

**Curriculum Vitae** of Thian Yew Gan, PhD, PEng, PE, Fellow of ASCE

Department of Civil and Environmental Engineering, 7-230 Donadeo Innovation Centre for Engineering  
University of Alberta, 9211-116 Street, Edmonton, Alberta T6G 1H9, Tel: (780)492-9376, tgan@ualberta.ca  
<https://www.ualberta.ca/engineering/faculty/ty-gan>; <https://www.linkedin.com/in/thian-yew-gan-6651bb81/>  
[https://www.researchgate.net/profile/Thian\\_Yew\\_Gan](https://www.researchgate.net/profile/Thian_Yew_Gan)  
<https://www.daad-canada.ca/en/2020/03/19/research-ambassador-profile-dr-thian-yew-gan/>



**Education Background**

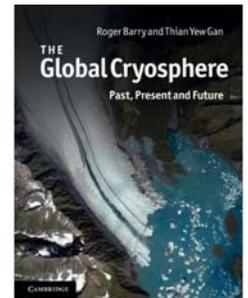
- 1987 Ph.D., University of Washington at Seattle, USA
- 1979 M.S.E., University of Texas at Austin, USA
- 1977 B.E. (Hons) Civil Engineering, University of Malaya

**Biography**

Thian Yew Gan is a professor of the University of Alberta, Edmonton, Canada since 1993, research ambassador of German Academic Exchange Service, and a fellow of the American Society of Civil Engineers (ASCE). Dr. Gan is internationally renowned for his many innovative, multidisciplinary contributions to our understanding in hydrology, hydroclimatology, cryosphere, remote sensing of environment, and water resources management. He is a pioneer in research regarding climate change impact to water resources, and developed many practical engineering tools/models for hydrologic forecasting, and innovative algorithms to retrieve large-scale spatial information from remotely sensed data. Dr. Gan has supervised 10 postdoctoral fellows, graduated 17 PhDs and 30 master students, has published two books, “*Global Cryosphere – Past, Present and Future*”, 1<sup>st</sup> & 2<sup>nd</sup> Edition, Cambridge University Press, and over 140 refereed papers in various reputable, peer reviewed international journals of (1) Nature Publishing Group, e.g., Nature Climate Change; (2) American Geophysical Union, e.g., Water Resources Research, Journal Geophysical Research-atmosphere; (3) American Meteorological Society, e.g., Journal of Climate, Journal Applied Meteorology, Journal of Hydrometeorology, (4) Royal Meteorological Society such as International Journal of Climatology, (5) Elsevier Science, e.g., Advances in Water Resources and Journal of Hydrology, (6) ASCE such as Journal of Hydrologic Engineering, (7) Hydrologic Processes, International Journal of Remote Sensing, Remote Sensing of Environment, Int. J. of Applied Earth Observation and Geoinformation, & Quaternary International.

**Visiting Professorships and Honors**

- 2020 LEWI fellow, Hong Kong Baptist University
- 2020 Robert & Maude Gledden Senior Visiting Fellow, University Western Australia
- 2019 Nanshan Professor, Southern U. Science & Technology, Shenzhen, China
- 2019 Visiting Professor-World Expert Lecture, University of Philippines Visayas
- 2018-2022 Lead Author & Expert reviewer, Intergovernmental Panel of Climate Change
- 2019 University Fellow, Hong Kong Baptist University
- 2018 Expert reviewer, Special Rept SR1.5, Intergovernmental Panel of Climate Change
- 2016, 2017 Visiting Professor, Chinese University of Hong Kong and Hong Kong University
- 2015 Visiting Professor, Technical University of Berlin, Germany
- 2014 Isaac Manasseh Meyer Fellow, National University of Singapore, Singapore
- 2013 Visiting Scholar, United Nation University-FLORES, Dresden, Germany  
Visiting Professor, Aalto University, Otaneimi, Finland  
Tan Chin Tuan Fellow, Nanyang Technological University, Singapore
- 2012 Rossby Visiting Fellow, International Meteorological Institute, Stockholm University
- 2011-Present DAAD (German Academic Exchange Service) Research Ambassador, Germany.
- 2011 Erskine Visiting Fellow, University of Canterbury, Christchurch, New Zealand
- 2010 Visiting professor to EPFL, EFLUM Lab of Env. Fluid & Hydrology, Lausanne, Switzerland
- 2009 France-Canada Research Grant Recipient, Cemagraf, Anthony Cedex, France
- 2007, 2008 Cooperative Inst. Research on Environmental Sc. Visiting Fellow, Uni. of Colorado at Boulder
- 2006/07 Guest University Professor (W3), Technical University of Munich
- 1998-2005 Adjunct professor of Utah State University
- 2004 Elected Fellow of American Society of Civil Engineers
- 2004- Present Honorary Professor of Xian University of Technology, China
- 2010-2013 Honorary professor of Yangtze University, China
- 1999-2000 Visiting professor of Kyoto University and JSPS Fellow
- 1999 Guest professor of Saga University, Japan



2002-present Professor, Dept. of Civil & Environmental Engineering, University of Alberta  
 1996-2002 Tenured Associate Professor, Dept. of Civil & Environmental Engineering, Uni. of Alberta  
 1993-1996 Untenured Associate Professor, Dept. of Civil & Environmental Engineering, Uni. of Alberta.  
 1992-93 Regional Hydrologist, Indian & Northern Affairs Canada, Canada  
 1991 Visiting Research fellow, National Hydrology Research Centre, Canada  
 1989-1990 Assistant professor of Asian Institute of Technology, Thailand

**Awards**

2020 LEWI fellow, Hong Kong Baptist University  
 2020 Robert and Maude Gledden Senior Visiting Fellowship, University Western Australia  
 2019 University Fellowship (Sir Run-Run Shaw Foundation), Hong Kong Baptist University  
 2017 Association of Science and Engineering Technology Professionals of Alberta  
 Technical (ASET) Excellence Award of 2017  
 2014 Isaac Manasseh Meyer Fellowship of National University of Singapore  
 2013 Tan Chin Tuan Fellowship, Nanyang Technological University, Singapore  
 2012 Rossby Fellowship, Stockholm University, Sweden  
 2011 Erskine Visiting Fellowship, University of Canterbury, New Zealand  
 2010 SWISS National Science Foundation (NSF) Fellowship  
 2007 CIRES (Cooperative Institute Research on Environmental Sciences) Fellowship, University of Colorado at Boulder  
 2006 German Academic Exchange Service (DAAD) Professorship at Technical University Munich  
 2000 Japan Society for the Promotion of Science (JSPS) Fellowship

Hirsch index score: **H40** and about **6,000** scientific citations (Google Scholar).

Research Gate score = **40.54** (Top 97.5% of Research Gate members of over 16 million)

**Books:** (1) Barry, R., and Gan, T. Y., 2011, *Global Cryosphere, Past, Present and Future*, 472 pages, Cambridge University Press, ISBN: 9780521769815 (Hardcover) & 9780521156851 (Paperback).

(2) Barry, R., and Gan, T. Y., 2020, *Global Cryosphere, Past, Present and Future*, 2<sup>nd</sup> Edition, in press, Cambridge University Press.

