

**Singapore's Candidate for
Co-Chair of the Intergovernmental Panel on Climate Change (IPCC)
Working Group II on Impacts, Adaptation, and Vulnerability**

Curriculum Vitae

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Profile

Associate Professor Winston Chow obtained a Ph.D. from the School of Geographical Sciences and Urban Planning, Arizona State University, and a Masters and Bachelor (First Class Honours) of Social Sciences from National University Singapore, specialising in Geography. He is tenured at Singapore Management University as Associate Professor of Urban Climate in the College of Integrative Studies, and as a Lee Kong Chian Research Fellow.

His main research interests and publications focus on urban climate change risk and vulnerability, and on urban climatology with a focus on heat island adaptation and mitigation. He has authored more than 50 peer-reviewed academic journal research articles and book chapters (current Google Scholar h-index of 27; 3300+ citations; Scopus Field-Weighted Citation Impact of 3.31). Since 2017, he has been Principal Investigator for the multi-institute Cooling Singapore Initiative, which develops climate-resilient solutions to address the urban heat challenge in Singapore.

Contribution to the IPCC

A/P Winston Chow was significantly involved in the IPCC's 6th Assessment Cycle (AR6) in the following capacities:

- **Lead Author** for both Chapter 6 "Cities, Settlements and Key Infrastructure" and Cross Chapter Paper 2: "Cities and Settlements by the Sea" for the Working Group II (WG II) Assessment Report on Impacts, Adaptation and Vulnerability released in February 2022
- **Author** for the WG II AR6 Technical Summary
- **Contributing Author** for:
 - Chapter 16 "Key Risks across Sectors and Regions", Annex 1 "Global to Regional Atlas", and Factsheets for "Human Settlements", "Cities and Settlements by the Sea", and "Responding to Sea Level Rise" for WG II.
 - Chapter 12 "Climate Change Information for Regional Impact and for Risk Assessment" in WG I (released August 2021)
 - Chapter 8 "Urban Systems and Other Settlements" in WG III (released April 2022)

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- **Expert Reviewer** for
 - “Special Report on Global Warming of 1.5°C” (AR6)
 - WGII 5th Assessment Report on Impacts, Adaptation and Vulnerability (AR5)
- **Singapore Government Delegate** for plenaries held during the AR6 cycle.
- **Selected Member** of the IPCC Task Group on Data Support for Climate Change Assessments for 6th Assessment Cycle (TG-Data) since 2020 (IPCC-52, Paris)

Academic Recognition and Invited Talks

A/P Winston Chow's climate research has received notable recognition, and he has served the wider community by speaking about the IPCC and his climate research work in public fora:

- Awarded the Lee Kong Chian Research Fellowship by Singapore Management University in 2022.
- Invited speaker on urban climate risks and resilience at a variety of international and local academic fora and conferences:
 - 2023 United Nations Water Conference (New York City), including a session on the IPCC for AOSIS fellows
 - Singapore Pavilions at COP-27 (Sharm El-Sheikh) and Expo 2020 (Dubai)
 - World Cities Summit 2022
 - Youth Ecosperity Dialogue 2022
 - Future Earth
 - International Congress of Biometeorology
 - Asia Oceania Geosciences Society
 - International Conference on Urban Climate
- Invited research seminar and symposium speaker on IPCC work by international universities and research institutes.
- Partnered and consulted with both private and public sector agencies for academic research, executive education, and stakeholder outreach.

Academic Research and Publications

- Principal Investigator for the ongoing Cooling Singapore initiative (2017-2025, National Research Foundation, Singapore), which investigates urban climate risks, including urban heat adaptation and mitigation measures.

Editorial appointments

- Co-Editor-in-Chief, *World Scientific Book Series on Extreme Events*
- Associate Editor for the Elsevier journal *Climate Risk Management*
- Editorial Board member for *Landscape and Urban Planning* (Elsevier) and *PLOS Sustainability and Transformation* (Public Library of Science)
- Guest Editor (2019-2021), *Environmental Research Letters* Special Issue on “Sustainable Cities: Urban Solutions Toward Desired Outcomes” (IOPScience)

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Curated list of notable research publications follows (full list available at <https://winstontlchow.com/publications/>):

On urban vulnerability and climate change risk:

