FAISAL HOSSAIN
Curriculum Vitæ

Civil and Environmental Engineering	Phone: 931 239 4665
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Seattle, WA 98195	

EDUCATIONAL HISTORY

University of Connecticut, Storrs, CT, USA
PhD Environmental Engineering,
August 2004
Dissertation: Investigating Error Propagation in Flood Prediction Based on Remotely Sensed Rainfall

National University of Singapore, Singapore
M. Eng, Civil Engineering,
May, 1999
Thesis: System-specific Statistical Modeling of SBR Bulking

Indian Institute of Technology, BHU, Varanasi, India
B.Tech, Civil Engineering,
May, 1996

EMPLOYMENT HISTORY

University of Washington, Department of Civil and Environmental Engineering
Seattle, WA, USA
Professor (2017 June –present)

University of Washington, Department of Civil and Environmental Engineering
Seattle, WA, USA
Associate Professor (2014 February –2017 June)

Tennessee Technological University, Department of Civil and Environmental Engineering
Cookeville, TN, USA
Associate Professor (2009-2014 January)

Institute of Water Modeling
Dhaka, Bangladesh
US Fulbright Faculty Scholar (December 2012- April 2013)

Tennessee Technological University, Department of Civil and Environmental Engineering
Cookeville, TN, USA
Assistant Professor (2004-2009)

University of Connecticut, Department of Civil and Environmental Engineering
Storrs, CT, USA
Graduate Research Assistant (1999-2004)

AWARDS AND HONORS

Science/Research/Education Awards
ASCE EWRI 2018 Outstanding Achievement Award - 2018
Outstanding Reviewer, Environmental Research Letters - 2016
ASCE Walter L. Huber Award – 2015
American Meteorological Society Editor's Award- 2015
AGU Charles Falkenberg Award (A Union Award)-2012
Graduate of the Last Decade (G.O.L.D) Award – University of Connecticut -2012
US Fulbright Faculty Award- 2012
Caplenor Award (Tennessee Tech University Highest Award) – 2012
ASCE Outstanding Reviewer Award, Journal of Hydrologic Engineering- 2011
Education Excellence Award, National Association of Environmental Professionals -2010
Outstanding New Faculty Research Award, American Society of Engineering Education -2009
NASA New Investigator Program Award - 2008
Outstanding PhD Thesis Award, School of Engineering, University of Connecticut - 2005
NASA Earth System Science Fellowship - 2002

Media/Outreach Awards
Seattle Tech-Doc Film Selection for Short Documentary "Cotton Fields" - 2018
AGU Cinema Selection for Short Documentary "Cotton Fields" - 2017
11th Eco-Film Festival Selection for Short Documentary "Cotton Fields" Malaysia-2017
Tasveer South Asian Film Festival for Short Documentary "Cotton Fields" Seattle-2017
Best Film "Cotton Fields" – University of Washington Makers Summit, Seattle, USA - 2017
9th Eco-Film Festival Selection for Short Documentary "Bay of Hope" Malaysia- 2015

Nominations
University of Oklahoma International Water Prize-2017 (one of five finalists selected by a jury)
ASCE-EWRI Nominee for White House Summit on Sustainable Water, March -2016

AFFILIATIONS AND OTHER APPOINTMENTS

Member, New Voices in Sciences, Engineering, and Medicine, National Academies of Science, Engineering and Medicine, 2018-2019

Member, Scientific Steering Committee, Altimetry Missions Applications, Jet Propulsion Lab/NASA, 2019-2021

Member, Physical Oceanography DAAC User Working Group, Jet Propulsion Lab/NASA, 2018-present

Vice-President of Academic Affairs, American Institute of Hydrology, 2017-2019

Member, Steering Committee, Earthlab, University of Washington, 2015-2018

Associate Professor, Interdisciplinary Arts and Sciences, University of Washington Tacoma, 2014-2016 [33% appointment at Tacoma with 67% appointment in Seattle]

Chair, Task Committee on Infrastructure Impacts of Landscape-driven Weather Change, ASCE, 2014-2017

Visiting Professor, Department of Infrastructure Engineering, University of Melbourne, Australia, December 1- December 31 2016

Visiting Scientist, International Center for Integrated Mountain Development (ICIMOD), Nepal; 2015-2017

PUBLICATIONS

Refereed archival journal publications
[IF=Impact Factor (most recent); H-Index=36 (GS); 26 (WoS). Citations=4700 (GS; as of 07/2020); Footnote: 1- graduate student advised as major advisor; 2- students advised for independent study or non-degree projects; 3-post-doctoral associate; 4-corresponding author]

In press/accepted/revision/review

155. Hossain, F., N. Elmer, M. Srinivasan and A. Andral (2020) Accelerating Applications for Planned NASA Satellite Missions: A New Paradigm of Virtual Hackathons during Pandemic and Post-Pandemic Era, *Bulletin of American Meteorological Society (BAMS)* (In review)

154. Ahmad, S[1], F. **Hossain**[4], T. Pavelsky, G. Parkins, S. Yelton, M. Rodgers, S. Basile, S. Ghafoor, D. Haldar, R. Khan, N. Shawn, A. Haque and R. Biswas (2020). Estimating Volumetric Water Storage in Seasonal and Transboundary Runoff-Dominated Wetlands Using Citizen Science and Satellite Remote Sensing Data, *Water Resources Research* (In review).

153. Biswas, N[1]., F. **Hossain**[4], M. Bonnema, H. Lee, F. Chishtie (2020). A Global Reservoir Assessment Tool for Predicting Hydrologic Impact and Operating Pattern of Existing and Planned Reservoirs, *Environmental Modeling and Software* (In revision).

152. Kim, D. H. Lee, A. Aierken, H. Yu, L. Wang, F. **Hossain**, S. Jayasinghe, S. Basnayake (2020). Empirical Mode Decomposition Filtering Approach for Estimating Terrestrial Water Storage Changes from GRACE Level-2 Data, *Journal of Geodesy* (In review)

151. Eldardiry[1], H. and F. **Hossain**[4] (2019) Can Grand Ethiopian Renaissance Dam Live up to its Promise of Hydropower? *Renewable Energy,* (In review).

