

CAMPBELL D WATSON

IBM Research
IBM TJ Watson Research Center
Yorktown Heights, NY, USA

E: cwatson@us.ibm.com

EDUCATION

- 2008-2013 PhD in Atmospheric Science, School of Earth Sciences, The University of Melbourne, Australia
Advisor: Dr. Todd Lane
- 2000-2006 Bachelor of Science (Hons.) / Bachelor of Commerce, The University of Melbourne, Australia
Atmospheres and Oceans + Applied Math / Accounting + Finance

EMPLOYMENT

- 2014-now Postdoctoral Research Scientist, TJ Watson Research Center, IBM Research
Dept: Environmental Monitoring and Management
Host: Dr. Harry Kolar
- 2016-2017 Numerical Weather Prediction Scientist, The Weather Company
Dept: Global Forecasting Sciences
Hosts: Mary Glackin and Dr. John Williams
- 2012-2014 Postdoctoral Associate, Yale University
Dept: Geology and Geophysics
Host: Prof. Ron Smith

HONORS / AWARDS / ETC

- 2017 - Imagine Science Film Festival 10th Anniversary: Symbiosis Film Competition. Selected to create a science-inspired short film in collaboration with a filmmaker
- Science Sandbox @ New Lab Fellow, supported by The Simons Foundation. Developed concept for "Weather for the People"
- 2016 - National Science Foundation (NSF) Grant in Macrosystem Biology: Assessing the effects of cross-scale scale interactions mediating sub-continental lake thermal trends and carbon cycling (with A/Prof. Kevin Rose). Funding for 2017-2018
- 2012 - American Meteorological Society (AMS) prize for best student poster presentation at the 15th Mountain Meteorology Meeting (Steamboat, CO)
- 2008 - The University of Melbourne Research Scholarship. Funding for 2008-2012
- The John and Betty McCreery Travelling Scholarship
- The Australian Meteorological and Oceanographic (AMOS) prize for oral presentation at the 22nd Victorian Universities Earth and Environmental Sciences Conference
- 2006 - The University of Melbourne Honors Scholarship

PUBLICATIONS – PEER REVIEWED

- Tewari, M., Yang, J., Kusaka, H., Salamanca Palou, F., Watson, C. D., Treinish, L. Interaction of Urban Heat Islands and Heat Waves under Current and Future Climate Conditions and Their Mitigation using Green and Cool Roofs in New York City and Phoenix, Arizona. *Submitted*.
- Nugent, A. D., Watson, C. D., Thompson, G., and R. B. Smith., 2016. Aerosol Impacts on Thermally Driven Orographic Convection. *J. Atmos. Sci.*, 73, 3115-3132.
- Watson, C. D., and T. P. Lane., 2016. A Case of an Undular Bore and Prefrontal Precipitation in the Australian Alps. *Mon. Wea. Rev.*, 144, 2623-2644.
- Fritts, D., Watson, C. D., and 35 others, 2015: The Deep Propagating Gravity Wave Experiment (DEEPWAVE): An Airborne and Ground-Based Exploration of Gravity Wave Propagation and Effects from their Sources throughout the Lower and Middle Atmosphere. *Bull. Amer. Meteor. Soc.*, 97, 425-453
- Watson, C. D., Smith, R. B., and A. D. Nugent, 2015: Processes controlling precipitation in shallow, orographic, trade-wind convection. *J. Atmos. Sci.*, 72, 3051-3072
- Watson, C. D., and T. P. Lane, 2014: Further sensitivities of orographic precipitation to terrain geometry in idealized simulations. *J. Atmos. Sci.*, 71, 3068-3089.
- Watson, C. D., and T. P. Lane, 2012: Sensitivities of Orographic Precipitation to Terrain Geometry and Upstream Conditions in Idealized Simulations. *J. Atmos. Sci.*, 69, 1208-1231.
- Lane, T. P., Doyle, J. D., Sharman, R. D., Shapiro, M. A., and C. D. Watson, 2009: Statistics and Dynamics of Aircraft Encounters of Turbulence over Greenland. *Mon. Wea. Rev.*, 137, 2687-2702.