- Pelling, M., **W.T.L. Chow**, E. Chu, R. Dawson, D. Dodman, A. Fraser, B. Hayward, L. Khirfan, T. McPhearson, A. Prakash, and G. Ziervogel. 2021: "A climate resilience research renewal agenda: learning lessons from the COVID-19 pandemic for urban climate resilience." *Climate and Development*. 14(7): 617-624.
- Georgescu, M., M. Arabi, **W. T. L. Chow**, E. Mack, and K. C. Seto. 2021: "Focus on sustainable cities: urban solutions toward desired outcomes." *Environmental Research Letters*, 16, 12.
- **Chow, W.T.L.** 2018: "The impact of weather extremes on urban resilience to hydro-climate hazards: a Singapore case study" *International Journal of Water Resources Development*. 34 (4): 510-524.
- C.J Chuah, B. H. Ho, and **W.T.L. Chow**. 2018: "Trans-boundary variations of urban drought vulnerability and its impact on water resource management in Singapore and Johor, Malaysia" *Environmental Research Letters*. 13(7): 074011
- **Chow, W.T.L.**, B.D. Cheong, and B.H Ho. 2016: "A Multimethod Approach towards Assessing Urban Flood Patterns and Its Associated Vulnerabilities in Singapore." *Advances in Meteorology*. 2016: 7159132.
- Gober, P., D.A. Sampson, R. Quay, D.D. White, and **W.T.L. Chow**. 2016. "Urban adaptation to mega-drought: Anticipatory water modeling, policy, and planning for the urban Southwest" *Sustainable Cities and Society*. 27:497-504.
- Georgescu, M., **W.T.L. Chow**, Z. Wang, A.J. Brazel, M. Roth, and V. Benson-Lira. 2015: "Prioritizing urban sustainability solutions: coordinated approaches must incorporate scale-dependent built environment induced effects." *Environmental Research Letters*. 10 (6): 061001.
- Ziegler, A.D., J.P. Terry, G.J.H. Oliver, D.A. Friess, J. Chuah, **W.T.L. Chow**, and R.J. Wasson. 2014: "Increasing Singapore's resilience to drought" *Hydrological Processes*. 28(15): 4543-4548.
- **Chow, W.T.L.**, W-C Chuang, and P. Gober. 2012: "Vulnerability to extreme heat in metropolitan Phoenix: Spatial, temporal and demographic dimensions." *The Professional Geographer*. 64(2): 286-302.

On urban climatology, heat island adaptation and mitigation:

- Dzyuban, Y., G.N. Ching, S.K. Yik, A.J. Tan, S. Banerjee, P.J. Crank, and **W.T.L. Chow**. 2022: "Outdoor thermal comfort research in transient conditions: A narrative literature review." *Landscape and Urban Planning*, 226, 104496.
- Banerjee, S., G.N.Y Ching, S. K. Yik, Dzyuban, Y., P. J. Crank, R.X.Y. Pek, and **W.T.L. Chow**. 2022: "Analysing impacts of urban morphological variables and density on outdoor microclimate for tropical cities: A review and a framework proposal for future research directions" *Building and Environment*, 225, 109646.
- Dzyuban, Y., G.N.Y Ching, S. K. Yik, A. J. Tan, P. J. Crank, S. Banerjee, R.X.Y. Pek, and **W.T.L. Chow**. 2022: "Sentiment analysis of weather-related Tweets from cities within hot climates." *Weather, Climate and Society*. 14(4): 1133-1145.

- Nazarian, N., E. S. Krayenhoff, B. Bechtel, D. Hondula, R. Paolini, J. Vanos, T. Cheung, **W. T. L. Chow**, R. de Dear, O. Jay, J. K. W. Lee, A. Martilli, A. Middel, L. K. Norford, M. Sadeghi, S. Schiavon, and M. Santamouris. 2022: "Integrated Assessment of Urban Overheating Impacts on Human Life." *Earth's Future*, 10(8), e2022EF002682.
- Gillerot, L., D. Landuyt, R. Oh, **W.T.L. Chow**, D. Haluza, Q. Ponette, H. Jactel, H. Bruelheide, B. Jaroszewicz, M. Scherer-Lorenzen, and P. De Frenne. 2022: "Forest structure and composition alleviate human thermal stress." *Global Change Biology*, 28(24): 7340-7352
- Ossola, A., G.D. Jenerette, A. McGrath, **W.T.L. Chow**, L. Hughes, and M.R. Leishman. 2021: "Small vegetated patches greatly reduce urban surface temperature during a summer heatwave in Adelaide, Australia." *Landscape and Urban Planning*, 209, p.104046
- Heng, S.L., and **W.T.L. Chow**. 2019: "How 'hot' is too hot? Evaluating acceptable outdoor thermal comfort ranges in an equatorial urban park" *International Journal of Biometeorology*. 63(6): 801-816.
- Ruddell, D.M., A.J. Brazel, **W.T.L. Chow**, and A. Middell. 2015: "The Urban Heat Island Effect and Sustainability Science: Causes, Impacts, and Solutions" in K. D. Pijawka (ed.) *Sustainability for the 21st Century: Pathways, Programs, and Policies*: 219-234. Kendall Hunt: Iowa. ISBN: 978-1-4652-6671-2
- **Chow, W.T.L.**, D. Brennan, and A.J. Brazel. 2012: "Urban heat island research in Phoenix, Arizona: theoretical contributions and policy applications." *Bulletin of the American Meteorological Society*. 93(4): 517-530.