

CURRICULUM VITAE

Matthias Roth

Present Affiliation

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	GS: https://scholar.google.com/citations?user=dITWdksAAAAJ&hl=en

Education

PhD	1991: Atmospheric Science Program, Department of Geography, University of British Columbia, Vancouver, BC, Canada (Turbulent transfer characteristics over a suburban surface; advisor: TR Oke)
MSc	1988: Department of Geography, University of British Columbia, Vancouver, BC, Canada (Spectral analysis of turbulence in an unstable suburban atmosphere; advisors TR Oke and DG Steyn)
Dipl Natw	1985: Swiss Federal Institute of Technology (ETH), Zürich (Albedo measurement over the Swiss Plateau region; advisors: A Ohmura and K Steffen)

Employment

2018-present	Professor (NUS, Singapore)
2006-present	Tenure (NUS, Singapore)
2001-2017	Associate Professor (NUS, Singapore)
1999-00	Assistant Professor (NUS, Singapore)
1996-99	Research Associate/Adjunct Professor (UBC, Vancouver) (SNF senior research fellow)
1993-96	JSPS postdoc fellow (Res Inst Appl Mechanics, Kyushu University, Fukuoka, Japan; advisors: H Ueda and I Uno)
1991-93	STA postdoc fellow (Natl Inst Env Studies, Tsukuba, Japan; advisor: I Uno)

Research Interests/Qualifications

- Climatology in the context of physical geography and applied meteorology with a special interest in boundary-layer phenomena and turbulence at the micro and local scales, particularly in the urban environment
- Effects of land use changes on the local climate with a particular focus on the climate of cities (e.g. the urban heat island) and the role they play in climate change
- Examination of the physical processes which regulate the energy and mass exchanges between the urban surface and atmosphere
- Evaluation of micrometeorological methods and techniques for the measurement of energy and mass exchanges in the urban environment

Academic Awards

2018	ODPRT Grant for Research Excellence (NUS)
2013	ODPRT Grant for Research Excellence (NUS)
2011	Humanities and Social Sciences (HSS) Faculty Research Fellowship (NUS)
1992	Graduate Student Prize, Canadian Meteorological and Oceanographic Society (CMOS), for best graduate thesis in atmospheric/oceanographic sciences in Canada
1988/89	The University of British Columbia Graduate Fellowship (competitive)
1985/86	The University of British Columbia Graduate Fellowship (competitive)

Visiting Appointments

2022	Visiting Scholar, Foundation for Research and Technology (FORTH), Institute of Applied and Computational Mathematics (IACM), Remote Sensing Lab (RSL), Heraklion, Greece (4 months)
2021/22	Guest Professor, Institute for Atmospheric and Climate Science, ETH, Zurich, Switzerland (6 months)
2014	Visiting Professor, Environmental Engineering, EPFL, Switzerland (1 month)
2013	Visiting Scholar, Monash Weather and Climate, Monash University, Australia (7 month)
2013	Visiting Scholar, Geography, UBC, Canada (1 month)
2009	JSPS Visiting Scientist, Tokyo Institute of Technology, Tokyo, Japan (12 days)
2007	Visiting Scholar, School of Geographical Sciences, ASU, USA (3 months)
2007	Faculty Research Associate, Department of Mechanical & Aerospace Engineering, ASU, USA (2 months)
2006/07	Invited Visiting Professor, Institute for Atmospheric and Climate Science, ETH, Switzerland (6 months)
2003	JSPS Visiting Scientist, Research Institute for Applied Mechanics, Kyushu University, Japan (1 month)

Membership in Professional Organizations

2000-present	International Association for Urban Climate (member)
1999-present	UK Royal Meteorological Society (fellow); European Geophysical Society (member)
1997-present	Canadian Meteorological and Oceanographic Society (member)
1988-present	American Geophysical Union (member), American Meteorological Society (member)

Invited Presentations (international and accepted only with full or partial* funding)