**Campus ADMINISTRATIVE COMMITTEE**

Office	Committee/ Department	Department/ University
University Fellow of HKBU (2019)	Develop student exchange program between HKBU and U of Alberta	Department of Geography, Hong Kong Baptist Univ.
Advisor (2017)	HKU Science Dean's Advisory Board for Director of Research Division of Earth and Planetary Science	Faculty of Science Hong Kong University (HKU)
Committee member Chair (2009-2010)	Faculty staff search Committee	University of Alberta
Member (2009-2012)	Academic Faculty Committee, AASUA	University of Alberta
Committee member	Graduate Faculty Committee	University of Alberta
Committee member	Dean of Augustana College Search Committee	Augustana College, University of Alberta
Committee member	Dean of Engineering Search Committee	Faculty of Engineering University of Alberta
Councillor & Member (July, 2002 – June 2003)	Faculty Evaluation Committee	Faculty of Engineering University of Alberta
Moderator (Aug 1997–Aug1998)	New Professors' Forum	Faculty of Engineering
Graduate Coordinator (Sep.1996–Jun1999)	Water Resources Graduate Programming	Civil & Environmental Engineering, U. of Alberta
Member (Sep.1996–Jun2000)	Department Infrastructure	Civil & Environmental Engineering, U. of Alberta
Member (Sep1994–Aug1996)	Academic Planning	Civil & Environmental Engineering, U. of Alberta
Member	Task Force on Risk Analysis in Civil Engineering	Civil & Environmental Engineering, U. of Alberta

**Refereed Journal Papers**

- (144) Yang, Y., Gan, T. Y and Tan, X., 2020, Changing characteristics of dry and wet spells in Canada, submitted to *Climatic Change*.
- (143) Tariku, T. B., K. E., Gan, X., Tan, Gan, T. Y., H. Shi, Tilmant, A., 2020, Climate Change Impact to Blue Nile River Basin and the Optimal Operation of its Multi-reservoir System for Hydropower and Irrigation, submitted to *Science of Total Environment*.
- (142) Gizaw, M., and Gan, T. Y., Yang Y., 2020, Trends in Convective Available Potential Energy (CAPE) and extreme precipitation indices over the United States and southern Canada for summer of 1979-2013, submitted to *Journal of Theoretical and Applied Meteorology*, Elsevier Science.
- (142) Pervin, L., and Gan, T. Y., 2020, Sensitivity of physical parameterization schemes in WRF model for dynamic downscaling of climatic variables over the MRB, *J. of Water and Climate Change*, IWA Publishing, <https://doi.org/10.2166/wcc.2020.036>
- (141) Kuo, C. C., Gan, T. Y., Gan, K. E., Yang, Y., 2020, Projections of Intensity Duration Frequency curves of central Alberta under climate change impact, revised, *International Journal of Climatology*.
- (140) Mahmoud, S., and Gan, T. Y., 2020, Multidecadal variability in the Nile River Basin hydroclimate controlled by ENSO & Indian Ocean Dipole, *Science of Total Environment*, <https://doi.org/10.1016/j.scitotenv.2020.141529>
- (139) Wu, Y., Gan, T. Y., She, Y., Xu, C., Yan, H., 2020, Five centuries of tree-ring based reconstruction of streamflow variability in Athabasca River basin, Canada and teleconnection to climate patterns, *Science of Total Environment*, <https://doi.org/10.1016/j.scitotenv.2020.141330>
- (138) Shi, H., Fu, Q., Gan, T. Y., Li, T., and, Zhou, Z., 2020, Assessing spatiotemporal characteristics of drought and its effects on climate-induced yield of maize in Northeast China, *J of Hydrology*, Elsevier Science, 588 (2020) 125097, <https://doi.org/10.1016/j.jhydrol.2020.125097>.
- (137) Lai, Y., Li, j., Gu, X., Chen, D., Kong, D., Gan, T. Y., Liu, M., Li, Q., Wu, G., 2020, Greater flood risks in response to slowdown of tropical cyclones over the coast of China, *Pro. Nat. Academy Science*, [www.pnas.org/cgi/doi/10.1073/pnas.1918987117](http://www.pnas.org/cgi/doi/10.1073/pnas.1918987117)
- (136) Tariku, T. B., T. Y. Gan, J. Li, X. Qin, 2020, Impact of Climate Change on Hydrology and Hydrologic Extremes of Upper Blue Nile River basin, in press, *Water Resources Management & Planning*, ASCE.
- (135) Allan, R.P, Barlow, M., Byrne, M.P., Cherchi, A., Douville, H., Fowler, H.J., Gan,T.Y., et al., 2020, Advances in understanding large-scale responses of the water cycle to climate change, *Annals of New York Acad. of Sc.*, Special Issue: The Year in Climate Science Research Review, [doi: 10.1111/nyas.14337](https://doi.org/10.1111/nyas.14337)
- (134) Zhang, S., Gan, T. Y., Bush, A. B. G., 2020, Variability of Arctic sea ice based on quantile regression and the teleconnection with large-scale climate patterns, *J. of Climate*, [DOI: 10.1175/JCLI-D-19-0375.1](https://doi.org/10.1175/JCLI-D-19-0375.1)
- (133) Kuo, C. C., Gan, T. Y., and Wang, J., 2020, Climate Change Impact to Mackenzie River Basin Projected by a Regional Climate Model, *Climate Dynamics*, [DOI: 10.1007/s00382-020-05177-7](https://doi.org/10.1007/s00382-020-05177-7)
- (132) Li, J., Gan, T. Y., et al., 2019, Tackling resolution mismatch of precipitation extremes from gridded GCMs and site-scale observations: implication to assessment and future projection, *Atmospheric Research*, [doi.org/10.1016/j.atmosres.2020.104908](https://doi.org/10.1016/j.atmosres.2020.104908)
- (131) Zhou, Z, Shi, H., Tian, Fu, Q, Li, X., Gan, T. Y., Liu, K., 2020, Is the cold region in Northeast China still getting warmer under climate change impact? *Atmospheric Research*, [doi.org/10.1016/j.atmosres.2020.104864](https://doi.org/10.1016/j.atmosres.2020.104864)
- (130) Liu, B., Tan, X, T. Y., Gan, et al., 2020, Global atmospheric moisture transport associated with precipitation extremes: Mechanisms and climate change impacts, *WIREs Water*, [DOI:10.1002/wat2.1412](https://doi.org/10.1002/wat2.1412)
- (129) Gaafar, M., Mahmoud, S., Gan, T. Y., Davies, E., 2019, A practical GIS-based hazard assessment framework for water quality in stormwater systems, *Journal of Cleaner Production*, <https://doi.org/10.1016/j.jclepro.2019.118855>
- (128) Yang, Y., Gan, T. Y and Tan, X., 2019, Spatiotemporal changes of drought characteristics and dynamic influences of climate patterns in Canada, *Atmosph. Res.*, <https://doi.org/10.1016/j.atmosres.2019.104695>
- (127) Tan, X., Gan, T. Y., et al., 2019, Trends in persistent seasonal-scale atmospheric circulation patterns responsible for seasonal precipitation totals and occurrences of precipitation extremes over Canada, *J. of Climate*, <https://doi.org/10.1175/JCLI-D-18-0408.1>

