synoptic Meteorology Laboratory (Fall 2015)
 - Applications of Computers to Meteorology (Fall 2014, Spring 2014)
 - Introduction to Programming Techniques for Meteorology (Spring 2013)

SUPERVISION

- PhD students
 - Fangyuan Cheng (2025–present)
 - Erik Holmgren (2023–present)
- Postdocs
 - Xinyu Yang (2025–present)
 - Hari Ram Chandrika Rajendran Nair (2024–present)
 - Ziqian Zhong (2023–present)
- Co-advised PhD students
 - Lloyd Villanueva (2024–present, with Luisa Ickes)
 - Hanna Hallborn (2023–2025, with Patrick Eriksson)
 - Ziyi Cai (2020–2025, with Qinglong You)
- MSc students
 - Zhicong Xie (2023)
- BSc students
 - Marianne Olsson (2022)

Co-advised students • Lily N. Zhang (2017–2018)

OUTREACH

- 2025–2026 **Invited Speaker**, Hulebäcksgymnasiet (once per year)
Lecture to prepare high school students for United Nations Roleplay
- 2025 **Interview**, Källkritikbyrån
About recent wildfires in California and the connection to climate change
- 2024 **Interview**, ATL Lantbrukets Affärstidning
About recent flooding events in Italy and the connection to climate change
- 2023 **Panel discussion**, Gothenburg International Science Festival
About the Arctic carbon cycle and being a young researcher
- 2022 **Radio interview**, Radio Sweden, Vetenskapsradion Klotet
About how satellites can reveal greenhouse gas emissions
- 2021 **Interview**, Extrakt, online magazine
About using satellite observations to track anthropogenic CO₂ emissions
- 2021 **Interview**, European Environment Agency, COINS
About monitoring CO₂ emissions on city scales using top-down and inverse approaches
- **Research websites**, <https://climatedynamics.group> and <https://hanschen.org>
Over 308,000 views since 2013

SERVICE TO PROFESSION

- 2025–present **Editorial Board Member**, npj Artificial Intelligence
- 2024–present **Associate Editor**, Frontiers in Remote Sensing
- 2022–present **Young Editorial Member**, Advances in Climate Change Research
- 2026 **Session Chair**, Swedish Climate Symposium
Dynamics and Predictability of Extremes and Climate Variability in the Mid- and High Latitudes
- 2024, 2025 **Faculty Search Committee Member**, Division of Geoscience and Remote Sensing, Department of Environmental and Energy Sciences, Chalmers University of Technology
- 2025 **Workshop and Summer School Organizer**, Second China–Sweden joint workshop on carbon cycle in the climate-vulnerable regions: Modeling and observations,, Nanjing, China
- 2023 **Workshop Organizer**, First China–Sweden joint workshop on carbon cycle in the climate-vulnerable regions: Modeling and observations,, Nanjing, China
- 2022 **Guest Editor**, Remote Sensing
- 2020–2021 **Departmental Seminar Organizer**, Department of Physical Geography and Ecosystem Science, Lund University
- **Peer Reviewer**
Nature Climate Change, Atmospheric Chemistry and Physics, Geophysical Research Letters, Journal of Geophysical Research: Atmospheres, Climate Dynamics, Geoscientific Model Development, Nature Communications, Environmental Research Letters

NON-ACADEMIC WORK

2008 **Computer Programmer**, IVL Swedish Environmental Research Institute, Gothenburg, Sweden

OTHER RELEVANT EXPERIENCES

2026 **Diploma in Teaching and Learning in Higher Education**, Chalmers University of Technology, Gothenburg, Sweden

2024 **Leadership Development training for Assistant Professors**, Chalmers University of Technology, Gothenburg, Sweden

2021 **Doctoral supervision courses**, Lund University, Lund, Sweden

2016 **NCAR Advanced Study Program Summer Colloquium**, Advances in Air Quality Analysis and Prediction: The Interaction of Science and Policy, National Center for Atmospheric Research, Colorado

LANGUAGES

Native **Swedish**

Fluent **English**

Mother tongue **Mandarin**, fluent speaking, basic reading and writing

Basic **German**

COMPUTER SKILLS

OS Linux, Unix, Windows, macOS
Programming Python, Fortran, C++, C
Computing MATLAB, Mathematica
Shell scripting Bash, Z shell

Graphics Adobe Photoshop, Inkscape
Typesetting \LaTeX
Office Microsoft Office, LibreOffice
Miscellaneous Git, regular expressions, HTML, CSS