CURRICULUM VITAE

General Information

Name	Tue Minh **Vu**
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RSgate	https://www.researchgate.net/profile/Tue_Vu

Education

PhD Civil & Environmental Engineering	National University of Singapore, Singapore	2012
MSc Environmental Engineering	Nanyang Technological University, Singapore Stanford University, USA Singapore-Stanford Partnership program	2007
BEng Hydrology & Environment	Thuyloi University, Vietnam	2005

Working Experience

2018-now	Research Assistant Professor	Glenn Department of Civil Engineering, Clemson University, SC, USA
2018-now	HPC consultant & Data Science	Cyber-Infrastructure & Technology Integration group, Clemson Computing & Information Technology, Clemson University, SC, USA
2015-2018	Postdoctoral Fellow	Glenn Department of Civil Engineering, Clemson University, SC, USA
2013-2015	Research Fellow	Tropical Marine Science Institute, National University of Singapore, Singapore
2007-2013	Research Engineer	Tropical Marine Science Institute, National University of Singapore, Singapore Singapore Delft Water Alliance, NUS, Singapore
2005-2006	Researcher	Thuyloi University, Vietnam

Interested Research Topic

Risk Engineer and System Analysis	• Ensemble Seasonal Hindcast, Forecast; Ensemble Streamflow Prediction • Global flood risk probabilistic forecast influenced by large scale climate (ENSO, NAO, PDO) and under changing climate (collaboration with AIG, Willis Towers Watson, World Bank IFC, ADB) • Hybrid-Nonparametric Stochastic weather generator using KNN model for flood, drought and agriculture • Non-stationary extreme value analysis • Dynamical, Statistical, Stochastical downscaling approach for climate change impact studies (collaboration with Singapore MIT Alliance for Research and Technology Center) • Multi-drought indices assessment • Use of satellite and remote sensing for early warning flood and drought system
Hydrology models	• DELFT models: Sobek 1D, 2D, FEWS, 3D • DHI models: MIKE 11, 21, FLOOD, URBAN, MOUSE, SHE, BASIN • HEC models: (Geo)-HMS, (Geo)-RAS, RESSIM • Other hydrology models: SWAT, SWMM, TANK, IQQM, SMS, WMS
Climate models	• Dynamical downscaling: WRF, PRECIS • Statistical downscaling: SDSM, ANN • Stochastic downscaling: KNN, HIDRUS, WGEN, RainSim, CLIGEN, CLIMGEN, LARSWG • Seasonal Forecast: Ensemble Streamflow Prediction, CFSv2, ECMWFs4 • Satellite/Remote sensing dataset: TRMM, PERSIANN, CMORPH, SMAP, SMOS, GLDAS, ECV-SM, GRACE

Drought models/Indices	• (sc)PDSI, GRACE-DSI, SPI, SPEI, SRI, CMI, AWD, SWDI, SSMI, etc.
Data driven technique	• Linear/Non-Linear Analysis using advanced technique in Machine Learning • Extreme Value Analysis
Programing Skill	• MATLAB, R, Python, Visual Basic Application, Grads, NCL, CDO, NCO (10 years) • GIS tools (ArcPro, ArcGIS, ArcView, MapObject, Mapinfo, Mapx), Erdas (15 years) • Full capability in processing large dataset • Linux user and admin with experience in High Performance Computing (10 years)

Journal Publication (Published)