- (126) Yang, Y., Gan, T. Y and Tan, X., 2019, Spatiotemporal changes in precipitation extremes over Canada and their teleconnections to large-scale climate patterns, *J. of Hydrometeorology*, AMS, DOI: [10.1175/JHM-D-18-0004.1](https://doi.org/10.1175/JHM-D-18-0004.1)
- (125) Tan, X., Gan, T. Y., and Chen, D., 2019, Synoptic moisture pathways associated with mean and extreme precipitation over Canada for winter and spring, *Climate Dynamics*, <https://doi.org/10.1007/s00382-019-04649-9>
- (124) Chen, S, Gan, T. Y., Tan, X, Shao, D, and Zhu, J., 2019, Assessment of CFSR, ERA-Interim, JRA-55, MERRA-2, NCEP-2 Reanalysis data for drought analysis over China, *Climate Dynamics*, Vol. 53, Issue 1-2, pp. 737-757, DOI: [10.1007/s00382-018-04611-1](https://doi.org/10.1007/s00382-018-04611-1)
- (123) Tan, X., Chen, S., Gan, T. Y., Liu, B J, Chen, X. H., 2019, Dynamic and thermodynamic changes conducive to the increased occurrence of extreme spring fire weather over western Canada under possible anthropogenic climate change, *Agricultural and Forest Meteorology*, 265, 269-279, <https://doi.org/10.1016/j.agrformet.2018.11.026>
- (122) Mahmoud, S., and T. Y. Gan, 2019, [Irrigation Water Management in arid regions of Middle East: Assessing Spatio-temporal Variation of Actual Evapotranspiration through Remote Sensing Techniques and Meteorological Data](https://doi.org/10.1016/j.agwat.2018.08.040), *Agricultural Water Management*, <https://doi.org/10.1016/j.agwat.2018.08.040>
- (121) Scheepers, H., Wang, J., Gan, T. Y., and Kuo, C. C., 2018, [The impact of climate change on inland waterway transport: effects of low water levels on the Mackenzie River](https://doi.org/10.1016/j.jhydrol.2018.08.059), Vol, Pg. 285-298, *J of Hydrology*, <https://doi.org/10.1016/j.jhydrol.2018.08.059>
- (120) Jiang, R., X Wang, J Xie, TY Gan, 2018, [Discussion of “Uses of Precipitation-Based Climate Indices in Drought Characterization” by Chandramouli V. Chandramouli, Nicholas Kaoukis, Mohammad Karim, and Leslie Dorworth](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001536), *J. of Hydrologic Engineering*, [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001536](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001536)
- (119) Tan, X., Gan, T. Y., and Chen, D., 2018, [Synoptic moisture pathways associated with mean and extreme precipitation over Canada for summer and autumn](https://doi.org/10.1007/s00382-018-4300-6), *Climate Dynamics*, <https://doi.org/10.1007/s00382-018-4300-6>
- (118) Tan, X., Chen, S., Gan, T. Y., 2018, [Multi-model extreme event attribution of the weather conducive to 2016 Fort McMurray wildfire](https://doi.org/10.1016/j.agrformet.2018.06.010), *Agricultur. & Forest Met.*, <https://doi.org/10.1016/j.agrformet.2018.06.010>
- (117) Mahmoud, S., & Gan, T. Y., 2018d, [Multi-criteria Approach to develop flood susceptibility maps in arid regions of Middle East](https://doi.org/10.1016/j.jclepro.2018.06.047), *J. of Cleaner Production*, 216-229, <https://doi.org/10.1016/j.jclepro.2018.06.047>
- (116) Mahmoud, S., and Gan, T. Y., 2018c, [Implications of urbanization on long-term air temperature, relative humidity, vapor pressure and human thermal comfort in a hot-arid environment](https://doi.org/10.1016/j.buildenv.2018.06.007), *Building and Environment*, Elsevier Science, 142, 83–100, <https://doi.org/10.1016/j.buildenv.2018.06.007>
- (115) Kuo, C. C., and Gan, T. Y., 2018, [Estimation of precipitation and air temperature using WRF over Mackenzie River Basin](https://doi.org/10.1002/joc.5716), *International Journal of Climatology*, 2018;1–11. <https://doi.org/10.1002/joc.5716>
- (114) Tan, X., Gan, T. Y, Chen, S., 2018, [Modeling distributional changes in winter precipitation of Canada using Bayesian spatiotemporal quantile regression subjected to different teleconnections](https://doi.org/10.1007/s00382-018-4241-0), *Climate Dynamics*, <https://doi.org/10.1007/s00382-018-4241-0>
- (113) Tan, X., Gan, T. Y., and Horton, D., 2018, [Projected timing of perceivable change in extreme climate](https://doi.org/10.1111/gcb.14329), *Global Change Biology*, <https://doi.org/10.1111/gcb.14329>
- (112) Mahmoud, S., and T. Y. Gan, 2018b, [Urbanization and climate change implications in flood risk management: developing an efficient decision support system for flood susceptibility mapping](https://doi.org/10.1016/j.scitotenv.2018.04.282), 636 (2018), 152-167, *Science of Total Environment*, Elsevier Science, <https://doi.org/10.1016/j.scitotenv.2018.04.282>
- (111) Mahmoud, S., and T. Y. Gan, 2018a, [Impact of anthropogenic climate change and human activities on environment and ecosystem services in arid regions](https://doi.org/10.1016/j.scitotenv.2018.03.290), *Science of Total Environment*, Elsevier Science, 633, 1329–1344, <https://doi.org/10.1016/j.scitotenv.2018.03.290>
- (110) Tariku, T. B., and Gan, T. Y., 2018, [Regional Climate Change Impact on Extreme Precipitation and Temperature of the Nile River Basin](https://doi.org/10.1007/s00382-018-4092-8), *Climate Dynamics*, <https://doi.org/10.1007/s00382-018-4092-8>
- (109) Li, J., Gan, T.Y., Chen, D., Zhang, Q., Hu, Z., Gu, X., 2018, Impacts of spatial resolutions on projected changes in precipitation extremes: from site- to grid- scales, *Hydrology and Earth System Sciences*, Sci. Discuss., <https://doi.org/10.5194/hess-2017-359>
- (108) Li, J., Chen, D., Gan, T.Y., and Lau, G.N.C., 2018, [Elevated increases in human-perceived temperature under climate warming](https://doi.org/10.1038/s41558-017-0036-2), *Nature Climate Change*, 8, pg. 43–47, Nature Publishing Group, <https://doi.org/10.1038/s41558-017-0036-2>

