

Curriculum Vitae

Name: Jeewanthi Sirisena
Date of Birth: October 5th 1984
Main Disciplines: Hydrological and hydraulic modelling, Water Resources Modelling, Climate Change, GIS, Remote Sensing, Climate Extremes and Risk
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Key Qualifications

Have more than twelve years of experience in executing local and international projects in the field of water resources management. Countries of work experience include Sri Lanka, Rwanda, Thailand, Myanmar, The Netherlands, India, Egypt, & Kenya. I have advanced skills in data analysis, hydrological and hydraulic modelling, GIS analysis, and Satellite and Climate Data using a variety of tools on the full range of spatial scales from a smaller field to the entire river basin. I'm the lead author and co-author of many peer-reviewed papers and supervising master's and bachelor's students' research.

Educational Background

Apr 2016 – Dec 2020	Doctor of Philosophy in Hydrology and Water Resources University of Twente, The Netherlands IHE Delft Institute for Water Education, The Netherlands
Aug 2011 – Dec 2013	M.Eng in Water Engineering and Management Asian Institute of Technology, Thailand GPA 3.98/4.0 M.Sc in Hydroprotech University of Nice-Sophia Antipolis, France GPA 16.6/20.0
Mar 2005 - Aug 2009	B.Sc.Eng (Hons) in Civil Engineering University of Peradeniya, Sri Lanka GPA 3.85/4.0 (First class honours)

Professional Experience

Oct 2022 – Present	Scientist , Climate Service Center (GERICS), Germany
Mar 2022 – Present	Volunteer , 510 Data and Digital Team, The Netherlands Red Cross, The Netherlands
Jan 2024 – Present	Visiting Lecturer (Voluntary) , Wayamba University, Sri Lanka

Mar 2021 – Feb 2022	Postdoctoral Researcher , University of Twente, The Netherlands
Jun 2014 – Apr 2016	Research Engineer , Lanka Hydraulic Institute Ltd, Sri Lanka
Oct 2014 - Jul 2015	Visiting Lecturer , Aquinas University College, Sri Lanka Subjects: Hydraulics and Hydrology (Diploma and B.Sc Levels)
Jul 2013 – Sep 2013	Visiting Instructor , Sirindhorn International Institute of Technology, Thammasat University, Thailand Subject: Environmental Studies (B.Sc Level)
Jun 2012 – Aug 2012	Research Assistant/ Intern for a flood modelling project, Regional Integrated Multi-Hazard Early Warning System, Asian Institute of Technology, Thailand
Aug 2009 - Aug 2011	Irrigation Engineer , Water Resources Planning Branch, Department of Irrigation, Sri Lanka

Selected Assignments and Projects

Duration: 2024 (Ongoing) Position: Hydrologist Location: Spain	<i>Infectious Disease decision-support tools and Alert systems to build climate Resilience to emerging health Threats – IDAlert</i> Project Description: This project focuses to overcome existing disciplinary divides by integrating climate change, EcoHealth, and One Health perspectives to tackle the emergence and transmission of pathogens and the spread of zoonotic pathogens. Activities Performed: Water resource modelling in selected basins in Spain and scientific publications
Duration: 2022 (Ongoing) Position: Hazard and Risk Modeller Location: Italy	<i>Risk workflow for cascading and compounding hazards in coastal urban areas – CASCO</i> Project Description: This project focuses to develop new integrated methods and models for multi-hazard risk assessment of coastal urban areas, subject to extreme geophysical and climatic events. Activities Performed: Flood modelling and risk assessment in selected river basins in Sicily and scientific publications
Duration: 2023 (Ongoing) Position: Lecturer Location: Kenya Client: Bazaruto Renewables, Mauritius	<i>The capacity development project, Kenya</i> Project Description: This project focuses on enhancing the knowledge of Hydrological processes at the catchment scale and guidance from data preparation to key report deliverables of a hydrological study. Activities Performed: Lecturing Engineering Hydrology and hands-on training (data processing and modelling) for an ongoing project in Malawi
Duration: 2021 - 2022 Position: Sediment expert Location: India Client: Central Water Commission, India	<i>Consultancy services for physical-based mathematical modelling for estimation of sediment rate and sediment transport in seven (7) river basins, in India</i> Project Description: The main focus is to understand and with the existent data and state-of-the-art models to quantify sediment generation, transport, and morphological developments, and to suggest possible measures/ interventions for integrated water and sediment management in the river basins Activities Performed: Data analysis, rainfall-runoff modelling, sediment erosion and transport modelling, report preparation