2023	Beating the Heat 2023, Zurich, Switzerland, Sep 2023 (online, invited) (keynote)
2022	International Association of Meteorological Education and Sciences (IAMES), China, May 2022 (online, invited)
2019	1st International Workshop on Climate Change, Air Pollution, and Public Health (CAPH) (Chinese University Hong Kong), Hong Kong, May 2019
2017	Urban Meteorology and Climate Conference (Guy Carpenter Asia-Pacific Climate Impact Centre, City University of Hong Kong), Hong Kong, May 2017
2016	6th Intl Conference on Sustainable Energy and Environment (King Mongkut's University of Technology Thonburi), Bangkok, Thailand, Nov 2016 5th Asia-Pacific International Conference (Korea Legislation Res Inst), Seoul, South Korea, Nov 2016
2014	Intl Conferences on Geological, Geographical, Aerospace & Earth Sciences (AeroEarth 2014) (IIAI, SERSC), Bali, Indonesia, Oct 2014 (keynote)
2013	WISE Intl Workshop 2013 (WISE), Seoul, South Korea, Jun 2013
2012	Urban and Rural Meteorology Workshop 2012 (KMA), Jeju, South Korea, Aug 2012 Intl Workshop on the Digitization of Historical Climate Data (BMKG, KNMI), Bogor, Indonesia, Apr 2012
2011	Urban Climatology for Tropical and Sub-Tropical Regions (Chinese University of Hong Kong), Hong Kong, Dec 2011 Workshop on Carbon Dioxide in the Urban Atmosphere (U Auckland), Auckland, New Zealand, Dec 2011 (keynote)*
2010	1st International Conference on Sustainable Urbanization, Hong Kong, Dec 2010* Intl Conf Recent Advances in Space Technology Services & Climate Change, Chennai, India, Oct 2010 (keynote) WMO Inter-Regional CLIPS Training Workshop on Urban Climatology (WMO), Pune, India, Sep 2010 (panel member)
2009	ASEAN 100 Leadership Forum 2009, Bangkok, Thailand, Oct 2009 (role player) World Climate Conference 3, Geneva, Switzerland, Oct/Sep 2009 (chair) 7th Intl Conf Urban Climatology, ICUC-7 (IAUC), Yokohama, Japan, Jun/Jul 2009 (keynote)
2008	Forestry Research Institute Malaysia Workshop, Kuala Lumpur, Malaysia, May 2008 (trainer)
2006	NATO Advanced Research Workshop on Atmospheric Boundary Layers, Dubrovnik, Croatia, Apr 2006 6 th Intl Conf Urban Climatology, ICUC-6 (IAUC), Göteborg, Sweden, Jun 2006 (plenary)
2002	IGES/APN Mega-City Project, Kitakyushu, Japan, 23-25 January 2002

Service to Profession

Organizations

2020-23	Lead Author, World Meteorological Society (WMO) Guidance on Measuring, Modelling and Monitoring the Canopy Layer Urban Heat Island (CL-UHI), WMO No 1292 (2023)
2021	Online webinar presentation as part of Masterclass: Understanding, Modeling, and Mitigating Urban Heat Islands, organised by Global Heat Health Information Network (GHINN)
2017-19	Member, World Meteorological Society (WMO) Expert Task Team (ETT) for 'Guide for Integrated Urban Weather, Environment and Climate Services' (IUWECS) (2019)
2014-present	Member, Asian Network on Climate Science and Technology (ANCST) International Scientific Advisory Committee
2007-08	Member, Advisory Committee, Climate Change Exhibition, Singapore Science Centre
2010-12	Past President, International Association for Urban Climate (IAUC)
2007-09	President (elected), International Association for Urban Climate (IAUC)
2006-09	Treasurer, International Association for Urban Climate (IAUC)
2003-06	Secretary, International Association for Urban Climate (IAUC)
2003-present	Scientific Advisor, International Carbon Bank & Exchange, Gainesville, Florida
2000-03	Board member, International Association for Urban Climate (IAUC)
1999	Accreditation, Consultant, Canadian Meteorological and Oceanographic Society (CMOS)