- (107) Tariku, T. B., and Gan, T. Y., 2017, [Sensitivity of the weather research and forecasting model to parameterization schemes for regional climate of Nile River Basin](https://link.springer.com/article/10.1007/s00382-017-3870-z), *Climate Dynamics*, 50:4231–4247, <https://link.springer.com/article/10.1007/s00382-017-3870-z>
- (106) Jun, C., Qin, X. S., Gan, T. Y., Tung, Y. K., De Michele, C., 2017, [Bivariate frequency analysis of rainfall intensity and duration for urban stormwater infrastructure design](https://doi.org/10.1016/j.jhydrol.2017.08.004), *Journal of Hydrology*, Vol 553, 374-383, <https://doi.org/10.1016/j.jhydrol.2017.08.004>
- (105) Gizaw, M., Biftu, G., Gan, T. Y., Moges, S., and Koivosalo, H., 2017, [Potential Impact of climate change on streamflow of major Ethiopian rivers](https://doi:10.1007/s10584-017-2021-1), *Climatic Change*, <https://doi:10.1007/s10584-017-2021-1>
- (104) Tan, X., Gan, T. Y., Shao, D., 2017, [Effects of persistence and large-scale climate anomalies on trends and change points in extreme precipitation of Canada](https://dx.doi.org/10.1016/j.jhydrol.2017.05.028), *Journal of Hydrology*, Elsevier Science, 550 (2017) 453–465, <https://dx.doi.org/10.1016/j.jhydrol.2017.05.028>
- (103) Tan, X., Gan, T. Y., Chen, D., 2017, [Moisture sources and pathways associated with the spatial variability of seasonal extreme precipitation over Canada](https://doi.org/10.1007/s00382-017-3630-0), *Climate Dynamics*, <https://doi.org/10.1007/s00382-017-3630-0>
- (102) Tan, X., Gan, T. Y., and Shao, D., 2017, [Wavelet analysis of precipitation extremes over Canadian ecoregions and teleconnections to large-scale climate anomalies](https://doi.org/10.1002/2016JD025533), *J. of Geophysical Research-Atmosphere*, 121, AGU, <https://doi.org/10.1002/2016JD025533>
- (101) Kuo, C. C., Gan, T. Y., and Higuchi, K., 2017, [Potential impacts of climate change to streamflow patterns of River basins of Lake Simcoe](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001548), *J. of Hydrologic Engineering*, 22(9): 04017028, [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001548](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001548)
- (100) Tan, X., and Gan, T. Y., 2017, [Multifractality of Canadian precipitation and streamflow](https://doi.org/10.1002/joc.5078), *Int. J. Climatology*, John Wiley & Sons, <https://doi.org/10.1002/joc.5078>
- (99) Tan, X., and Gan, T. Y., 2017, [Non-stationary analysis of the frequency and intensity of heavy Precipitation over Canada and their relations to large-scale climate patterns](https://doi.org/10.1007/s00382-016-3246-9), 1-19, *Climate Dynamics*, <https://doi.org/10.1007/s00382-016-3246-9>
- (98) Gizaw, M., and Gan, T. Y., 2016, [Impact of Climate Change and El Niño Episodes on Droughts in sub-Saharan Africa](https://doi.org/10.1007/s00382-016-3366-2), *Climate Dynamics*, Springer, <https://doi.org/10.1007/s00382-016-3366-2>
- (97) Gizaw, M., and Gan, T. Y., 2016, [Regional Flood Frequency Analysis using Support Vector Regression under historical and future climate](https://doi.org/10.1016/j.jhydrol.2016.04.041), *Journal of Hydrology*, 538, 387-398, <https://doi.org/10.1016/j.jhydrol.2016.04.041>
- (96) Islam, Z., and Gan, T. Y., 2016, [Combined Impacts of Climate Change and ENSO on Surface Water Management of South Saskatchewan River Basin](https://doi.org/10.1061/(ASCE)WR.1943-5452.0000683), *J. Water Resou. Manage. & Plan.*, [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0000683](https://doi.org/10.1061/(ASCE)WR.1943-5452.0000683)
- (95) Tan, X., and Gan, T. Y., 2015, [Contribution of human and climate change impacts to changes in streamflow of Canada](https://doi.org/10.1038/srep17767), *Scientific Reports*, Nature Publishing Group, 5:17767. <https://doi.org/10.1038/srep17767>
- (94) Jiang, R., Gan, T. Y., Xie, J., Ni, W., and Kuo, C. C., 2015, [Historical and Potential Changes of Precipitation and Temperature of Alberta subjected to Climate Change Impact: 1900-2100](https://doi.org/10.1007/s00704-015-1664-y), *Journal of Theoretical and Applied Climatology*, <https://doi.org/10.1007/s00704-015-1664-y>
- (93) Elsanabary, M., Gan, T. Y., 2015, [Evaluation of climate Anomalies Impacts on the Upper Blue Nile Basin in Ethiopia Using a Distributed and a Lumped Hydrologic Models](https://doi.org/10.1016/j.jhydrol.2015.09.052), *Journal of Hydrology*, 530, 225-240. <https://doi.org/10.1016/j.jhydrol.2015.09.052>
- (92) Gan, T. Y., Mari Ito, S Huelsmann, X Qin, X Lu, S. Y Liang, P Rutschman, M Disse & H Koivosalo, 2015, [Possible climate change/variability and human impacts, vulnerability of African drought prone regions, its water resources and capacity building](https://doi.org/10.1080/02626667.2015.1057143), *Hydrological Sciences Journal*, <https://doi.org/10.1080/02626667.2015.1057143>
- (91) Gizaw, M., and Gan, T. Y., 2015, [Possible Impact of climate change on future extreme precipitation of the Oldman, Bow and Red Deer River Basins of Alberta](https://doi.org/10.1002/joc.4338), *Int. Journal Climatology*, 36(1), 208-224. <https://doi.org/10.1002/joc.4338>
- (90) Tseng, H. W., Gan, T. Y., and Yu, P. S., 2015, [Composite Drought indices of Monotonic Behaviour for Assessing Potential Impact of Climate Change to a Water Resources System](https://doi.org/10.1007/s11269-015-0945-7), *Water Resources Management*, 29(7), 2341-2359. <https://doi.org/10.1007/s11269-015-0945-7>

- (89) Islam, Z., and Gan, T. Y., 2015, [Hydrologic Modelling of Blue River Basin using NEXRAD Precipitation Data with a Semi and a Fully Distributed Models](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001179), *J Hydrologic Engineering*, 20(10). [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001179](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001179)
- (88) Tan, X., and Gan, T. Y., 2015, [Nonstationary analysis of annual maximum streamflow of Canada](https://doi.org/10.1175/JCLI-D-14-00538.1), *Journal of Climate*, 28, 1788-1805. <https://doi.org/10.1175/JCLI-D-14-00538.1>
- (87) Kuo, C. C. and Gan, T. Y., 2015, [Risk of exceeding Extreme Design Storm Events Under Possible Impact of Climate Change](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001228), *J. Hydrologic Engineering*, 20(12), 26 pages, ASCE, [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001228](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001228)
- (86) Islam, Z., and Gan, T. Y., 2015, [Potential Combined Hydrologic Impacts of Climate Change and El Niño Southern Oscillation to South Saskatchewan River Basin](https://doi.org/10.1016/j.jhydrol.2015.01.043), *J. of Hydrology*, 523, 34-48. <https://doi.org/10.1016/j.jhydrol.2015.01.043>
- (85) Kuo, C. C., Gan, T. Y., and Gizaw, M., 2015, [Potential impact of climate change on Intensity Duration Frequency curves of central Alberta](https://doi.org/10.1007/s10584-015-1347-9), *Climatic Change*, 130(2), 115-129. <https://doi.org/10.1007/s10584-015-1347-9>
- (84) Islam, Z., and Gan, T. Y., 2015, [Future Irrigation Demand of South Saskatchewan River Basin under the Combined Impacts of Climate Change and El Niño Southern Oscillation](https://doi.org/10.1007/s11269-015-0930-1), *Water Resources Management*, 29(6), 2091-2105. <https://doi.org/10.1007/s11269-015-0930-1>
- (83) Elsanabary, M., Gan, T. Y., 2015, [Weekly Streamflow Forecasting Using Statistical Disaggregation Model for the Upper Blue Nile Basin](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001072), *J. Hydrologic Engineering*, ASCE, 20(5). [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0001072](https://doi.org/10.1061/(ASCE)HE.1943-5584.0001072)
- (82) Fu, X., Gan, T. Y., and Kuo, C. C., 2014, [Change point analysis of precipitation indices of Western Canada](https://doi.org/10.1002/joc.4144), *Int J. of Climatology*, RMS, 35(9), 2592-2607. <https://doi.org/10.1002/joc.4144>
- (81) Hanrahan, J., Kuo, C. C., and Gan, T. Y., 2014, [Configuration and validation of a mesoscale atmospheric model for simulating summer rainfall in Alberta](https://doi.org/10.1002/joc.4011), *Int. J. of Climatology*, RMS, 35(5), 660-675. <https://doi.org/10.1002/joc.4011>
- (80) Kuo, C. C., Gan, T. Y., and Hanrahan, J., 2014, [Precipitation frequency analysis based on regional climate simulation in Central Alberta](https://doi.org/10.1016/j.jhydrol.2013.12.051), *J. of Hydrology*, Elsevier Science, 510, 436-446. <https://doi.org/10.1016/j.jhydrol.2013.12.051>
- (79) Gan, T. Y., Barry, R., and Gobena, A., 2014, Changes in Canadian Prairies Snowpacks for 1979-2004 Detected from the Snow Water Equivalent data of SMMR and SSM/I Passive Microwave & related Climatic Factors, AGU Chapman *Monograph on Remote Sensing of the Terrestrial Water Cycle*, AGU Geophysical Monograph number 206, 227-243. ISBN: 9781118872031.
- (78) Nasreen, J. and T. Y. Gan, 2014, Soil moisture retrieval from microwave (RADARSAT-2) and optical remote sensing (MODIS) data using artificial intelligence techniques, AGU Chapman *Monograph on Remote Sensing of the Terrestrial Water Cycle*, AGU Geophysical Monograph number 206, 255-275. ISBN: 9781118872031.
- (77) Islam, Z., and Gan, T. Y., 2014, [Effects of Climate Change on the Surface Water Management of South Saskatchewan River Basin](https://doi.org/10.1061/(ASCE)WR.1943-5452.0000326), *J. of Water Res. Planning & Management*, ASCE, 140(3), 332-342. [https://doi.org/10.1061/\(ASCE\)WR.1943-5452.0000326](https://doi.org/10.1061/(ASCE)WR.1943-5452.0000326)
- (76) Jiang, R. G., Gan, T. Y., Xie, J., and Ni, W., 2014, [Spatiotemporal variability of Alberta's seasonal precipitation, their teleconnection with large-scale climate anomalies and sea surface temperature](https://doi.org/10.1002/joc.3883), *Int. J. Climatology*, RMS, 34(9), 2899-2917. <https://doi.org/10.1002/joc.3883>
- (75) Kannel, P., and Gan, T. Y., 2013, [Application of WASP for modelling and management of naphthenic acids along Athabasca River, Alberta, Canada](https://doi.org/10.1007/s11270-013-1764-1), *Journal of Water, Air, & Soil Pollution*, 224(11). <https://doi.org/10.1007/s11270-013-1764-1>
- (74) Elsanabary, M., Gan, T. Y., Mwale, D., 2013, [Application of Wavelet Empirical Orthogonal Function Analysis to Investigate the Nonstationary Character of Ethiopian Rainfall and its Teleconnection to Nonstationary Global Sea Surface Temperature Variations for 1900-1998](https://doi.org/10.1002/joc.3802), *Int. J. of Climatology*, 34(6), 1798-1813. <https://doi.org/10.1002/joc.3802>
- (73) Elsanabary, M., and Gan, T. Y., 2013, [Wavelet Analysis of Seasonal Rainfall Variability of the Upper Blue Nile Basin, its Teleconnection to Global Sea Surface Temperature, and its Prediction by an Artificial Neural Network](https://doi.org/10.1175/MWR-D-13-00085.1), *Monthly Weather Review*, 142(5), 1771-1791 <https://doi.org/10.1175/MWR-D-13-00085.1>
- (72) Gan, T. Y., Barry, R., Gobena, A., and Rajagopalan, B., 2013, [Changes in North America Snowpacks for 1979-2007 Detected from the Snow Water Equivalent data of SMMR and SSM/I Passive Microwave &](https://doi.org/10.1007/s11270-013-1764-1)