150. Eldardiry[1], H. and F. **Hossain**[4] (2019) A Blueprint for Adapting High Aswan Dam Operation in Egypt to Challenges of Filling and Operation of the Grand Ethiopian Renaissance Dam, *Journal of Hydrology* (In revision)

149. Biswas[1], N.K., F. **Hossain**[4], M. Bonnema, A. Aminul, R. Biswas, A. Buiyan, A. Hossain. (2019). A computationally efficient flashflood early warning system for a mountainous and transboundary river basin in Bangladesh, *Hydroinformatics* (In revision).

Published

148. Ahmad, S[1]., F. **Hossain**[4] (2020) Realizing Ecosystem-safe Hydropower from Dams, *Renewables: Wind, Water, and Solar*, vol. 7(2), doi.org/10.1186/s40807-020-00060-9

147. Beveridge[1], C., M. Bonnema and F. **Hossain**[4] (2019) Impacts of dam development and landscape changes on suspended sediment concentrations in the Mekong River Basin's '3S' tributaries: a satellite remote sensing perspective, *Journal of Hydrologic Engineering (ASCE)*, doi:10.1061/(ASCE)HE.1943-5584.0001949.

146. Chi-Hung Chang, H. Lee, D. Kim, E Hwang, F. **Hossain**[4], F. Chishtie, S. Jayasinghe, S. Basnayake (2020) Hindcast and forecast of daily inundation extents using satellite SAR and altimetry data with rotated empirical orthogonal function analysis: Case study in Tonle Sap Lake Floodplain, *Remote Sensing of Environment*, https://doi.org/10.1016/j.rse.2020.111732.

145. Kim, D, H. Lee, Hahn Chul Jung, Euiho Hwang, F. **Hossain**[4], Matthew Bonnema, Do-Hyuk Kang and Augusto Getirana (2020) Monitoring River Basin Development and Variation in Water Resources in Transboundary Imjin River in North and South Korea Using Remote Sensing, *Remote Sensing*, 2(1), 195, https://doi.org/10.3390/rs12010195

144. Bonnema[1], M., F. **Hossain**[4], B. Nijssen and G. Holtgrieve (2020) Hydropower's Hidden Transformation of Rivers in the Mekong, *Environmental Research Letters*, https://doi.org/10.1088/1748-9326/ab763d.

143. Ahmad[1], S. and F. **Hossain**[4] (2019). Forecast-Informed Hydropower Optimization at Long and Short-time scales for a Multiple Dam Network, *J of Renewable and Sustainable Energy*, vol. 12, (doi:10.1063/1.5124097).

142. Daly[1], K., S. Ahmad[1], M. Bonnema[1], C. Beveridge[1], F. **Hossain**[4], B. Nijssen, G. Holtgrieve (2020). Recent Warming of the Tonle Sap Lake, Cambodia: Implications for one of the World's Most Productive Inland Fisheries, *Lakes and Reservoir,* doi:1111/lre.12317.

141. Ahmad[1], S. F. **Hossain**[4], Hisham Eldardiry, T. Pavelsky (2019) A Fusion Approach for Water Area Classification using Visible, Near Infrared and Synthetic Aperture Radar for South Asian Conditions, *IEEE Geosciences Remote Sensing* (10.1109/TGRS.2019.2950705), vol. 58(4), pp. 2471-2480,

140. **Hossain**[4], F., M. Bonnema, M. Srinivasan, E. Beighley, A. Andral, B. Doorn, I. Jayaluxmi, S. Jayasinghe, Y. Kaheil, B. Fatima, N. Elmer, L. Fenoglio, J. Bales, F. Lefevre, S. Legrand, D. Brunel, and P. Le Traon, (2020). The Early Adopter Program for the Surface Water Ocean Topography Satellite Mission: Lessons Learned in Building User Engagement during the Pre-launch Era, *Bulletin of American Meteorological Society,* March(2020) (https://doi.org/10.1175/BAMS-D-19-0235.1).

139. Eldardiry, H. and F. **Hossain** (2019) Understanding the reservoir operating rules in the transboundary Nile River Basin using macroscale hydrologic modeling with satellite measurements, *Journal of Hydrometeorology,* (doi.org/10.1175/JHM-D-19-0058.1).

138. Eythorsson[1], D., S.K. Ahmad[1], S.M. Gardarsson, F. **Hossain** and B. Nijssen. (2018), Arctic climate and snow cover trends – Comparing Global Circulation Models with remote sensing observations, *International Journal of Applied Earth Observation and Geoinformatics,* vol. 80, pp. 71-81.

137. Ahmad[1], S and F. **Hossain**[4] (2019). A Globally Scalable Data-driven Technique for Forecasting of Reservoir Inflow for Hydropower Maximization, *Env. Mod. Soft,* vol. 119, pp. 147-165.

136. Peters-Lidard, C, F. **Hossain,** L.R. Leung, N. McDowell, M. Rodell, F. Tapiador, F. J. Turk and A. Wood (2018). 100 Years of Progress in Hydrology, *AMS MONOGRAPH* (Centennial Celebration series), vol. 59, chapter 25 (https://doi.org/10.1175/AMSMONOGRAPHS-D-18-0019.1).

135. Ahmad[1], S and F. **Hossain**[4] (2019). A Web-Based Decision Support System for Smart Dam Operations Using Weather Forecasts, *Hydroinformatics* (doi: 10.2166/hydro.2019.116).

134. Ahmad[1], S and F. **Hossain**[4] (2020). Maximizing Energy Production from Hydropower Dams using Short-Term Weather Forecasts, *Renewable Energy*, vol.146, pp.1560-1577

133. Sikder, S. S. Ahmad[1], F. **Hossain**[4], A. Gebregiorgis and H. Lee (2018). Case Study: A Rapid Urban Inundation Forecasting Technique Based on Quantitative Precipitation Forecast for Houston and Harris County Flood Control District, *ASCE Journal of Hydrologic Engineering,* vol. 24(8) (https://doi.org/10.1061/(ASCE)HE.1943-5584.0001807).