Conferences/Workshops

2023	Member, Intl Sci Committee, Joint Urban Remote Sensing Event (JURSE) 2023, Heraklion, Greece
2016	Co-organisator, Urban Microclimate: Opportunities & Challenges (Institute for High Performance Computing, 14 Apr 2016, Singapore)
2014	Co-organisator, Workshop on Urban Heat Islands (Climate Science Experts Network, 6 Mar 2014, Singapore)
2013	Member Technical Program Committee, Asian Congress on Citizen & Environment Safety & Security (June 2013, Singapore)

2009-10 Trainer, Climate Change Workshops in ASEAN cities (Singapore Env Institute, MFA-IAI) (4x)
2009 Co-organizer and Chair, Working Session 8 (Climate and more sustainable cities), WMO World Climate Conference-3 (WCC-3) (31 Aug - 4 Sep 2009, Geneva)
2008-09 Chair, Intl Sci Committee, 7th International Conference on Urban Climate (2009, Yokohama)
2008 FRIM Workshop on Surface Flux Measurements using EC (Putrajaya, Malaysia, May 2008)
2008 Chair, Intl Workshop on Meteorology, Air Quality and Health Impacts in Tropical Urban Environments, NUS Environmental Research Institute (5-6 May 2008, Singapore)
2003, 06, 09, 12 Member, Intl Sci Committee, 5th (2003 Lodz), 6th (2006 Göteborg), 7th (2009 Yokohama), 8th (2012 Dublin) International Conference on Urban Climate

Journals

2013-present Associate Editor, *Intl J Climatol* (RMetS/Wiley-Blackwell)
2012-present Member, Editorial Board *Urban Climate* (Elsevier)
2009-11 Editor, special volume *Intl J Climatol* (RMetS/Wiley-Blackwell)
2009 Guest Editor Innovation Magazine (World Scientific Publishing)
2006-present Member, Editorial Board *Singapore J Trop Geog* (Wiley-Blackwell)
2006-07 Co-editor, special volume *Intl J Climatol* (RMetS/Wiley-Blackwell)

Review activity Manuscripts: *Adv Meteorol*, *Agric Forest Meteorol*, *Atmos Chem Phys*, *Atmos Env*, *Bound-Lay Meteorol*, *Bull Am Meteorol Soc*, *Climatic Change*, *Climate Res*, *Energy Buildings*, *Env Plann B*, *Intl J Biometeorol*, *Intl J Climatol*, *ISPRS J Photogramm*, *J Appl Meteorol Climatol*, *J Atmos Ocean Techn*, *J Fluid Mechanics*, *J Forest Res*, *J Geophys Res*, *Landscape Urban Plan*, *Meteorol Atmos Phys*, *Q J Roy Meteor Soc*, *Remote Sens Environ*, *Sci Total Env*, *Singapore J Trop Geog*, *Theor Appl Climatol*, *Urban Climate*, *Urb Forst Urb Green*

Special Reports: IARU Copenhagen Climate Congress Synthesis Report (06/2009)

Grants: Council (Hong Kong) 2x, German Research Foundation, DFG (Germany) 3x, EOS (Singapore), FUTURE (France), Helmholtz Research Field (Germany), Israel Ministry of Science and Technology (Israel), National Science Centre (Poland), Natural Environment Research Council (UK), NRF-L2NIC (Singapore) 3x, Research Council for Natural Sci and Eng of the Academy of Finland (Finland), The Leverhulme Trust (EU), Yale-NUS (Singapore)

External reviewer for promotion: Ben Gurion University (Israel), Humboldt University Berlin (Germany), Tokyo Institute of Technology (Japan), Technical University Munich (Germany), University of Hawai'i at Manoa (USA), University of Western Ontario (Canada), University of Auckland (New Zealand), École Normale Supérieure (Paris, France), U of California-Santa Barbara (USA), University of Hong Kong (Hong Kong)

External thesis examiner: University of Malaya (Malaysia) (2x); Monash University (Australia), University of Göteborg (Sweden); The University of Hong Kong (Hong Kong)