1) **Vu, M.T.**, Raghavan, S.V., Liu, J. and Liong, S-Y (2018): "Constructing short duration IDF curves using coupled dynamical-statistical approach to assess climate change impacts", *International Journal of Climatology*. DOI: 10.1002/joc.5451.
2) **Vu, M.T.,** Konapala, G. and Mishra, A.K. (2018): "Information Entropy informs tighter relation between extreme precipitation indices and ENSO", *Entropy*, 20, 38. doi:10.3390/e20010038
3) Naufan I., Sivakumar, B., Woldemeskel, F.M., Raghavan, S., **Vu, M.T.** and Liong, S-Y. (2018): "Spatial connections in Regional Climate Model rainfall outputs at different temporal scales: Application of network theory", *Journal of Hydrology*, 556, pp. 1232-1243. https://doi.org/10.1016/j.jhydrol.2017.05.029
4) **Vu, M.T.,** Mishra, A.K., Konapala, G. and Liu, D. (2017): "Evaluation of multiple stochastic rainfall generators in diverse climatic regions", *Stochastic Environmental Research and Risk Assessment*. https://doi.org/10.1007/s00477-017-1458-0.
5) **Vu, M.T.**, Raghavan, S.V., Liong, S-Y and Mishra, A.K (2017): "Uncertainties in gridded precipitation observations in characterizing spatio-temporal drought and wetness over Vietnam", *International Journal of Climatology*. DOI: 10.1002/joc.5317.
6) Mishra, A.K., **Vu, M.T.,** Veetil, A.V. and Entekhabi, D. (2017): "Drought Monitoring with Soil Moisture Active Passive (SMAP) Measurements", *Journal of Hydrology*, 552, pp. 620-632. https://doi.org/10.1016/j.jhydrol.2017.07.033
7) Liu, D., Mishra, A.K., Yu,Z. Yang, C., Konapala, G. and **Vu, M.T.** (2017): "Performance of SMAP, AMSR-E and LAI for weekly agricultural drought forecasting over continental United States". *Journal of Hydrology*, 553, pp. 88-104. https://doi.org/10.1016/j.jhydrol.2017.07.049
8) **Vu, M.T.**, Vo, N.D., Gourbesville, P., Raghavan, S.V. and Liong, S-Y. (2017): "Hydro-Meteorological Drought Assessment under climate change impact over Vu Gia-Thu Bon river basin, Vietnam", *Hydrological Science Journal*, 62(10), pp. 1654-1668. https://doi.org/10.1080/02626667.2017.1346374
9) Raghavan, S.V., Liu, J.D., Nguyen, N.S., **Vu, M.T.**, and Liong, S-Y. (2017): "Assessment of CMIP5 historical simulations of rainfall over Southeast Asia", *Theoretical Applied Climatology*. DOI 10.1007/s00704-017-2111-z.
10) Raghavan, V.S., **Vu, M.T.** and Liong, S.Y. (2017): "Ensemble climate projections of mean and extreme rainfall over Vietnam", *Global and Planetary Change*, 148, 96-104. http://dx.doi.org/10.1016/j.gloplacha.2016.12.003
11) **Vu, M.T.,** Raghavan, V.S. and Liong, S.Y. (2017): "Deriving short-duration rainfall IDF curves from a regional climate model", *Natural Hazards*, 85(3), 1877-1891. DOI: 10.1007/s11069-016-2670-9
12) **Vu, M.T.,** and Mishra, A.K. (2016): "Spatial and Temporal Variability of Standardized Precipitation Index over Indochina Peninsula", *Cuadernos de Investigacion Geografica*, 42(1), 221-232. DOI:10.18172/cig.2928.
13) **Vu, M.T.,** S., Raghavan, V.S. and Liong, S.Y. (2016): "Use of Regional Climate Models for Proxy Data over Trans-Boundary regions", *Journal of Hydrologic Engineering*, 21 (6)
14) Vo, N.D., Gourbesville, P, **Vu, M.T.,** S., Raghavan, V.S. and Liong, S.Y. (2016): "A deterministic hydrological approach to estimate climate change impact on river flow: Vu Gia–Thu Bon catchment, Vietnam", *Journal of Hydro-Environment Research*, 11, pp 59-74.
15) **Vu, M.T.,** Aribarg, T., Supratid, S., Raghavan, V.S. and Liong, S.Y. (2016): "Statistical downscaling rainfall over Bangkok using Artificial Neural Network", *Theoretical and Applied Climatology*, 126 (3), 453-467.
16) Raghavan, V.S.*,**Vu, M.T.** and Liong, S.Y. (2016): "Regional Climate Simulation over Vietnam using the WRF model", *Theoretical and Applied Climatology*, 126 (1), 161-182.
17) **Vu, M.T.,** Raghavan, V.S. and Liong, S.Y. (2015): "Ensemble Climate Projection for Hydro-Meteorological Drought over a river basin in Central Highland, Vietnam", *KSCE Journal of Civil Engineering*, 19(2), pp. 427-433. DOI 10.1007/s12205-015-0506-x.

18) **Vu, M.T.,** Raghavan, V.S., Pham, D.M. and Liong, S.Y. (2015): "Investigating drought over the central highland, Vietnam, using Regional Climate Models", *Journal of Hydrology*, 526, pp. 265-273. DOI:10.1016/j.jhydrol.2014.11.006
19) Raghavan, V.S., **Vu, M.T.**and Liong, S.Y. (2014): 'Impact of climate change on future stream flow in the Dakbla river', *Journal of Hydroinformatics*, 16(1), pp. 231-244, DOI:10.2166/hydro.2013.165.
20) **Vu, M.T.,** Raghavan, V.S. and Liong, S.Y. (2012): "SWAT use of gridded observations for simulating runoff – A Vietnam river basin study", *Hydrology and Earth System Sciences,* 16, pp. 2801-2811, DOI: 10.5194/hess-16-2801-2012
21) Raghavan, V. S., Liong, S.Y., and **Vu, M.T.**(2012): "Assessment of future stream flow over the Sesan catchment of the Lower Mekong Basin in Vietnam", *Hydrological Processes*, 26(24), 3661–3668. DOI: 10.1002/hyp.8452
22) Romano, M., Liong, S.Y., **Vu, M.T.,** Zemskyy, P., Doan, C. D., Dao, M. H. and Tkalich, P., "Artificial neural network for tsunami forecasting", *Journal of Asian Earth Sciences,* Vol. 36, (2009), pp 29-37.