- [related Climatic Factors](https://doi.org/10.1002/jgrd.50507), *J. Geophysic. Research-Atm.* 118(14), 7682-7697. <https://doi.org/10.1002/jgrd.50507>
- (71) Gobena, A., and Gan, T. Y., 2013, [Assessment of Trends and Possible Climate Change Impacts on Summer Moisture Availability in Western Canada based on Metrics of the Palmer Drought Severity Index](https://doi.org/10.1175/JCLI-D-12-00421.1), *Journal of Climate*, AMS, 26(13), 4583-4595. <https://doi.org/10.1175/JCLI-D-12-00421.1>
- (70) Kerkhoven, E., and Gan, T.Y., 2013, [Differences in the Potential Hydrologic Impact of Climate Change to the Athabasca and Fraser River Basins with & without Considering the Effects of Shifts in Vegetation patterns Caused by Climate Change](https://doi.org/10.1175/JHM-D-12-011.1), *Journal of Hydrometeorology*, 14(3), 963-976. <https://doi.org/10.1175/JHM-D-12-011.1>
- (69) Hossain, M. A., Gan, T. Y., and Baki, A. B. M., 2013, [Assessing Morphological Changes of the Ganges River using satellite Images](https://doi.org/10.1016/j.quaint.2013.03.028), *Quaternary International*, 304, 142-155. <https://doi.org/10.1016/j.quaint.2013.03.028>
- (68) Nasreen, J., and Gan, T. Y., 2013, [Developing a gross primary production model for coniferous forests of northeastern USA from MODIS data](https://doi.org/10.1016/j.jag.2013.03.006), *Int. J. of Applied Earth Observation and Geoinformation*, 25, 11-20, <https://doi.org/10.1016/j.jag.2013.03.006>
- (67) Kuo, C. C., Gan, T. Y., and Chen, S., 2013, [Regional Intensity-Duration-Frequency Curves Derived from Ensemble Empirical Mode Decomposition and Scaling Property](https://doi.org/10.1061/(ASCE)HE.1943-5584.0000612), *J. Hydrologic Engin.*, 18(1), 66-74. [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0000612](https://doi.org/10.1061/(ASCE)HE.1943-5584.0000612)
- (66) Kannel, P. R., and Gan, T. Y., 2012, [Naphthenic Acids Degradation and Toxicity Mitigation in Oil Sands Processed Water and Aquatic Environments - A Review](https://doi.org/10.1080/10934529.2012.629574), *Journal of Environmental Science And Health, Part A*, 47(1), 1-21, Taylor and Francis, <https://doi.org/10.1080/10934529.2012.629574>
- (65) Gan, T. Y., Zunic, F., Kuo, C. C., and Strobl, T., 2012, [Flood mapping of Danube River at Romania using single and multi-date ERS2-SAR Images](https://doi.org/10.1016/j.jag.2012.01.012), *Int. J. of App. Earth Obser. & Geoinformation*, 18, 69-81. <https://doi.org/10.1016/j.jag.2012.01.012>
- (64) Baki, A. B. M., and Gan, T. Y., 2012, [Riverbank migration and island dynamics of the braided Jamuna River of the Ganges–Brahmaputra basin using multi-temporal Landsat images](https://doi.org/10.1016/j.quaint.2012.03.016), *Quaternary International*, Elsevier Science, 263, 148-161. <https://doi.org/10.1016/j.quaint.2012.03.016>
- (63) Kerkhoven, E., and Gan, T.Y., 2011, [Differences and Sensitivities in Potential Hydrologic Impact of Climate Change to Regional-Scale Athabasca and Fraser River Basins of the Leeward and Windward Sides of the Canadian Rocky Mountains Respectively](https://doi.org/10.1007/s10584-010-9958-7), *Climatic Change*, 106(4), 583-607. <https://doi.org/10.1007/s10584-010-9958-7>
- (62) Tanzeeba, S., and Gan, T. Y., 2011, [Potential Impact Of Climate Change on the Water Availability of South Saskatchewan River Basin](https://doi.org/10.1007/s10584-011-0221-7), *Climatic Change*, 112(2), 355-386. <https://doi.org/10.1007/s10584-011-0221-7>
- (61) Nasreen, J., and Gan, T. Y., 2011, [Modelling the vegetation–climate relationship in a boreal mixedwood forest of Alberta using normalized difference and enhanced vegetation indices](https://doi.org/10.1080/01431160903464146), *Int. Remote Sensing*, 32(2), 313-335. <https://doi.org/10.1080/01431160903464146>
- (60) Mwale, D., Gan, T. Y., Devito, K., Mendoza, C., Silins, U., and Petrone, R., 2011, [Regionalization of Runoff Variability in Alberta, Canada by Empirical Orthogonal Functions and Independent Component Analysis](https://doi.org/10.1061/(ASCE)HE.1943-5584.0000284), *J. Hydrologic Engineering*, 16(2), 93-107. February 1, ASCE, [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0000284](https://doi.org/10.1061/(ASCE)HE.1943-5584.0000284)
- (59) Kannel, P. R., Kanel, S. R., Lee, S., Lee, Y. S., and Gan, T. Y., 2011, [A Review of Public Domain Water Quality Models for Simulating DO in Rivers](https://doi.org/10.1007/s10666-010-9235-1), *Environ Model Assess*, 16(2), 183–204. <https://doi.org/10.1007/s10666-010-9235-1>
- (58) Kalinga, O., and Gan, T. Y., 2011, [Merging WSR-88D stage III radar rainfall data with rain gauge measurements using wavelet analysis](https://doi.org/10.1080/01431161.2010.550641), *Int. J. Remote Sensing*, 33(4), 1078-1105. <https://doi.org/10.1080/01431161.2010.550641>
- (57) Smith, M., Koren V., Zhang, Z., Zhang, Y., Reed, S., Cui, Z., F. Moreda, B. Cosgrove, N. Mizukami, E. A. Anderson, Gan, T. Y., Islam, Z., et al., 2011, [Results of the DMIP 2 Oklahoma experiments](https://doi.org/10.1016/j.jhydrol.2011.08.056), *J. Hydrology*, 418-419, 17-48. <https://doi.org/10.1016/j.jhydrol.2011.08.056>
- (56) Kerkhoven, E., and T.Y. Gan, 2011, [Unconditional uncertainties of historical and simulated river flows subjected to climate change](https://doi.org/10.1016/j.jhydrol.2010.10.042), *J. of Hydrology*, 396(1-2), 113-127. <https://doi.org/10.1016/j.jhydrol.2010.10.042>
- (55) Mwale, D. and Gan, T.Y., 2010, [Integrating Wavelet Empirical Orthogonal Functions and Statistical Disaggregation for Predicting Weekly Streamflow from Seasonal Oceanic Variability for Kafue Basin](https://doi.org/10.1016/j.jhydrol.2010.10.042), *J. of Hydrology*, 396(1-2), 113-127. <https://doi.org/10.1016/j.jhydrol.2010.10.042>