132. Chen[1], X. and F. **Hossain**[4] (2019) Understanding Future Safety of Dams in a Changing Climate, *Bulletin of American Meteorological Society*, August 2019, pp. 1395-1403

131. Eldardiry[1], H., X. Chen[1], A. Mahmood[1], F. **Hossain**[4], D.P. Lettenmaier, B. Nijssen (2018). Characterization of Atmospheric River Induced Precipitation and Snowpack over the Western United States, *Journal of Hydrometeorology*, https://doi.org/10.1175/JHM-D-18-0228.1

130. Bonnema[1], M. and F. **Hossain**[4] (2018). Assessing the Potential of the Surface Water and Ocean Topography Mission for Reservoir Monitoring in the Mekong River Basin, *Water Resources Research,* (DOI:10.1029/2018WR023743).

129. Chi-Hung Chang1, H. Lee, F. **Hossain**, S. Basnayake, S. Jayasinghe, F. Chishtie, D. Saah, H. Yu, K. Sothea, D. Du Bui. (2018). A Model-Aided Satellite-Altimetry-Based Flood Forecasting System for Mekong River, *Environmental Modeling and Software*, vol. 112, pp. 112-127

128. Sikder[1], S. and F. **Hossain**[4] (2018) Improving Operational Flood Forecasting in Monsoon Climates with Bias-corrected Quantitative Forecasting of Precipitation, *International Journal of River Basin Management* (In press; https://doi.org/10.1080/15715124.2018.1476368).

127. Chen[1], X., and F. **Hossain**[4] (2018) Understanding model-based probable maximum precipitation estimation as a function of storm type and geographic region using atmospheric reanalysis: 1979-2015, *J. Hydrometeorology*, (doi: 10.1175/JHM-D-17-0170.1).

126. Biswas[1], N., F. **Hossain**[4], M. Bonnema[1], H. Lee and M.A. Okeowo (2018) A River Morphology based Altimeter Height Extraction Technique for Dynamically Changing Rivers of South and South-East Asia, *Remote Sensing of the Environment,* vol. 221, pp. 24-37 (https://doi.org/10.1016/j.rse.2018.10.033).

125. Allen, G. H, C. H. David, K. M. Andreadis, F. **Hossain**, J. S. Famiglietti (2018) Global estimates of river flow wave travel times and implications for low-latency satellite data, *Geophys Res. Letters* (https://doi.org/10.1029/2018GL077914).

124. Hiep, N.H., N.D. Luong, T.T. Viet Nga, B.T. Hieu, U. T. T. Ha, B. D. Duong, V.D. Long, F. **Hossain**, H. Lee. (2018). Hydrological model using ground- and satellite-based data for river flow simulation towards supporting water resource management in, the Red River Basin, Vietnam, *J. Environmental Management,* vol. 217, pp. 346-355 (https://doi.org/10.1016/j.jenvman.2018.03.100).

123. Bhuyian, M.N.M, A. Kalyanapu, and F. **Hossain**. (2018). Evaluation of Impacts of DEM Errors in Flood Impact Assessment and Effectiveness of a DEM Correction Technique: A Cumberland River Case Study. *Geosciences*, vol. 7, pp. 132 (doi:10.3390/geosciences7040132).

122. Sikder[1], S., and F. **Hossain**[4] (2018) Sensitivity of Initial Condition and Cloud Microphysics to Forecasting of Monsoon Rainfall in South Asia, *Meteorological Applications,* pp. 1–18, (https://doi.org/10.1002/ met.1716).

121. Chen[1], X. F. **Hossain**[4] and R. Leung. (2017) Probable Maximum Precipitation in the US Pacific Northwest in a Changing Climate, *Water Resources Research*, vol. 53. (doi:10.1002/2017WR021094).

120. Bonnema[1], M. and F. **Hossain**[4]. (2017). Inferring Reservoir Operating Pattern via Residence Time across the Mekong Basin using only Space Observations. *Water Resources Research*, vol. 53, pp. 3791–3810, (doi://10.1002/2016WR019978).

119. **Hossain**[4], F., M. Srinivasan, C. Peterson, A. Andral, E. Beighley, E. Anderson, R. Amini, C. Birkett, D. Bjerklie, C.A. Blain, S. Cherchali, C.H. David, B. Doorn, J. Escurra, L. Fu, C. Frans, J. Fulton, S. Gangopadhay, S. Ghosh, C. Gleason, M. Gosset, J. Hausman, G. Jacobs, J. Jones, Y. Kaheil, B. Laignel, P. Le Moigne, L. Li, F. Lefèvre, R. Mason, A. Mehta, A. Mukherjee, A. Nguy-Robertson, S. Ricci, A. Paris, T. Pavelsky, N. Picot, G. Schumann, S. Shrestha, P. Le Traon, and E. Trehubenko (2017). Engaging the User Community for Advancing Societal Applications of the Surface Water Ocean Topography Mission, *Bulletin of the American Meteorological Society,* vol. 98(11), pp. ES285-ES290

118. Chen[1], X., F. **Hossain**[4], R. Leung. (2017) Evaluation of an Optimal Atmospheric Numerical Modeling Framework for Extreme Storm Event Simulation *ASCE J Hydrologic Engineering*, (doi:10.1061/(ASCE)HE.1943-5584.0001523).

117. Okeowo, M.A., H. Lee, F. **Hossain** and A Getirana. (2017). Toward Automated Generation of Reservoir Water Elevation Changes From Satellite Radar Altimetry, *IEEE JSTARS* ,vol. 10(8), pp. 3465-3481 (doi:10.1109/JSTARS.2017.2684081).