Book Chapters

1) Liong S.Y., Raghavan V.S. and **Vu, M.T**. (2012): "Climate Change and its impacts on streamflow: WRF and SCE-Optimized SWAT models", Data Assimilation for Atmospheric, Oceanic and Hydrological Applications, Volume II, Springer, 411-428.
2) **Vu, M. T**., Liong, S. Y., Liew, S. C. and Raghavan V. S. (2010): "A novel methodology for developing inundation maps under climate change scenarios using one-dimensional model", *Advances in Geosciences*, Vol. 23 Hydrological Science, World Scientific Publishing Company.
3) Liew, S. C., Liong, S. Y., and **Vu, M. T**. (2010):"A study of urban stormwater modeling approach in Singapore catchment", *Advances in Geosciences*, Vol. 23 Hydrological Science, World Scientific Publishing Company.

Manuscript (Prepared)

1) **Vu, M.T.** and Mishra, A.K. (2018): "Large scale climate indices regulate nonstationary extreme value analysis for recent catastrophic events in the United States", *Journal of Geophysical Research*.
2) **Vu, M.T.** and Mishra, A.K. (2018): "Application of Parametric and Non-parametric stochastic weather generator to simulate extreme rainfall at tropical monsoon climate", *Stochastic Environmental Research and Risk Assessment*.
3) **Vu, M.T.** and Mishra, A.K. (2018): "Evaluation of multi-site precipitation generator models for tropical monsoon climate", *International Journal of Climatology*.
4) Mishra, A.K., Neupane, B. and **Vu, M.T.** (2018): "Perspective of Low impact development to urban flood reduction in lieu of Climate Change", *Journal of Hydrology*.

Manuscript (In Preparation)

1) **Vu, M.T.** and Mishra, A.K. (2018): "Investigation of the nonstationary extreme precipitation influenced from nearby large dams", *Journal of Geophysical Research*.
2) **Vu, M.T.** and Mishra, A.K. (2018): "Global drought assessment from most recent SMAP and GRACE satellite data", *Geophysical Research Letters*.
3) **Vu, M.T.** and Mishra, A.K. (2018): "Sensitivity of kernel bandwidth selection in perturbing non-parametric multisite stochastic weather generator", *Stochastic Environmental Research and Risk Assessment*.
4) **Vu, M.T.** and Mishra, A.K. (2018): "Non-parametric stochastic precipitation generator conditioned on large scale climate", *International Journal of Climatology*. (In preparation)
5) **Vu, M.T.** and Mishra, A.K. (2018): "Validating satellite L band radiometer soil moisture SMAP and SMOS with ERA Interim over in situ for Contiguous United States", *International Journal of Climatology*. (In preparation)
6) **Vu, M.T.** and Mishra, A.K. (2018): "Application of data driven approach SVM and GAM in forecasting the Ecoli concentration based on discrete water quality", *Journal of Contaminant Climatology*. (In preparation)
7) **Vu, M.T.** and Mishra, A.K. (2018): "Predictor selection for statistical downscaling GCM based on LASSO and ELASTIC NET", *Journal of Contaminant Climatology*. (In preparation)

Journal Review Service

Scientific Report, Scientific Data, Water Resources Research, Environmental Modelling and Software, Climatic change; International Journal of Climatology, Journal of Hydrology, Stochastic Environmental Research and Risk Assessment, Journal of Hydrologic Engineering, Hydrological Science Journal, Advances in Meteorology, Journal of Hydroinformatics, Theoretical Applied Climatology, Water.

Services

- AOGS Secretariat - Hydrological Science section 2015-2017
- ASCE member; Hydroinformatics Committee member.
- Deliver the Climate change lecture series to participants of the 2015 Eco-Challenge, Final round: Asian Challenge, held at South Korea in 2015
- Co-Supervising Euro-Aquae Master students' internship at National University of Singapore, from batch 2008 to batch 2014
- Co-Supervising Final year project students at National University of Singapore for batch 2011; 2012; 2013.

Honours

- Best student poster award: Asia Oceania Geosciences Society (AOGS), Brisbane, Australia, 2013
- Singapore Stanford Partnership scholarship for MSc study in Stanford and Singapore 2006
- Silver Medal "Loa Thanh prize" for Best Undergraduate Thesis competition for all Civil Engineering Universities in Vietnam. This prize is considered prestigious amongst all universities in Vietnam for Civil Engineering 2005