<p>Duration: 2019 - 2020 Position: Hydrologist Location: Myanmar Client: The Ministry of Infrastructure and Water, The Netherlands</p>	<p><i>Evaluation of globally available precipitation products for runoff simulation in the Irrawaddy River Basin in Myanmar</i> Project Description: This study focuses on the estimation of catchment runoff using process-based modelling. It consists of the use of global precipitation data, model set-up, calibration and validation, streamflow simulation, and analysis. Activities Performed: Data analysis, all numerical modelling work, and report preparation</p>
<p>Duration: 2015 - 2016 Position: Research Engineer Location: Sri Lanka Client: National Water Supply and Drainage Board, Matara, Sri Lanka</p>	<p><i>Matara Stage IV Water Supply Project: Construction of Salinity Barrier across Nilwala River</i> Project Description: This study is providing the consultancy service for hydraulic study for the “Construction of Salinity Barrier across Nilwala River” at a suitable location of 5 km upstream of the estuary under the “Matara Stage IV Water Supply Project”. The consultancy services consist of data collection, desk study, field investigation, hydrological/ hydraulic study, environmental study, design, and cost estimate. Activities Performed: Desk study, hydrological study, and 3D physical model testing</p>
<p>Duration: 2014 - 2016 Position: Research Engineer Location: Sri Lanka Client: Ministry of Urban Development, Water Supply and Drainage, Sri Lanka</p>	<p><i>Strategic Cities Development Project: Consultancy Services for Design & Construction Supervision of Flood Mitigation in Galle Municipal Council Area</i> Project Description: This study provides Consultancy services which are performed in two Phases; Modelling and Design of drain networks and Construction supervision Activities Performed: Assessment of flooding conditions using Hydrological and Hydrodynamic modelling (Mike 11), Flood mapping (ArcGIS), Drainage Designs</p>
<p>Duration: 2014 - 2016 Position: Research Engineer Location: Rwanda Client: Feedback Infra Private Limited, India</p>	<p><i>Consultancy Services for Feasibility Study for Multipurpose Development Project Nyabarongo II: Hydrological Study</i> Project Description: The feasibility study for the multi-purpose development project Nyabarongo II explores the practicability of hydropower generation, marshland reclamation for irrigation, water supply for irrigation, industry & community and thereby builds an economic platform for directly uplifting the livelihoods of people. Data collection, desk study, and hydrological and climatological studies are the main project features identified and performed. Activities Performed: Desk study, Data analysis, Hydrological modelling, Reservoir simulation, Report writing (Two chapters)</p>
<p>Duration: 2014 - 2014 Position: Research Engineer Location: Sri Lanka Client: Tetra Tech Inc, Sri Lanka</p>	<p><i>Consultancy Services for Preparation of Master Plan for Badulla, Haliela, and Ella Integrated Water Supply Project: Hydrological Investigation</i> Project Description: Consultancy services for Hydrological studies including flood and low flow analysis, sediment yield, and assessment of reservoir operation Activities Performed: Hydrological modelling, Sediment yield estimation, and assessment of reservoir water balance</p>
<p>Duration: 2012 - 2012 Position: Research Associate Location: Thailand Client: Royal Thai Government, Thailand</p>	<p><i>Flood Forecasting model development</i> Project Description: Forecasting model development for upper and lower Chao Phraya basins Activities Performed: Hydrological model setup, calibration, and validation for the upper Chao Phraya River basin</p>

<p>Duration: 2009 - 2010 Position: Project Engineer Location: Sri Lanka Client: Government of Sri Lanka and Japan International Cooperation Agency (JICA)</p>	<p><i>The Pro-Poor Economic Advancement and Community Enhancement Project (PEACE)</i> Project Description: The rehabilitation of irrigation infrastructure in the Anuradhapura and Kurunegala districts is carried out under this project. The Irrigation department handles the design and construction of Irrigation canal network systems. Activities Performed: Surveying, Water allocation, design, and cost estimation of the irrigation canal system in Rajanganaya in Anuradhapura District.</p>
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Computer Skills