116. Winchester, J., R. Mahmood, W. Rodgers, F. **Hossain**, E. Rappin, J. Durkee). (2015) A Model-Based Assessment of Potential Impacts of Man-Made Reservoirs on Precipitation *Earth Interactions*, vol. 21 (9), (doi: 10.1175/EI-D-16-0016.1)

115. Mahmood[1], A., and F. **Hossain** (2017) Feasibility of Managed Domestic Rainwater Harvesting in Rural areas of South-Asia using Remote Sensing, Resources, *Conservation and Recycling*, vol. 25, pp. 157-168, (doi:10.1016/j.resconrec.2017.06.01).

114. Biswas[1], N. and F. **Hossain**[4], (2017). A Scalable Open-source Web-analytic Framework to Improve Satellite -based Operational Water Management in Developing Countries, *Journal of Hydroinformatics,* (doi:10.2166/hydro.2017.073).

113. **Hossain**[4], F., S. Sikder[1], N. Biswas[1], H. Lee, N.D Luong, N.H. Hiep, B. D. Duong and D. Long (2017) Predicting Water Availability of the Regulated Mekong River Basin Using Satellite Observations and a Physical Model, *Asian Journal of Water and Environmental Pollution*, vol. 14(3), pp. 39-48.

112. Iqbal[2], N., F. **Hossain** and M.G. Akhter. (2017). Integrated Groundwater Resource Management Using Satellite Gravimetry and Physical Modeling Tools, vol. 189(128), *Environmental Monitoring and Assessment*, Vol. 189, 128pp (doi: 10.1007/s10661-017-5846-1).

111. Yigzaw[1], W. and F. **Hossain**[4]. (2016) Water-Sustainability Of Large Cities In The US From The Perspectives of Population Increase, Anthropogenic Activities and Climate Change, *Earth's Future*, vol. 4, (doi:10.1002/2016EF000393).

110. **Hossain**, F., et al. (2016). A Review of Approaches And Recommendations For Improving Resilience Of Water Management Infrastructure, *Journal of Infrastructure Systems* (ASCE), ASCE Task Committee's Final Update on Water Management Infrastructure Resilience, (doi:10.1061/(ASCE)IS.1943-555X.0000370)

109. Kansakar[2], P. and **Hossain**[4], F., (2016). A review of applications of satellite earth observation data for global societal benefit and stewardship of planet earth, *Space Policy*, vol 36, pp. 46-44 (doi:10.1016/j.spacepol.2016.05.005)

108. **Hossain**[4], F., A. Serrat-Capdevila, S. Granger, A. Thomas, D. Saah, D. Ganz, R. Mugo, M. S. R. Murthy, V. H. Ramos, C. Fonseca, E. Anderson, G. Schumann, R. Lewison, D. Kirschbaum, V. Escobar, M. Srinivasan, C. Lee, N. Iqbal, E. Levine, N. Searby, L. Friedl, A. Flores, D. Coulter, D. Irwin, A. Limaye, T. Stough, J. Skiles, S. Estes, W. Crosson, and A. S. Akanda (2016). A global capacity building vision for societal applications of earth observing systems and data: key questions and recommendations, *Bulletin of American Meteorological Society,* July Issue, pp. 1295-1299 (doi: 10.1175/BAMS-D-15-00198.1).

107. Sikder[1], S., and F. **Hossain**[4] (2016) Assessment of the weather research and forecasting model generalized parameterization schemes for advancement of precipitation forecasting in monsoon-driven river basins, *Journal of Advances in Modeling Earth Systems (AGU)*, vol. 8, (doi:10.1002/2016MS000678).

106. Chen[1], X and F. **Hossain**[4] (2016) Revisiting extreme storms of the past 100 years for future safety of large water management infrastructures, *Earth's Future (AGU)* (doi: 10.1002/2016EF000368).

105. Miao[2], Y., X. Chen[1] and F. **Hossain**[4]. (2016) Maximizing hydropower generation with numerical modeling of the atmosphere, *J. Hydrologic Engineering* (ASCE), vol. 21(6), (doi: 10.1061/(ASCE)IR.1943-4774.0001098).

104. Durand[4], M. A, C. J. Gleason, P. A. Garambois, D. Bjerklie, L. C. Smith, H. Roux, E. Rodriguez, P. Bates, T. Pavelsky, J. Monnier, X. Chen, G. Di Baldassare, Jean-Michel Fiset, Nicolas Flipo, R. P. M. Frasson, J. Fulton, N. Goutal, F. **Hossain**, E. Humphries, J. T. Minear, M.

Mulkowe, Jeffrey Neal, S. Ricci, B. Sanders, G. Schumann, and J. Shubert, (2016). 'Pepsi challenge' inter-comparison of remote sensing river discharge estimation algorithms from measurements of river height, width, and slope, *Water Resources Research,* vol. 52(6), pp. 4527–4549 (doi: 10.1002/2015WR018434).

103. Iqbal[2], N., F. **Hossain**[4], H. Lee, and M.G. Akhtar. (2016). Satellite gravimetric estimation of groundwater storage variations over Indus basin in Pakistan. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing* (JSTARS), vol. 9(8), pp. 3524 - 3534 (doi: doi:10.1109/JSTARS.2016.2574378).

102. Sikder[1], S. X. Chen[1], F. **Hossain**[4], J. Roberts, F. Robertson, CK Shum and J. Turk (2016). Are general circulation models ready for operational streamflow forecasting at seasonal scales in South Asia? *Journal of Hydrometeorology*, vol. 17(1) (doi:10.1175/JHM-D-14-0099.1).

101. Bonnema[1], M., S. Sikder[1], Y. Miao[2], X. Chen[1], and F. **Hossain**[4] (2016). Understanding satellite-based monthly-to-seasonal reservoir outflow estimation as a function of hydrologic controls, *Water Resources Research,* vol. 52(5), pp.4095-4115 (doi: 10.1002/2015WR017830).