- [https://doi.org/10.1061/\(ASCE\)HE.1943-5584.0000231](https://doi.org/10.1061/(ASCE)HE.1943-5584.0000231)  
Central Southern Africa, *J. Hydrologic Engineering*, 15(10), 822-833.
- (54) Kuo, C. C., Gan, T. Y., and Yu, P., 2010, [Seasonal streamflow prediction by a Combined Climate-Hydrologic System for river basins of Taiwan](https://doi.org/10.1016/j.jhydrol.2010.04.020), *J. of Hydrology*, 387(3-4), 292-303. <https://doi.org/10.1016/j.jhydrol.2010.04.020>
- (53) Gobena, A., and Gan, T. Y., 2010, [Incorporating of seasonal climate forecasts in the ensemble streamflow prediction system](https://doi.org/10.1016/j.jhydrol.2010.03.002), *J. of Hydrology*, 385(1-4), 336-352, <https://doi.org/10.1016/j.jhydrol.2010.03.002>
- (52) Kuo, C. C., Gan, T. Y., Yu, P. S., 2010, [Wavelet Analysis on the Variability, Teleconnectivity & Predictability of Seasonal Rainfall of Taiwan](http://doi.org/10.1175/2009MWR2718.1). *Monthly Weather Rev.*, 138(1), 162-175, AMS. DOI: <http://doi.org/10.1175/2009MWR2718.1>
- (51) Kalinga, O., and Gan, T. Y., 2010, [Estimation of Rainfall from Infrared-Microwave Satellite Data for Basin Scale Hydrologic Modelling](http://doi.org/10.1002/hyp.7626), *Hydrologic Proc.*, 24(15), 2068-2086. <http://doi.org/10.1002/hyp.7626>
- (50) Gobena, A., and Gan, T. Y., 2009, [The Role of Pacific Climate on Low Frequency Hydroclimatic Variability & Predictability in Southern Alberta, Canada](http://doi.org/10.1175/2009JHM1119.1), *J. of Hydromet.*, 10(6), 1463-1476. <http://doi.org/10.1175/2009JHM1119.1>
- (49) Gobena A. K., and Gan, T. Y., 2009, [Statistical ensemble seasonal streamflow forecasting in the South Saskatchewan River Basin by a modified nearest neighbours re-sampling](http://doi.org/10.1061/(ASCE)HE.1943-5584.0000021), *J. Hydrologic Engineering*, ASCE, 14(6), 628-639. [http://doi.org/10.1061/\(ASCE\)HE.1943-5584.0000021](http://doi.org/10.1061/(ASCE)HE.1943-5584.0000021)
- (48) Mwale, D., Gan, T. Y., Devito, K., and Silins, 2009, [Precipitation Variability & Its Relationship to Hydrologic Variability and Physical Features in Alberta](http://doi.org/10.1002/hyp.7415), *Hydrol. Proc.*, 23(21), 3040-3056. <http://doi.org/10.1002/hyp.7415>
- (47) Gan, T. Y., Kalinga, O., and Singh, P. R., 2009, [Comparison of Snow Water Equivalent Retrieved from SSM/I Passive Microwave data using Artificial Neural Network, Projection Pursuit & Nonlinear Regressions](http://doi.org/10.1016/j.rse.2009.01.004), *Remote Sensing of Environment*, 113(5), 919-927. <http://doi.org/10.1016/j.rse.2009.01.004>
- (46) Nasreen, J. and Gan, T. Y., 2009, [Modelling gross primary production of deciduous forest using remotely sensed radiation and ecosystem variables](http://doi.org/10.1029/2008JG000919), *J. Geophys. Res.*, 114, G04026, <http://doi.org/10.1029/2008JG000919>
- (45) Singh, P. R., Gan, T. Y., and A. K. Gobena, 2009, [Evaluating a hierarchy of snowmelt models at a watershed in the Canadian Prairies](http://doi.org/10.1029/2008JD010597), *J. Geophys. Res.*, 114, D04109, <http://doi.org/10.1029/2008JD010597>
- (44) Yue, S., and Gan, T. Y., 2008, [Scaling properties of Canadian flood flows](http://doi.org/10.1002/hyp.7135), *Hydrologic Processes*, 23, 245-258. [www.interscience.wiley.com, http://doi.org/10.1002/hyp.7135](http://doi.org/10.1002/hyp.7135)
- (43) Mwale, D., Gan, T. Y., et al., 2007, [Wavelet Empirical Orthogonal Functions Of Space-Time-Frequency Regimes & Predictability of Southern Africa Summer Rainfall](http://doi.org/10.1061/(ASCE)1084-0699(2007)12:5(513)), *J. Hydrologic Engineering*, ASCE, 12(5), 513-523. [http://doi.org/10.1061/\(ASCE\)1084-0699\(2007\)12:5\(513\)](http://doi.org/10.1061/(ASCE)1084-0699(2007)12:5(513))
- (42) Gan, T.Y., Gobena, A., and Wang, Q., 2007, [Precipitation of southwestern Canada: Wavelet, scaling, multifractal analysis, and teleconnection to climate anomalies](http://doi.org/10.1029/2006JD007157), *J. Geoph. Res.-Atm.*, 112, D10110, <http://doi.org/10.1029/2006JD007157>
- (41) Kalinga, O., and Gan, T. Y., 2006, [Semi-Distributed Modeling of Basin Hydrology with Radar and Gauged Precipitation](http://doi.org/10.1002/hyp.6385), *Hydrologic Processes*, 20(17), 3725-3746. <http://doi.org/10.1002/hyp.6385>
- (40) Kalinga, O., and Gan, T. Y., 2006, [Small storm precipitation estimation using merged radar and gauging data](http://doi.org/10.1080/01431160600857477), *International Journal of Remote Sensing*, 28(6), 1101-1112. <http://doi.org/10.1080/01431160600857477>
- (39) Kerkhoven, E., and Gan, T. Y., 2006, [A Modified ISBA Surface Scheme for Modeling the Hydrology of Athabasca River Basin with GCM-scale Data](http://doi.org/10.1016/j.advwatres.2005.07.016), *Advances in Water Resources*, 29(6), 808-826. <http://doi.org/10.1016/j.advwatres.2005.07.016>
- (38) Gobena A. K., and Gan, T. Y., 2006, [Low-frequency variability in southwestern Canadian streamflow: links to large-scale climate anomalies](http://doi.org/10.1002/joc.1336), *Int. J. Climatol.*, 26(13), 1843-1869. <http://doi.org/10.1002/joc.1336>
- (37) Gan, T. Y., and S. J., Burges, 2006, [Assessment of Soil-Based and Calibrated Parameters of the Sacramento Model and Parameter Transferability](http://doi.org/10.1016/j.jhydrol.2005.07.008), *J. of Hydrology*, 320(1-2), 117-131. <http://doi.org/10.1016/j.jhydrol.2005.07.008>
- (36) Kerkhoven, E., Gan, T.Y., Shiiba, M., G. Reuter, and Tanaka, K., 2006, [A comparison of cumulus parameterization schemes in a numerical weather prediction model for a monsoon rainfall event](http://doi.org/10.1002/hyp.5967), *Hydro. Processes*, 20(9), 1961-1978. <http://doi.org/10.1002/hyp.5967>