Numerical modelling: SWAT MIKE11 MIKE SHE HEC-HMS HEC-GeoRAS HEC-ReSim
 OpenLISEM EPANPET SWIM

Programming: MATLAB PCRaster Python SQL

GIS/ Remote Sensing: ArcGIS QGIS GEE

Standard software: MS Office PowerBI

Honours and Awards

July 2023	Hydrology Travel Award 2023 from the open-access journal published by MDPI, Switzerland
Mar 2022	Travel Grant under Distinguished Women Scientists Fund (DWSF) from the Dutch Network of Women Professors (LNVH), The Netherlands
Oct 2016	Best poster presenter at Ph.D. Symposium 2016, IHE Delft, The Netherlands
Apr 2016 – Sep 2019	Ph.D. Scholarship from the Netherlands Fellowship Programme (NFP), The Netherlands
Sep 2012 – Dec 2013	Scholarships of the French Regional Cooperation by the French Government, France

Other Experiences

Jun 2022 – Mar 2023	(Guest Editor) Special Issue "Advances in Hydrological Modeling and Hazard Assessment", Journal- Sustainability, MDPI
Sep 2021 – June 2022	(President) The Hague University Toastmasters, The Netherlands
Feb 2020	(Presenter) IHE Delft – AIT Joint Scientific Workshop on Estimation of 21 st Century Runoff and Fluvial Sediment Supply for the Irrawaddy River Basin, Myanmar, Asian Institute of Technology, Thailand
Oct 2019	Participated in the summer course on Advanced Studies in Climate Extremes and Risk Management at Nanjing University of Information Science and Technology, China

Dec 2018	(Presenter) 9 th International Conference on Sustainable Built Environment, Kandy, Sri Lanka
Sep 2018	(Presenter) 2018 International SWAT Conference, Brussels, Belgium
Oct 2017	(Presenter) Boussinesq Lecture 2017, Delft, The Netherlands
Oct 2015	(Presenter) Technical paper programme, 109 th Annual Session, The Institution of Engineers Sri Lanka (IESL), Sri Lanka
Jul 2015	(Presenter) Regional Forum on Climate Change, Asian Institute of Technology, Thailand
Oct 2014	(Guest Lecturer) Workshop on Hydraulic Applications, ESOFTE College of Engineering and Technology, Katubedda, Sri Lanka
Nov 2013	(Presenter) Advanced Water Management Technology, 2 nd Joint conference between Thailand and K-water, Thailand
Dec 2012 – Feb 2013	Participated in Hydro Europe 2013, ERASMUS Intensive Programme – Euro IFM, University of Nice Sophia Antipolis, Nice, France

Collaborations

Research supervision at UNESCO-Madanjeet Singh Centre for South Asia Water Management (UMCSAWM) at the University of Moratuwa, Sri Lanka

Research collaboration at Tohoku University, Japan

Research collaboration at IHE-Delft Institute for Water Education, The Netherlands

Research collaboration at the University of Messina, Italy

Language Skills

Language	Speaking	Reading	Writing
English	Fluent	Fluent	Fluent
Sinhala	Mother Tongue	Mother Tongue	Mother Tongue
Dutch	Basic	Moderate	Basic

Publications (Selected)

Peer-reviewed publications:

K. Pabasara, L. Gunawardhana, J. Bamunawala, **J. Sirisena**, L. Rajapakse (2024). *Significance of Multi-Variable Model Calibration in Hydrological Simulations within Data-Scarce River Basins: A Case Study in Sri Lanka*. Hydrology 11(8).

<https://doi.org/https://doi.org/10.3390/hydrology11080116>

Rangika Fernando, Harsha Ratnasooriya, Janaka Bamunawala, **Jeewanthi Sirisena**, M. G. N.