Service to University

Department

2019- Search Committee for junior/senior GIS/physical geography faculty position, 5x (chair)
2019 Senior Hiring Committee (member), Research Committee (chair)
2016-19 MTAR Committee, 3x (chair)
2015-19 Space Working Group (chair)
08/2012-present Geography Management Team (member)
08/2012-2019 Deputy Head
01-07/2012 Acting Head
2011 Search Committee for Head of Department (member)
2010-11 Deputy Head
2010-11 Standing Search Committee (chair)
2010-present Department Evaluation Committee, 3x / Conversion Committee, 3x (chair, member)
2008-18 Annual Review Committee (member)
2008-11 Department Executive Committee (member)
2008-13 SJTG Conference Award Evaluation Committee (chair)
2010 PDF/IMMF/Visiting Scholar Scheme Committee (chair)
2008-10 Undergraduate Curriculum Committee (co-chair)
2007-10 Teaching Strategy Sub-Committee (co-chair)
2001-06 Department Seminar Series (chair, co-chair)
1999-present Member: Curriculum Review Committee (1999-02); Strategic Executive Committee (2003-04); Dept Evaluation Committee (2008-09, 2023); Dept Seminar Series (1999-00); Dept Webpage Advisor (2004-06); Fire Warden (2008-11); Geography Research Committee (1999-00); Geolab Committee (1999-04, 06); Graduate Curriculum Committee (2003); Graduate Student Committee (1999-07); Journal Classification Committee (2003, 2006-07); Laboratory/Dept Equipment Committee (2007-10); Level Advisor (2000-11); Tropical Environmental Change Group (2007-present); PDF/IMMF/Visiting Scholar Scheme Committee (2000-04, 2007-08, 2009-10); Research/Teaching Strategies Umbrella Committee (2004-05, 2007-08); Human Geography Full P Search Committee (2022); Phys Geog Search Committee (2001, 03, 07, 15-16), Teaching Peer Review (2007-present); Undergraduate Studies Committee (2015-2019)

Faculty

2019-present Senior Faculty Promotion Committee (member)
2008-10 Faculty Curriculum Review Committee (member)

University

2021-present Smart, Safe and Sustainable (S3) Campus Steering Committee (member)
2012, 16 Search committee for 3 BES lecturers (chair)
2011-19 Bachelor of Environmental Studies (BES) Programme (deputy director)
2010-11 Bachelor of Environmental Studies (BES) Management Committee (member)
2010-11 Task Force, Environmental Studies Programme (member)

Public Service

Presentations / Training in Schools / Government Agencies / Others

2020 Member, closed-door session on Singapore's long-term low emissions development strategy; National Climate Change Secretariat (NCCS)
2013 Geog Teacher's Assoc AGM speaker; Singapore-German Chamber of Commerce (SGC) business luncheon speaker
2012-present Trainer, National Geography Talent Development Programme (MOE-TDP) (6x)
2007-2016 Singapore Environment Institute (training for government officials from developing countries on climate change science / governance / risk / management / mitigation topics) (>30x)
2009 Chair, Judging Panel JC Division, National Weather Study Project Final Competition
2008 NUS-CSC, NUS-SDE, NUS-USP, Meridian Junior College
2007 NEA training workshop (Senkang Community Hub), Institute for Technical Education
2006-present Institute of Policy Studies, Meridian Junior College, Millenia Institute
2005 Ngee Ann Polytechnic, Asia Excise Taxation Conference, AOGS-Suntec City, WMO keynote lecture at Geylang East Community Library

Newspaper/online media

2000-present >90 expert interviews for CNA digital, The Straits Times, The Business Times, Lianhe Zaobao, The New Paper, Today, myPaper, the Shin Min Daily News, The Starts Times Interactive, The Sunday Times, Climate Control Middle East (Dubai), The Star (Malaysia), Süddeutsche Zeitung (Germany), CNN (Hong Kong)