- (35) Mwale, D. and Gan, T.Y., 2005, [Wavelet analysis on variability, teleconnectivity and predictability of the September-November East African Rainfall](#), *J. of Applied Meteorology*, AMS, 44(2), 256-269. DOI: <http://doi.org/10.1175/JAM2195.1>
- (34) Devito, K., Creed, I., Gan, T.Y., Mendoza, C., Petrone, R., Silins, U., Smerdon, B., 2005, [A framework for broad-scale classification of hydrologic response units on the Boreal Plain: Is topography the last thing to consider?](#), *Hydrologic Processes Today*, 19(8), 1705-1714. <http://doi.org/10.1002/hyp.5881>
- (33) Singh, P.S., Gan, T.Y., and Gobena, A.K., 2005, [Modified Temperature Index Method Using Near-Surface Soil and Air Temperatures for Modeling Snowmelt in the Canadian Prairies](#), *J. of Hydro. Eng.*, ASCE, 10(5), 405-419. [http://doi.org/10.1061/\(ASCE\)1084-0699\(2005\)10:5\(405\)](http://doi.org/10.1061/(ASCE)1084-0699(2005)10:5(405))
- (32) Singh, P., & Gan, T. Y., 2005, [Modelling snowpack surface temperature in the Canadian Prairies using simplified heat flow models](#), *Hyd. Proc.*, 19(18), 3481-3500. <http://doi.org/10.1002/hyp.5839>
- (31) Mwale, D., Gan, T. Y., and Shen, S. S. P., 2004, [A new analysis on variability and predictability of seasonal rainfall of Central Southern Africa](#), *Int. J. of Climatology*, RMS, 24(12), 1509-1530. <http://doi.org/10.1002/joc.1062>
- (30) Ntale, H. K., and Gan, T.Y., 2004, [East African Rainfall Anomaly Patterns in Association with El Niño/Southern Oscillation](#), *J Hydrologic Eng.*, ASCE, 9(4), 257-268. [http://doi.org/10.1061/\(ASCE\)1084-0699\(2004\)9:4\(257\)](http://doi.org/10.1061/(ASCE)1084-0699(2004)9:4(257))
- (29) Biftu, G. F., and T.Y. Gan, 2004, [A semi-distributed, physics-based hydrologic model using remotely sensed and Digital Terrain Elevation Data for semi-arid catchments](#), *Int. J. Remote Sensing*, 25(20), 4351-4379. <http://doi.org/10.1080/01431160310001654374>
- (28) Yue, S. and Gan, T. Y., 2004, [Simple scaling properties of Canadian annual average streamflow](#), *Advances in Water Resources*, 27(5), 481-495. <http://doi.org/10.1016/j.advwatres.2004.02.019>
- (27) Gan, T.Y., Kalinga, O., K. Ohgushi, and H. Araki, 2004, [Retrieving Seawater Turbidity From Landsat-TM Data by Regressions and Artificial Neural Network](#), *Int. J. Remote Sensing*, 25(21), 4593-4615. <http://doi.org/10.1080/01431160410001655921>
- (26) Ohgushi, K., Araki, H., and Gan, T. Y., 2004, Water quality monitoring of the Ariake Sea by remote sensing and utilization of field observation, *International J. Lowland Technology*, 6(2), 1-9.
- (25) Ntale, H. K., and Gan, T.Y., 2003, [Drought indices and their application to East Africa](#), *Int J. of Climatology*, Royal Meteorological Society, 23(11), 1335-1357. <http://doi.org/10.1002/joc.931>
- (24) Ntale, H. K., and Gan, T.Y., Mwale, D., 2003, [Prediction of East African Seasonal Rainfall Using Canonical Correlation Analysis](#), *J. of Climate*, 16(12), 2105-2112. [http://doi.org/10.1175/1520-0442\(2003\)016<2105:POEASR>2.0.CO;2](http://doi.org/10.1175/1520-0442(2003)016<2105:POEASR>2.0.CO;2)
- (23) Gan, T.Y., Q. Wang, and M. Seneka, 2002, [Correlation Dimensions of Climate Sub-Systems and their Geographic Variability](#), *J. Geophysical Res.-Atmospheres*, 107, Iss. D23, p.4728. <http://doi.org/10.1029/2001JD001268>
- (22) Gan, T.Y., 2002, Relating runoff curve number to hydrologic conditions and soil properties, *International J. Lowland Technology*, 4(1), 21-36.
- (21) Biftu, G. F., and Gan, T.Y., 2001, [Semi-distributed, Physically Based, Hydrologic Modeling of the Paddle River Basin, Alberta using Remotely Sensed data](#), *J of Hydro.*, 244(3-4), 137-156. [http://doi.org/10.1016/S0022-1694\(01\)00333-X](http://doi.org/10.1016/S0022-1694(01)00333-X)
- (20) Singh, P.S., and Gan, T.Y., 2000, [Retrieval of snow water equivalent using passive microwave brightness temperature data](#), *Remote Sensing of Environment*, 74(2), 275-286. [http://doi.org/10.1016/S0034-4257\(00\)00121-8](http://doi.org/10.1016/S0034-4257(00)00121-8)
- (19) Biftu, G. F., and T.Y. Gan, 2000, [Assessment of evapotranspiration models applied to a watershed of Canadian Prairies with mixed land-uses](#), *Hydrologic Processes*, 14(7), 1305-1325. [http://doi.org/10.1002/\(SICI\)1099-1085\(200005\)14:7<1305::AID-HYP44>3.0.CO;2-E](http://doi.org/10.1002/(SICI)1099-1085(200005)14:7<1305::AID-HYP44>3.0.CO;2-E)
- (18) Gan, T. Y., 2000, [Reducing vulnerability of water resources of Canadian Prairies to potential droughts and possible climatic warming](#), *Wat. Resou. Management*, 14(2), 111-135, Kluwer Academic Publishers. <http://doi.org/10.1023/A:1008195827031>
- (17) Gan, T.Y., K. Ohgushi, and H. Araki, 2000, Estimating water quality of the Ariake sea in Japan using Landsat-TM data. - evaluation of SDD and SST, *International J. Lowland Technology*, 2(1), 47-64, IALT.
- (16) Biftu, G. F., and T.Y. Gan, 1999, [Retrieving near-surface soil moisture from Radarsat SAR data](#), *Water Resources Research*, 35(5), 1569-1579, American Geophysical Union. <http://doi.org/10.1029/1998WR900120>

