Nishan Kumar Biswas
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Area of Interest

- Hydrometeorological application of satellite remote sensing
- Numerical weather prediction and extreme event forecasting
- Cloud computing, big data visualization and application development

Education

PhD in Civil and Environmental Engineering (June 2017 – December 2020))
Department of Civil and Environmental Engineering
University of Washington, Seattle, Washington, USA

Masters in Civil and Environmental Engineering (January 2016 – June 2017)
Department of Civil and Environmental Engineering
University of Washington, Seattle, Washington, USA

Bachelor of Science in Water Resources Engineering (January 2008 – February 2013)
Department of Water Resources Engineering
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh

Awards and Honors

- Public Messaging and Engagement Award, UW Student Film Contest 2019
- Certificate of appreciation from NASA for supporting SWOT Early Adopter Virtual Hackathon
- Appreciation award from Bangladesh Water Development Board for Flash Flood Forecasting system.
- Co-organizer from CEE, Engineering Discovery Days (2016-2018), University of Washington
- Ivanhoe Fellowship (2015), University of Washington
- Engineers Stipend (2011), Bangladesh University of Engineering and Technology
- Government of Bangladesh Scholarship (2007), Higher Secondary School Examination

Experience

Graduate Research Assistant (December 2015 - Present)
Department of Civil Engineering (SASWE Research Group), University of Washington

- Developer of Global Reservoir Assessment Tool (RAT), a global and freely accessible framework to monitor the operating pattern of 1600 reservoirs solely based on satellite observations.
- Cloud computing supported Dynamic width based altimeter height visualizer developed to visualize river water levels from Jason 3 altimeter observations. News link of PODAAC, JPL, NASA.
- A skillful and computationally efficient flashflood and early warning system developed for the People's Republic of Bangladesh which has been used to minimize flashflood damage and ensuring food security.
- Advanced Weather, Climate and Satellite based Water Forecasting System developed for Mekong Basin, world's first operational transboundary reservoir monitoring system based on earth observations.
- Web analytics based real-time correction system for satellite based GPM (IMERG) precipitation correction and streamflow correction.
- Core developer of operational and fully automated web interface South Asian Surface Water Modelling System connected with complex back-end models with user-friendly front-end GUI, Relevant news link from Earth Sciences Division, NASA

Student Intern (June 2017- September 2017)
Hydrological Sciences Laboratory, GSFC, NASA

- *Interactive web based dynamic framework LIS-ATLAS development to visualize Land Information System (LIS) Model outputs and quantitative evaluations for different spatial and temporal configurations under the FEWS-NET project.*

Junior Engineer (July 2013 – December 2015)
Flood Management Division, Institute of Water Modelling (IWM), Dhaka, Bangladesh

- *Vertically integrated and automated system design and development; Calibration, validation and simulation of hydrological-hydrodynamic models using state of the art tools and software, flood forecasting and inundation mapping.*

Selected peer reviewed publications

1. **Biswas, N.K.**, Hossain, F., Bonnema, M., Lee, H., Chishtie, F. (2020). A Global Reservoir Assessment Tool for Predicting Hydrologic Impact and Operating Pattern of Existing and Planned Reservoirs, *Environmental Modeling and Software* (In revision).
2. **Biswas, N. K.**, Hossain, F., Bonnema, M., Aminul, A., Biswas, R. K., Buiyan, A., & Hossain, A. (2019). A computationally efficient flashflood early warning system for a mountainous and transboundary river basin in Bangladesh, Journal of Hydroinformatics (accepted)
3. **Biswas, N. K.,** Hossain, F., Bonnema, M., Okeowo, M. A., & Lee, H. (2019). An altimeter height extraction technique for dynamically changing rivers of South and South-East Asia. Remote Sensing of Environment, 221, 24-37. doi:10.1016/j.rse.2018.10.033
4. Hossain, F., **Biswas, N. K.**, Ashraf, M., & Bhatti, A. (2017). Growing More with Less Using Cell Phones and Satellite Data. Eos. doi:10.1029/2017eo075143
5. **Biswas, N. K.**, & Hossain, F. (2017). A scalable open-source web-analytic framework to improve satellite-based operational water management in developing countries. Journal of Hydroinformatics, 20(1), 49-68. doi:10.2166/hydro.2017.073

Google scholar link: https://scholar.google.com/citations?user=e0y35q0AAAAJ&hl=en (RG Score:11.98)

Computing Skills

Cloud computing and programming: Google Earth Engine (GEE), Python, Visual Studio C#, MATLAB, Bash and Shell Scripting
Numerical Modelling: VIC Hydrological Model, MIKE by DHI, HEC-RAS, HEC-HMS, CCHE 2D
GIS Analysis and Database: ArcGIS, QGIS, GDAL, ENVI, Microsoft SQL Server Express, SQLite
Drafting and Documentation: AutoCAD 2D & 3D Modelling , Microsoft Office
Web and Visualization: HTML, JavaScript, CSS, WordPress, D3.js, Leaflet.js, Highcharts.js

Conferences, Workshops and Trainings

- Summer school participant 2019 at Center for Climate Sciences, Jet Propulsion Lab, NASA on using Satellite Observations to Advance Climate Models.
- Presenter, hacker and helper of SWOT Virtual Early Adopter Hackathon-2020 organized by NASA and the University of Washington to build deeper engagement with SWOT Early Adopters, who comprise SWOT's active user community
- Led a technical training workshop (July 1 2018 to July 14 2018) to mainstream decision support system for Vietnam on USAID Evidence to Action project for "Application of Satellite Gravimetry, Satellite Altimetry, and VIC Hydrological Model for Water Resource Management in Vietnam"
- Led a workshop entitled “Supporting Water Management in the Lower Mekong with Satellites” from 5-7th October, Hanoi, Vietnam supported by SERVIR-Mekong, USAID, and NASA with participants from various agencies in Vietnam, Cambodia, Lao PDR, Myanmar, and Thailand.
- Training on satellite remote sensing and hydrological modelling to the South Asian water management agencies from Pakistan, Bangladesh, Thailand, and Vietnam at University of Washington.

Affiliations

Associate Member, American Society of Civil Engineers (ASCE)
Student Member, American Geophysical Union (AGU)
Student Member, American Meteorological Society (AMS)