100. Bonnema[1], M., S. Sikder[1], F. **Hossain**[4], M. Durand, D. Bjerklie and C. Gleason. (2016). Benchmarking Wide swath altimetry based river discharge estimation algorithms for the ganges river system, *Water Resources Research,* vol. 52(2), pp. 2439-2461 (doi:10.1002/2015WR017296).

99. Maswood[1], M. and F. **Hossain**[4] (2016). Advancing river modeling in ungauged basins using remote sensing: the case of Ganges-Brahmaputra-Meghna basins, *Int. J. River Basin Management,* vol. 14(1), pp. 103-117 (doi: 10.1080/15715124.2015.1089250).

98. Yigzaw[1], W. and F. **Hossain**[4] (2016). Land use land cover impact on probable maximum flood and sedimentation for artificial reservoirs: a case study in western US, *J. Hydrologic Engineering*, vol. 21(2) (doi:10.1061/(ASCE)HE.1943-5584.0001287).

97. **Hossain**[4], F.J. Arnold, E. Beighley, C. Brown, S. Burian, J. Chen, S. Madadgar, A. Mitra, D. Niyogi, R.A. Pielke, V. Tidwell, D. Wegner (2015). What do experienced water managers think of water resources of our nation and its management infrastructure? Infrastructure Task Committee Report to ASCE, *PLOS ONE,* Nov 2015, (doi:10.1371/journal.pone.0142073).

96. Paiva, R., M. Durand[4], F. **Hossain** (2015). Spatiotemporal interpolation of discharge across a river network in the context of the SWOT mission. *Water Resources Research*, vol .51 (1), pp.430-449 (doi: 10.1002/2014WR015618).

95. **Hossain**[4], F. Z. H. Khan and CK Shum (2015). Reply to Auerback et al. (2015) On tidal river management, *Nature Climate Change*. vol. 5, June 2015.

94. Yigzaw[1], W. and F. **Hossain**[4] (2015). Inferring anthropogenic trends from satellite data for water-sustainability of us cities near artificial reservoirs, *Global Planetary Change,* vol. 133, pp. 330-345 (doi: 10.1016/j.gloplacha.2015.09.013).

93. Houssos, E.E., T. Chronis[4], A. Fotiadi, F. **Hossain** (2015). Atmospheric circulation characteristics favoring dust storm outbreaks over the solar village, *Monthly Weather Review,* vol. 143, pp. 3263–3275, (doi:10.1175/MWR-D-14-00198.1).

92. **Hossain**[4], F. J. Arnold, E. Beighley, C. Brown, S. Burian, J. Chen, S. Madadgar, A. Mitra, D. Niyogi, R.A. Pielke, V. Tidwell, D. Wegner. (2015) Local-to-regional landscape drivers of extreme weather and climate: implications for water infrastructure resilience, Infrastructure Task Committee Report to ASCE, *Journal of Hydrologic Engineering*, vol. 20(7), (doi:10.1061/(ASCE)HE.1943-5584.0001210).

91. Sikder[1], S. and F. **Hossain**[4] (2015). Understanding the geophysical sources of uncertainty of satellite interferometric-based discharge estimation, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 8(2) (doi:10.1109/JSTARS.2014.2326893).

90. **Hossain**[4], F (2014). The Paradox of Peak Flows in a Changing Climate, *J. Hydrologic Engineering (ASCE)*, vol. 19(9) (doi: 10.1061/(ASCE)HE.1943-5584.0001059).

89. Durkee, J. A. M. Degu[1], F. **Hossain**[4], R. Mahmood, J. Winchester and T. Chronis. (2014). Impact of 'Land Between the Lakes' in Kentucky on mesoscale storms during growing season, *Journal of Applied Meteorology and Climatology*, vol. 53, pp. 1506–1524. (doi:10.1175/JAMC-D-13-088.1).

88. **Hossain**[4], F., C K, Shum, F.J. Turk, S. Biancamaria, H. Lee, A. Limaye., L.C. Mazumder, M. Hossain, S. Shah-Newaz, T. Ahmed, W. Yigzaw[1], A.H.M. Siddique-E-Akbor[1] (2014). Crossing the valley of death: Lessons learned from making a satellite based flood forecasting system operational and independently owned by a stakeholder agency, *Bulletin of American Meteorological Society (BAMS)*, vol. 95(8) (doi:10.1175/BAMS-D-13-00176.1).

87. Gebregiorgis[1], A.S. and F. **Hossain**[4] (2014). How well can we estimate error variance of satellite precipitation data across the world? *Atmospheric Research*, vol. 154, pp. 39-59.

86. Stratz[1], S.A. and F. **Hossain**[4] (2014). Probable maximum precipitation in a changing climate: implications for dam design, *ASCE Hydrologic Engineering*, vol. 19(12), (doi:10.1061/(ASCE)HE.1943-5584.0001021).

85. Yigzaw[1,4], W. and F. **Hossain** (2014). Leveraging precipitation modification around large reservoirs in orographic environments for water resources management, *Journal of Civil and Environmental Engineering,* vol. 4(5), pp. 1.

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Complete books written

17

1. **Hossain,** F. and M. D. Hossain. (2007). *Modern concepts on water resources*, Published by University Grants Commission (Bangladesh). Printed by Global Printers (Bangladesh) Dhaka, Bangladesh.

Parts of books (chapters in edited books)

1. Clark, E.A., S. Biancamaria, F. **Hossain**, J.-F. Crétaux, and D.P. Lettenmaier. (2015). Altimetry applications to transboundary river management, in. (Ed. J. Benveniste), *Altimetry Special Issue*, European Space Agency.

2. **Hossain[4],** F., A.T. Woldemichael[1], A. Degu[1], W. Yigzaw[1], C. Mitra and J.M. Shepherd. (2013). Water resources vulnerability in the context of rapid urbanization of Dhaka City (A South Asian mega city), In *Climate Vulnerability* (Series Editor Roger Pielke Sr).