Odara, Luminda Gunawardhana, and Lalith Rajapakse (2024). *Assessing Climate-Change-*

- Driven-Impacts on Water Scarcity: A Case Study of Low-Flow Dynamics in the Lower Kalu River Basin, Sri Lanka*, *Water*, 16(10), 1317; <https://doi.org/10.3390/w16101317>
- Sanjana De Zoysa, **Jeewanthi Sirisena**, Helani Perera, Shalinda Fernando, Miyuru Gunathilake, and Upaka Rathnayake (2024). *Development of intensity-duration-frequency curves for Sri Lanka using satellite-based precipitation products – Understanding environmental conditions and concerns*, *Case Studies in Chemical and Environmental Engineering*, Volume 9, <https://doi.org/10.1016/j.cscee.2024.100713>
- J. Bamunawala, R. Ranasinghe, and **J. Sirisena** (2023). *Impact of Ebb-Delta Dynamics on Shoreline Evolution Along Inlet-Interrupted Coasts*, *Frontiers in Marine Science*, 10, DOI: 10.3389/fmars.2023.1224881
- U. Senatilleke, **J. Sirisena**, M.B. Gunathilake, N. Muttill, and U. Rathnayake (2023). *Monitoring the Meteorological and Hydrological Droughts in the Largest River Basin (Mahaweli River) in Sri Lanka*, *Climate*, 11, 57. <https://doi.org/10.3390/cli11030057>
- T.A.J.G. Sirisena**, J. Bamunawala, S. Maskey, and R. Ranasinghe (2023). *Use of different modelling approaches to estimate the fluvial sediment supply to the coast at spatially heterogeneous basins*, *Frontiers in Earth Sciences*, 10, <https://doi.org/10.3389/feart.2022.978109>
- J. Sirisena**, D. Augustijn, A. Nazeer, and J. Bamunawala (2022). *Use of remote-sensing based global products for agricultural drought monitoring in the Narmada Basin, India*, *Sustainability*, 14(20), 13050; <https://doi.org/10.3390/su142013050>
- J. T. Samarasinghe, R. K. Makumbura, C. Wickramarachchi, **J. Sirisena**, M.B. Gunathilake, N. Muttill, F.Y. Teo, and U. Rathnayake (2022). *The Assessment of Climate Change Impacts and Land-use Changes on Flood Characteristics: The Case Study of the Kelani River Basin, Sri Lanka*. *Hydrology*, 9, 177, <https://doi.org/10.3390/hydrology9100177>
- A. Randeniya, M. Radhakrishnan, **T.A.J.G. Sirisena**, I. Maish, and A. Pathirana (2022). *Equity – performance tradeoff in water rationing regimes with domestic storage*, *Water Supply*, 22 (5): 4781–4797, <https://doi.org/10.2166/ws.2022.188>
- H. Perera, S. Fernando, M.B. Gunathilake, **T.A.J.G. Sirisena**, and U. Rathnayake (2022). *Evaluation of Satellite Rainfall Products over the Mahaweli River Basin in Sri Lanka*, *Advances in Meteorology*, 2022, <https://doi.org/10.1155/2022/1926854>.
- T.A.J.G. Sirisena**, S. Maskey, J. Bamunawala, E. Coppola, and R. Ranasinghe (2021). *Projected streamflow and sediment supply under changing climate to the coast of the Kalu River Basin in tropical Sri Lanka over the 21st century*, *Water*, 13(21), 3031. <https://doi.org/10.3390/w13213031>
- J. Bamunawala, R. Ranasinghe, A. Dastgheib, R.J. Nicholls, A.B. Murray, P.L. Barnard, **T.A.J.G. Sirisena**, T.M. Duong, S.J.M.H. Hulscher, and A. van der Spek, (2021). *Twenty-first-century projections of shoreline change along inlet-interrupted coastlines*, *Scientific Reports*, 11, 14038. <https://doi.org/10.1038/s41598-021-93221-9>
- T.A.J.G. Sirisena**, S. Maskey, J. Bamunawala, and R. Ranasinghe (2021). *Climate change and reservoir impacts on 21st-century streamflow and fluvial sediment loads in the Irrawaddy River, Myanmar*, *Front. Earth Sci.* 9:644527. doi: 10.3389/feart.2021.644527