TV

2000-present >30 appearances on Channel News Asia, Channel 5, Channel 8, Mediacorp TV12, Channel U, TV3 (France), ZDF (Germany), 3SAT (Germany)

Radio

2000-present 6 interviews on Newsradio 93.8, Capital Radio 95.8

Teaching

Undergraduate courses (fraction, yearly enrollment)

1999-present GE1101E/GEM1001K/GEK1001: Place, Environment and Society, 9x (1/2, 200-500); GE2219: Climate, Water and Environment, 9x (1/2, 50-150); GE2228: Atmospheric Environments, 11x (1, 130-199); GE2228/GE3253: Weather and Climate, 6x (1, 50-180); GE3221: Ecological Systems, 1x (1/2, 40); GE3227/GE4235: Urban Climates, 22x (1, 21-47); GE4212: Environmental Modeling 6x (1, 4-25); ENV2101: Global Environmental Change (1/3, 45); ENV4101: Environmental Management in Singapore, 2x (1/2; 46)

Graduate courses

1999-2008 GE5217: Res methods in Env Sciences, 3x; GE5220: Selected Topics in Geography I, 4x; GE6215: Current Issues in Env Sciences, 2x

Curriculum development

2009-2019 University-level task force and Program Deputy Director for new university-wide Environmental Studies Program

Teaching equipment grants

2002-present Faculty teaching equipment grants totaling ~S\$180,000

Graduate Student /Postdoc Supervision

Graduate students (Degree, role; title)

2021-present So Hoi Kay (MSocSci, supervisor; park cool islands from satellite imagery)
2015-21 Minghong Yu (PhD, supervisor; 3D microclimate variations over different urban land covers; incomplete)
2012-15 Sok Huang Tan (MSocSci, supervisor; Commuter exposure to aerosol pollution on public transport in Singapore)
2011-14 Vanessa Lim (MSocSci, supervisor; Measuring and modeling spatial variation of temperature and thermal comfort in a low-density neighbourhood in Singapore)
2011-16 Suraj Harshan (PhD, supervisor; Adaptation of an urban land surface model to a tropical suburban area: offline evaluation, sensitivity analysis, and optimization of TEB/ISBA (SURFEX))
2010-11 Anita Rawat (MTech, co-supervisor; Spectral analysis of surface-layer turbulence in a suburban area of a tropical city 'Singapore')

	Khoo Yuanling (MEnvMngmt, supervisor; Historical surface air temperature trends and the effects of the urban heat island in Singapore and Peninsular Malaysia)
2009-13	Reuben Li Mingguang (MSocSci, supervisor; Spatio-temporal dynamics of the urban heat island in Singapore)
2008-10	Anne Quah (MSocSci, supervisor; Estimation of anthropogenic heat release in Singapore)
2005-08	Muhammad Rahiz (MSocSci, supervisor; Temporal and spatial patterns of near-surface CO2 concentrations in Singapore)
2003-04	Adelene Anthony Sinniah (MEnvMngmt, supervisor; A case study on climate change and greenhouse gas emissions in Malaysia)
2002-08	Katarina Manik Tumiar (PhD, committee member; Hydrological consequences of converting forestland to coffee plantations and other agricultural crops on Sumber Jaya watershed, West Lampung, Indonesia)
2002-06	Junjiro Negishi (PhD, committee member; Understanding intra-catchment processes related to management of tropical headwater catchments)
2002-04	Winston TL Chow (MSocSci, supervisor; The temporal dynamics of the urban heat island of Singapore)

Postocs (current affiliation)

2021-present	Pratiman Patel (Dept Geography, NUS)
2019-21	Beatriz Sanchez-Sanchez (CIEMAT, Spain)
2016-20	Andrés Simón-Moral (TECNALIA, Spain)
2008-11	Bernadett Balazs (University of Szeged Hungary) (co-supervision with SMART)
2008-10	Erik Velasco (Molina Center, USA)
2006-07	Christer Jansson (Swedish Meteorological and Hydrological Institute)
2002-06	ANV Satyanarayana (IIT Kharagpur, India)

Publications

See separate document