3. **Hossain[4],** F. (2012). Effects of Artificial Reservoir Induced Land Cover Change on Local Climate, In *Encyclopedia of Natural Resources* (Ed. Dr. Yeqiao Wang), Taylor and Francis.

4. Shum[4], C.K., J. Guo, F. **Hossain**, J. Duan, D. Alsdorf, X. Duan, C. Kuo, H. Lee, M. Schmidt, and L. Wang. (2010). Inter-annual water storage changes in Asia from GRACE data;, In *Climate Change and Food Security in South Asia* (Ed. Rattan Lal, M. Sivakumar, S. Faiz, A. Mustafizur-Rahman, and K. Islam), Springer Publishers.

5. **Hossain** F. and D. Alsdorf[4]. (2010). Understanding surface water flow and storage changes using satellites: emerging opportunities for Bangladesh, In *Climate Change and Food Security in South Asia* (Ed. Rattan Lal), Springer Publishers.

6. Nikolopoulos E., E.N. Anagnostou[4] and F. **Hossain**. (2009). Regional evaluation through hydrological application: Europe. In *Satellite Applications of Hydrology* (Eds Gebremichael and Hossain), Springer Publications.

7. **Hossain[4],** F., L. Tang[1], E.N. Anagnostou, E. Nikolopoulos. (2009). A practical guide to a space-time stochastic error model for simulation of high resolution satellite rainfall data. *Book Chapter* in *Satellite Applications of Hydrology* (eds. Gebremichael and Hossain), Springer Publications.

8. **Hossain[4],** F. and N. Katiyar[1]. (2008). Advancing the use of satellite rainfall datasets for flood prediction in ungauged watersheds: The role of scale, hydrologic process controls and the Global Precipitation Measurement Mission. Invited Book Chapter (Springer-Verlag) for *Quantitative Information Fusion in the Context of Hydrological Sciences,* (Eds, Xing Cai and J-C Yeh) Springer Publishers.

Books edited

4. **Hossain**, F. (Editor) *"Resilience of Large Water Management Infrastructures: Solutions from Modern Atmospheric Science,"* Springer-Verlag. ISBN-978-3-30-26431-4, (Publication Date: September, 2019).

3. **Hossain,** F (Editor) *"Earth Science Satellite Applications: Current and Future Prospects,"* Springer-Verlag. ISBN 978-3-319-33438-7, (Publication Date: May 2016). [9200 chapter downloads as of December 2019]

2. **Hossain,** F (Editor) 'Water Encyclopedia' for Elsevier Sciences 5 volume reference series on *"Climate Vulnerability: Understanding and Addressing Threats to Essential Resources"* (Series Editor Roger Pielke Sr) (Released April 2013 by Elsevier and Academic Press).

1. Gebremichael, M and F. **Hossain** (editors). *Satellite Rainfall Applications for Surface Hydrology'*, *Springer-Verlag*, 2009 (ISBN: 978-90-481-2914-0). *(*30,000+ chapter downloads; Among Springer's top 25% books)

Journal issues edited

2. Human impact on climate extremes for water resources infrastructure design, operations, and risk management (2013). *Earth Interactions* (with editors Alfred Kalyanpu and Steve Burian)

1. Satellites and transboundary water: Emerging ideas (2009) *Journal of American Water Resources Association.*

Other significant research dissemination (web sites, software, Wikis, etc.)

8. Smart Dam Operations Decision Support System – a DSS for dynamic operation of reservoirs using weather forecasts – http://depts.washington.edu/saswe/damdss

7. Feeding Asia – a promotional video on mainstreaming smart agriculture technology

6. Cotton Fields from the Ivory Tower– a scientific documentary showcasing the hurdles to durable application of science for societal application for earth and environmental issues.

5. Bay Of Hope – a scientific documentary showcasing how collaborative science on coastal vulnerability and engagement with local stakeholders can help result in resilience. This was selected for screening at 8th Eco-Film Festival-2015 in Malaysia.

4. South Asian Surface Water Modeling System – A "Build-it-yourself" web-GIS platform that allows any stakeholder agency on water to connect complex backend models with easy to build web interfaces using freely available tools. [http://depts.washington.edu/saswe]

3. HYDROVIZ-Tennessee **–** A customized Google Earth-based teaching application for implementing place-based learning of hydrology concepts using a campus watershed. The software's original architecture is developed (and later customized for Tennessee) by Dr. Emad Habib (University of Louisiana) on a NSF-funded project and is called HYDRO-VIZ.

2. STEVE version 2.0. – **S**tochastic **T**heory **E**ducation through **V**isualization **E**nvironment. An OpenGL-based Graphical User Interface (GUI) for a space-time stochastic model (called SREM2D) for improving instruction of stochastic theory at undergraduate-graduate level.

1. Live BBC interview on the "Naked Scientist Show", *Dam a River – Change the Weather,* Feb 2010.[Podcast at: http://www.thenakedscientists.com/HTML/interviews/interview/1289/]

OTHER SCHOLARLY ACTIVITY

Invited lectures and seminars

1. AAAS Lecture -The Future of Water and Human Decision-making, *Meeting Food and Water Security Challenges in the Developing World with Models, Data and Stakeholder Engagement,* Feb 15 2020

2. USAID invited Global Online Webinar for Agrilinks – Sustainable Food Systems. *Growing More with Less: Smart Technology Solutions to Feed the World*, Jan 29, 2020.

3. University of Washington Engineering Lecture Series – Fall 2019. *Growing More with Less: Smart Technology Solutions to Feed the World*, October 10, 2019. Lecture video online - https://www.youtube.com/watch?v=9OPq66LbFLs.

4. Asian Development Bank, Manila – Asia Water Forum-2018, *Mainstreaming Satellite Earth Observations and Smart Technology for Addressing Water-Food Security Challenges of Asia*, October 3, 2018.

5. USAID HQ, DC, *The Wonderful Experience of Serving On USAID PEER Projects: Lessons Learned for The Future*, March 14, 2018

6. World Bank HQ, DC, *Feeding Asia: An Operational Irrigation Advisory System Using Earth Observations And Smart Technology*, March 14, 2018.