PUBLICATIONS – OTHER

- Watson, C. D., 2013: On the dynamics of orographic precipitation in idealized and realistic settings. *PhD Thesis*. <https://minerva-access.unimelb.edu.au/handle/11343/37964>
- Watson, C. D., 2006: Evaluation of precipitation and temperature in the 21st century for Antarctica and Greenland based on IPCC model scenarios. *Hons Thesis*. <http://earthsci.unimelb.edu.au/engage/theses>

INTERVIEWS / MEDIA / ETC

- Watson, C. D., 2017: I Surfed a Perfect Man-Made Wave in the Heart of Texas. *Motherboard, Vice Media*. https://motherboard.vice.com/en_us/article/zmvmbx/i-surfed-a-perfect-man-made-wave-in-the-heart-of-texas
- Watson, C. D., 2017: Storm in a log file: A one-man weather station. *IBM Research*. <https://www.ibm.com/blogs/research/2017/08/storm-log-file/>
- Interview for Quartz about DOMEX, orographic precipitation and cloud physics in Dominica, 2017: <https://qz.com/1034370/the-weather-in-dominica-isnt-as-it-appears-and-the-clouds-that-form-there-could-change-our-predictions-of-climate-change/>
- News item about DEEPWAVE in New Zealand by the Yale Climate and Energy Institute, 2014: <http://climate.yale.edu/penumbra/eight-miles-high>

SELECTED PRESENTATIONS – INVITED

- April 2017: *Science Solved It: Launch of a new Vice Motherboard podcast – 2017 Taste of Science Festival, Brooklyn, NYC*
- June 2016: *US Environmental Protection Agency – The Jefferson Project, The Darrin Fresh Water Institute, NY*
- March 2016: *IBM Research: Melbourne Lab Seminar Series, Melbourne, Australia*
- July 2014: *The Centre for Australian Weather and Climate Research, Bureau of Meteorology, Melbourne, Australia*

- July 2014: *School of Earth Sciences, The University of Melbourne, Australia*
- June 2014: *Department of Physics, The University of Auckland, NZ*
- March 2014: *Lamont-Doherty Earth Observatory / Columbia University, NY*
- January 2013: *Department of Geology & Geophysics, Yale University, CT*
- December 2012: *School of Earth Sciences, The University of Melbourne, Australia*

SELECTED PRESENTATIONS – CONFERENCES

- January 2017: *97th Annual Meeting of the American Meteorological Society, Seattle, WA*
- June 2016: *17th Conference on Mountain Meteorology, Burlington, VT*
- January 2016: *96th Annual Meeting of the American Meteorological Society, New Orleans, LA*
- December 2015: *American Geophysical Union Fall Meeting, San Francisco, CA*
- August 2015: *16th Conference on Mesoscale Processes, Boston, MA*
- August 2014: *16th Conference on Mountain Meteorology, CA*
- August 2013: *15th Conference on Mesoscale Processes, OR*
- June 2013: *19th Conference on Atmospheric and Oceanic Fluid Dynamics, RI*
- February 2013: *19th National Conference of the Australian Meteorological and Oceanographic Society, Australia*
- August 2012: *15th Conference on Mountain Meteorology, CO*
- February 2012: *18th National Conference of the Australian Meteorological and Oceanographic Society, Australia*
- February 2011: *17th National Conference of the Australian Meteorological and Oceanographic Society, Australia*

PATENTS AND TECHNICAL PUBLICATIONS

- Two patents filed by IBM related to machine learning and physical models
- Seven patents undergoing internal review
- A technical note published by IBM on predicting the temperature of precipitation

FIELD WORK / CAMPAIGNS

- The Jefferson Project at Lake George
- DEEPWAVE NZ (Deeply Propagating Gravity Wave Experiment over New Zealand)

IT

- Proficient in Python, Fortran, scripting languages (e.g., BASH), Git, LATEX, IDL, NCL. Some experience with C, C++, MATLAB
- Significant experience with numerical weather (WRF) and land surface (Noah/Noah-MP) prediction models in operational forecasting and research capacities
- Mac/Linux/Windows, high-performance parallel (cluster) computing environments

PROFESSIONAL SERVICE

- Expert reviewer for *JAS, QJR, MWR, JAMC*, and *NSF Grant Proposals*
- President of Earth Science Graduate Society at The University of Melbourne, 2009- 2010
- Convener of *Victorian Universities Earth and Environment Conference*, 2010
- Member of American Meteorological Society (2012-), Australian Meteorological and Oceanographic Society (2009-), American Geophysical Union (2014-)
- Treasurer of the Melbourne University Surf Riders Association, 2005-2006