- (15) Gan, T. Y., Z. Ahmad, and R. Harboe., 1998, Hydrologic impacts of climatic change on drainage basins in Thailand and in Swaziland, *J. of World Resources Review*, 9(4), 521-540.
- (14) Gan, T.Y., 1998, [Hydroclimatic trends and possible climatic warming in the Canadian Prairies](#), *Water Resources Research*, American Geophysical Union, 34(11), 3009-3015. <http://doi.org/10.1029/98WR01265>
- (13) Wang, Q., and Gan, T.Y., 1998, [Biases of correlation dimension estimates of streamflow data in the Canadian prairies](#), *Water Resources Research*, 34(9), 2329-2339, American Geophysical Union, <http://doi.org/10.1029/98WR01379>
- (12) Gan, T.Y., Dlamini, E.M., Biftu, G. F., 1997, [Effects of model complexity and structure, data quality, and objective functions on hydrologic modelling](#), *J. of Hydrology*, 192(1-4), 81-103, Elsevier Sc. [http://doi.org/10.1016/S0022-1694\(96\)03114-9](http://doi.org/10.1016/S0022-1694(96)03114-9)
- (11) Gan, T.Y., 1996, [International postgraduate program of water resources engineering in Asia](#), *J. of Professional Issues in Engineering Education and Practice*, ASCE, 122(1), 6-11. [http://doi.org/10.1061/\(ASCE\)1052-3928\(1996\)122:1\(6\)](http://doi.org/10.1061/(ASCE)1052-3928(1996)122:1(6))
- (10) Gan, T.Y., and Biftu, G. F., 1996, [Automatic calibration of conceptual rainfall-runoff models: optimization algorithms, catchment conditions, and model structure](#), *Water Resources Res.*, 32(12), 3513-3524. <http://doi.org/10.1029/95WR02195>
- (9) Gan, T.Y., 1996, [Passive microwave snow research at the Canadian High Arctic](#), *Can. J. of Rem. Sen.*, 22(1), 36-44. <http://doi.org/10.1080/07038992.1996.10874635>
- (8) Gan, T.Y., 1995, [Trends in air temperature and precipitation for Canada and North-eastern United States](#), *International Journal of Climatology*, RMS, 15(10), 1115-1134. <http://doi.org/10.1002/joc.3370151005>
- (7) Gan, T.Y., 1995, [A time series model for estimating the weekly winter maximum temperature of Northwest Territories](#), *J. of Applied Meteorology*, AMS, 34(4), 847-860. [http://doi.org/10.1175/1520-0450\(1995\)034<0847:ATSMFE>2.0.CO;2](http://doi.org/10.1175/1520-0450(1995)034<0847:ATSMFE>2.0.CO;2)
- (6) Kwong, Y.T. John, and T.Y. Gan, 1994, [Northward migration of permafrost along the Mackenzie Highway and climatic warming](#), *Climatic Change*, 26(4), 399-419. <http://doi.org/10.1007/BF01094404>
- (5) Gan, T.Y. and Z. Ahmad, 1992, [Modelling monsoon-affected rainfall of Pakistan by point processes](#), *J. Water Resources Planning & Management*, American Society of Civil Engineers, 118(6), 671-688. [http://doi.org/10.1061/\(ASCE\)0733-9496\(1992\)118:6\(671\)](http://doi.org/10.1061/(ASCE)0733-9496(1992)118:6(671))
- (4) Gan, T.Y. and G. Friesen, 1991, [The effectiveness of composite lining systems in controlling leakage of leachate from sanitary landfills to groundwater](#), *J. Environmental Monitoring and Assessment*, 19(1), 193-202. <http://doi.org/10.1007/BF00401311>
- (3) Gan, T.Y. & S.J. Burges, 1990, [An assessment of a conceptual rainfall-runoff model's ability to represent the dynamics of small hypothetical catchments: 1. Model, model properties, & design](#), *Wat. Re. Res.*, 26(7), 1595-1604. <http://doi.org/10.1029/WR026i007p01595>
- (2) Gan, T.Y. & S.J. Burges, 1990, [An assessment of a conceptual rainfall-runoff model's ability to represent dynamics of small hypothetical catchment: 2. Hydrologic responses for extreme rainfall](#), *Wat. Re. Res.*, 26(7), 1605-1619. <http://doi.org/10.1029/WR026i007p01605>
- (1) Lettenmaier, D.P., and T.Y. Gan, 1990, [Hydrologic sensitivities of the Sacramento-San Joaquin River Basin to global warming](#), *Water Resour. Res.*, 26(1), 69-86. <http://doi.org/10.1029/WR026i001p00069>

#### Membership and Activities in Professional Associations

Association	Capacity
Association of Professional Engineers, Geologists & Geophysicists, Province of Alberta, Canada (APEGA)	Professional Engineer Examiner
Professional Engineers & Land Surveyors, State of Washington, USA	Professional Engineer
American Society of Civil Engineers (ASCE)	Fellow
Society for Engineering Education (ASEE)	Member
International Association of Hydrological Sciences (IAHS)	Head of Hydrology Section, Canada
American Geophysics Union (AGU)	Member
Primary convener and convener of AGU Fall meetings (2016-2019)	
Canadian Meteorological and Oceanographic Society (CMOS)	Member

**Editorship, Journal and Academic Reviewer, Seminars, Symposiums, & Professional Consultations**

Assoc. Editor, *Int. J. of Lowland Technology*, International Assoc. of Lowland Tech., 1999 – 2002.

Regular reviewers for over thirty refereed journals of Nature Publishing Group, American Geophysical Union (AGU), American Meteorological Society, Royal Meteorological Society, Elsevier Science, journals of American Society of Civil Engineers, remote sensing journals, and others.

Canadian Representative to International Commission on Surface Water, IAHS International

Commissions. Regular examiner of professional engineers' examinations for APEGGA, Alberta

Consultant and Expert witness for City of Edmonton; Golder Associates of Calgary, Alberta; TransAlta Utilities, Alberta Transportation & Utilities, Alberta Environment Appeal Board, Canada Natural Resources Limited, Energy Utility Board, Alberta, ISL Engineering Consultant, Alberta

Research Ambassador of German Academic Exchange Service (DAAD) since 2011

Selection committee member of DAAD scholarships for North American students in natural

sciences. External examiner to PhD thesis of universities of Canada, Finland, Hong Kong, Singapore and India.

Primary Convener and convener, Keynote Speaker and speakers of symposiums and seminars of AGU, AOGS, China, Hong Kong, and European Geophysical Union

Reviewer of tenure and promotion of professors of Canada, Singapore, Finland, Hong Kong, &

Malaysia Host to Visiting Scholars from Finland, China, Singapore, Brazil, and Korea

**Community Service**

Sunday school teacher for Edmonton Christian Community Church (ECCC), seminar speaker for churches in Canada (ECCC), Singapore (Power to Change), Malaysia, Finland, and Germany

Occasional Volunteer for the Hope Mission, City of Edmonton, Alberta

**Selected Professional Presentations**

- (249) Gan\*, T. Y., Perspectives on Multi-facet Impacts of Climate Warming and Pollution to the hydrosphere and cryosphere, 8<sup>th</sup> Summer Conference, International Association of Chinese Youth in Water Science, Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, August 11, 2020, INVITED.
- (248) Gan\*, T. Y., and Mahmoud, S., 2019, Urbanization and Climate Change implication in flood risk management and multi-criteria approach in developing flood susceptibility maps, Dec 23, 2019, Shenzhen Water Planning & Design Institute Co., Ltd., China, INVITED
- (247) Gan\*, T. Y., and Mahmoud, S., 2019, Urbanization and Climate Change implication in flood risk management and multi-criteria approach in developing flood susceptibility maps, Dec 21, 2019, Sun-yet Sen University, Guangzhou, China INVITED
- (246) Gan\*, T. Y., 2019, Scholarship Opportunities for Undergraduates, Graduate, Postdocs and Professors/Scholars from the German Academic Exchange Service (DAAD), Dec 19, 2019, Southern University of Science and Technology, Shenzhen, China INVITED
- (245) Gan\*, T. Y., and Mahmoud, S., 2019, Urbanization and Climate Change implication in flood risk management and multi-criteria approach in developing flood susceptibility maps, Dec 12, 2019, Southern University of Science and Technology, Shenzhen, China INVITED
- (244) Gan, T. Y., 2019, Perspectives on Multi-facet Impacts of Climate Warming and Pollution to the hydrosphere and cryosphere, Dec 5, 2019, University of Science and Technology, Shenzhen, China INVITED
- (243) Gan, T. Y., and Mahmoud, S., 2019, Urbanization and Climate Change implication in flood risk management and multi-criteria approach in developing flood susceptibility maps, IAHS-ICWQ Symposium, Nov 29, 2019, Chuhai, China INVITED
- (242) Gan, T. Y., 2019, Guide on the direction of writing a research proposal for monitoring, prediction, analysis, adaptation of natural hazards, November 22, 2019, U of Philippines Visayas, INVITED
- (241) Gan, T. Y., 2019, Climate Models of IPCC, uncertainties of climate model projections, risk assessments of natural hazards (prediction, monitoring, analysis), U of Philippines Visayas, November 22, 2019, INVITED