7. AAAS Annual Meeting – Invited Panel Talk, Austin, Texas, *Bringing the Societal Benefits of Satellite Remote Sensing in the Developing World: The Case for Water Security and GRACE*, February 15, 2018. (Jay Famiglietti presented on behalf of speaker).

8. American Geophysical Union (AGU) Fall Meeting- New Orleans Invited Talk, *Taking Research and Knowledge to the Common People: The Case for Water Security*, December 2017.

9. Program for Climate Change (PCC) – Invited Talk, *Management Challenges of World's Water Resources: A Developing World Perspective*, Friday Harbor, San Juan Islands, September 15, 2017.

10. World Bank HQ, DC, *Building Solutions for the Water Sector using Remote Sensing: A Developing World Perspective,* March 15, 2017.

11. Asian Development Bank HQ, Manila, Philippines, *Smart Use of Satellite Remote Sensing for Water Management and Food Security,* November 14, 2016

12. University of Melbourne, Department of Infrastructure Engineering. Melbourne, Australia. *Management challenges of the world's water resources: a developing world perspective.* May 18, 2016.

13. Environmental Defense Fund (EDF)-San Francisco, Science Day Invited Speaker, *What must be done to best use satellites for social good?* February 10, 2016.

14. American Meteorological Society (AMS) 96th Annual Meeting - New Orleans, Invited Presentation on *"Perspective and plans for future observing systems in earth system science"*, January 11, 2016.

15. University of Washington, School of Forestry Sciences, *Management challenges of the world's water resources: a developing world perspective*, March 11, 2015.

16. NASA E2 Workshop Tacoma, Inaugural Speaker, *Globalizing societal application of scientific research and observations from remote sensing: The path forward*, June 23, 2015.

17. San Diego, NASA-CNES Surface Water Ocean Topography (SWOT) Mission Science Meeting – Keynote Lecture, *SWOT contributions to improved understanding of human impacts on hydrology*, January 2015.

18. University of Washington, Department of Civil and Environmental Engineering, *Advancing river modeling in ungauged basins: The case of Ganges Brahmaputra Meghna basins,* January, 2015.

19. University of Washington, Program for Climate Change (PCC) Seminar Series, *Advancing river modeling in ungauged basins: the case of Ganges Brahmaputra Meghna Basins,* December 2, 2014.

20. University of Houston, Department of Civil and Environmental Engineering, *Advancing river modeling in ungauged Basins: The case of Ganges Brahmaputra Meghna basins,* November 7, 2014.
21. WellSprings-2014 at Tacoma (WA), *Big Data, Little Water*, October 14, 2014.
22. Microsoft Research Faculty Summit for Latin America, Vina del Mar, Chile, *Delivering hydrological information for community empowerment: Opportunities and challenges for the semi-skilled consumer,* May 8, 2014.
23. University of Washington, Global Change Program, Department of Computer Science and Engineering, *Delivering hydrological information for community empowerment: opportunities and challenges for the semi-skilled consumer…and some after-thoughts on global health*, April 29, 2014.
24. University of Washington, Tacoma, *Empowering sovereign management of water resources: application of remote sensing to developing world problems,* February 24, 2014.
25. University of Washington, Freshwater Colloquium, *Empowering sovereign management of water resources: application of remote sensing to developing world problems,* Seattle, October 22, 2013.
26. Nangyang Technological University, *Understanding infrastructure resilience of dam-reliant cities under changing patterns of extreme weather*, Singapore, December 10, 2012.
27. University of Connecticut, Alumni Association G.O.L.D Award ceremony, *crossing the valley of death: promoting environmental research for societal applications*, Storrs, October 12, 2012.
28. Western Kentucky University, *Promoting the value of water cycle remote sensing and climate studies to non-traditional consumers*, *Western Kentucky University*, March 16, 2012.
29. Jet Propulsion Laboratory-Caltech, *Promoting the value of water cycle remote sensing and climate studies to non-traditional consumers*, Pasadena, March 12, 2012.
30. University of Texas-San Antonio, Department of Civil and Environmental Engineering, *Climate-feedback based paradigm for management and design of impounded river basins*, , November 18, 2011.
31. International Geosphere-Biosphere Program (IGBP), 3rd International iLEAPS Conference, Garmisch Partenkirchen, Germany, *A Bottom-up vulnerability approach to adaptation to climate and other threats*, September 22, 2011
32. NASA Goddard Space Flight Center, Greenbelt, *Impact of artificial reservoirs on local climate*, Terrestrial Water Cycle Seminar, May 26, 2011.
33. University of Mississippi, Department of Civil and Environmental Engineering, *The 21st century civil engineering program*, April 25, 2011.
34. University of Georgia, *Impact of artificial reservoirs on local climate*, Department of Geology, April 15, 2011.
35. University of Connecticut, Department of Civil and Environmental Engineering, *Impact of artificial reservoirs on local climate*, April 8, 2011.
36. University of South Carolina, Department of Civil and Environmental Engineering, *Of dams, transboundary water and their lesser known impacts*, April 2, 2010.
37. University of California-Irvine, Center for Hydrology and Remote Sensing, *Of dams, transboundary water and their lesser known impacts*, March 12, 2010.
38. Jet Propulsion Laboratory, Caltech, *Of dams, transboundary water and their lesser known impacts*, March 11, 2010.
39. Purdue University, Department of Agricultural Engineering/Civil Engineering, *Of Dams, Transboundary water and their lesser known impacts*, November 16, 2009.
40. West Virginia University Institute of Technology, ASCE Student Chapter Invited Speaker, 46th Convention, Montgomery, *Sustainable application of satellites for water resources management: past, present and future*, West Virginia, November 20, 2008.