- T.A.J.G. Sirisena**, S. Maskey, and R. Ranasinghe (2020). *Hydrological model calibration with remote sensing-based evapotranspiration and streamflow data in a data-poor basin*. *Remote Sens.* 2020, 12(22), 3768, <https://doi.org/10.3390/rs12223768>
- T.A.J.G. Sirisena**, S. Maskey, R. Ranasinghe, and M.S. Babel (2018). *Effects of different precipitation inputs on streamflow simulation in the Irrawaddy River Basin, Myanmar*. *Journal of Hydrology: Regional Studies*, 19, 265–278, <https://doi.org/10.1016/j.ejrh.2018.10.005>
- M.S. Babel, **T.A.J.G. Sirisena**, and N. Singhrattna (2016). *Incorporating large-scale atmospheric variables in long-term seasonal rainfall forecasting using Artificial Neural Networks: An application to the Ping Basin in Thailand*, *Journal of Hydrology Research*, 48 (3), 867–882, <https://doi.org/10.2166/nh.2016.212>

Conferences:

- Jeewanthi Sirisena**, Armelle Remedio, Christine Nam, Cecilia I. Nieves, Giuseppe T. Aronica, and Laurens M. Bouwer (2024). *Assessing damage and losses due to future compounding heatwaves and extreme rainfall-induced flooding in Sicily, Italy*, GEWEX Open Science Conference, July 2024, Sapporo, Japan
- J. Sirisena**, A. Remedio, C. Nieves, G. Aronica, and L. Bouwer (2024). *Uncertainties in flood damage assessment under projected future extreme rainfall conditions: a case study in Northeastern Sicily*, EGU General Assembly 2024, Vienna, Austria, Apr 2024, EGU24-9721, <https://doi.org/10.5194/egusphere-egu24-9721>, 2024
- Janaka Bamunawala, Roshanka Ranasinghe, and **Jeewanthi Sirisena** (2024). *A Holistic Model to Simulate Long-Term Evolution of Catchment-Estuary-Coastal Systems*. 38th International Conference on Coastal Engineering (ICCE 2024), September 2024, Rome, Italy
- J. Sirisena**, A. Remedio, G.T. Aronica, and L.M. Bouwer (2023). *Flood hazard assessment under projected future extreme rainfall conditions in Mediterranean areas: a case study in North Eastern Sicily*, WCRP Open Science Conference, Oct 2023, Kigali, Rwanda
- J. Bamunawala and **J. Sirisena** (2023). *Probabilistic Assessment of Future Shoreline Change along Inlet-Interrupted Coasts in Sri Lanka*, 11th International Conference on Asian and Pacific Coasts 2023, Tohoku, Japan
- A. Remedio, **J. Sirisena**, and L.M. Bouwer (2023). *Estimating compounding heat waves and rainfall extremes under projected climate change over the island of Sicily, Italy*, EGU General Assembly, April 2023, Vienna, Austria
- D.P.C. Laknath and **T.A.J.G. Sirisena** (2017). *Sediment yield estimation on a reservoir in a severely eroding river basin*, 37th IAHR World Congress, Kuala Lumpur, Malaysia
- D.P.C. Laknath and **T.A.J.G. Sirisena** (2016). *Application of hydrological study methodologies used in African context for water security in Asian Countries*, International Conference on Water Security and Climate Change: Challenges and Opportunities in Asia, Bangkok, Thailand
- T.A.J.G. Sirisena**, S.M.C.K. Subasinghe, V. Dharmadasa, D.E.N. Senarathne, D.P.L. Ranasinghe, K.D.W. Nandalal and K. Raveenthiran (2016). *Hydrological investigations to facilitate the design of Demodara Dam*, 20th IAHR-APD Congress, Colombo, Sri Lanka

T.A.J.G. Sirisena, C.N. Rajapaksha, D.E.N. Senarathne, I. Abeygoonasekara, K. Ariyaratne, K. Maiyourathan, S. M. Hewavidana and T. M. N. Wijayaratna (2016). *Study on flood mitigation measures – Case study Galle Municipal Council Area*, 20th IAHR-APD Congress, Colombo, Sri Lanka

T.A.J.G. Sirisena, V. Dharmadasa, S.M.C.K. Subasinghe, D.P.L. Ranasinghe, K.P.P. Pathirana, K. Raveenthiran, T. Saravanapavan, R.S. Liyanage, and H.N.R. Perera (2015). *Assessment of potential catchment soil erosion and sediment accumulation at the proposed Demodara Dam site*, Sri Lanka, Annual Sessions of IESL, Vol. 1(B), pp. 359-366

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