41. Ohio State University, SWOT Hydrology Workshop, *Potential applications of SWOT data to international water management issues,* September 16, 2008.
42. Regional Symposium on Climate Change, Food Security, Sea Level Rise and Environment in South Asia, Dhaka, Bangladesh, *Understanding surface water flow and storage changes using satellites*. August 24, 2008.
43. Georesources Institute, Mississippi State University, Starkville, *Sustainable application of water-measuring satellites for water resources management: past, present and future,* April 4, 2008.
44. University of Tennessee, Knoxville, *Sustainable application of water-measuring satellites for water resources management: Past, present and future*, March 24, 2008.
45. Institute of Water Modeling (Bangladesh), *An overview of current research on advancing overland hydrologic application of satellite rainfall data at TTU*, July 24, 2007.
46. Vanderbilt University-Environmental Seminar Series, Nashville, *A paradigm for spatial mapping of groundwater contamination in rural settings: Lessons from arsenic contamination in Bangladesh*, April 6, 2007.
47. US Army Corps of Engineers, Engineering Research and Development Center, Vicksburg, *The challenges of flood monitoring across political boundaries: Taking stock of emerging opportunities and moving ahead*, November, 16 2006.
48. University of Mississippi, Oxford, *The challenges of flood monitoring across political boundaries: taking stock of emerging opportunities and moving ahead,* November, 17, 2006.
49. University of Connecticut, *The challenges of flood monitoring across political boundaries: taking stock of emerging opportunities and moving ahead*, May 11, 2006.
50. Indian Institute of Technology, Kanpur, India, *Assessment of remotely-sensed rainfall for monitoring of floods in the 21st century,* July 19, 2005.
51. Center for Environmental and Geographic Information System, Dhaka, Bangladesh, *Satellites for monitoring surface and sub-surface hydrologic calamities in Bangladesh: an assessment of opportunities and challenges*, May 11, 2005.
52. Oak Ridge National Laboratory, Environmental Sciences Division, *Assessment of remotely-sensed rainfall for monitoring of floods in the 21st century,* May 6, 2005.
53. NASA Goddard Space Flight Center, Hydrological Sciences Branch, Greenbelt, *Assessment of satellite rainfall for flood forecasting in international river basins*, February 11, 2005.
54. Sigma Xi Tennessee Tech. Chapter, *Assessment of satellite rainfall for flood forecasting in international river basins*, January, 20, 2005.
55. Tennessee Technological University, *Satellite-based flood prediction*, May 10, 2004.
56. University of Connecticut, Environmental Scholars Colloquium, Storrs, CT, *Assessment of current passive microwave and infra-red based satellite rainfall remote sensing for flood prediction of ungauged watersheds*, March 28, 2003.
57. University of Connecticut, Environmental Scholars Colloquium, Storrs, CT, *Bayesian estimation of flood prediction uncertainty for radar rainfall: Application of a likelihood-based approach to a mountainous basin*. September, 2001.

Professional society memberships.
Professional Hydrologist. American Institute of Hydrology (License No. 14-H-6012)
Full Member, American Society of Civil Engineers (ID No. 434334)
Member, American Geophysical Union.
Member, American Meteorological Society.
Member, American Society of Engineering Education.

GRADUATE STUDENTS

Current Doctoral Students

Student Name	Dissertation Topic	Current Employer	Graduation Date
Claire Beveridge	Sediment Management in Asian River systems using Remote Sensing and Stakeholder Engagement	UW	Summer 2020
Safat Sikder	Flood Forecasting in Monsoon River Systems	NASA-JPL	Spring 2018
Xiaodong Chen	Probable Maximum Precipitation in a Changing Climate	Pacific Northwest National Laboratory	Autumn 2017
Matthew Bonnema	Satellite-based Reservoir Monitoring and SWOT Mission	NASA-JPL	Fall 2019
Hisham Eldardiry	Water Management of the Nile River	UW	Winter 2021
Nishan Biswas	Enhancing Skill of Satellite Earth Observations of Surface Water	UW	Winter 2021
Shahryar Ahmad	Water-Energy Nexus	UW	Winter 2021
Wondmagegn Yigzaw	Water sustainability of cities and dams	Montana State University	February 2016
Abel Woldemichael	Modification Of Regional Hydroclimatology In Impounded River Basins	N/A	June 2015
Abebe Gebregiorgis	Hydrologically-Relevant Merging Of High Resolution Satellite Precipitation Products for Hydrologic Application	Harris County Flood Control District, Houston, TX	June 2013
Ahmed Mohamed	A Comprehensive Observational Study On The Impact Of Artificial Reservoirs On Local Hydroclimatology	Mekelle University, Ethiopia	August 2013
Ling Tang	Transfer Of Uncertainty Of Space-Borne High Resolution Rainfall Products At Ungauged Regions	ESRI Inc.	August 2011

Masters Degrees

Student Name	Level of Supervision	Thesis/Paper Title	Completed (Year)	Current Employer
Indira Bose	Thesis	Making Smart Irrigation Smarter with GRACE/GRACE-FO Gravimetric Data	Winter 2021	UW
Nishan Biswas	Thesis	A scalable open-source web-analytic framework to improve satellite -based operational water management in developing countries	Spring 2017	UW
Shahryar K. Ahmad	Thesis	Optimizing Hydropower Dam Operations	Autumn 2017	UW
Mehedi Maswood	Thesis	Advancing River Modeling Using Satellites	2014	Woolacotts Consulting,Australia
Adam Stratz	Thesis	PMP in a Changing Climate: Implications for Dam Design	2014	Department of Energy

Travis Hamby	Coursework only	Flood risk assessment of lakes and reservoirs within Cumberland river basin	2011	CTI Engineers Inc.
Caitlin Moffit	Thesis	Validation of NASA Global Flood Detection System in Bangladesh	2010	Assistant Professor, Chattanooga State College, TN.
A H M. Siddique-E-Akbor	Thesis	The Surface Water and Ocean Topography Mission for Water Management in Bangladesh	2010	Institute of Water Modeling, Bangladesh (2010-2012)
Matthew Boynton	Thesis	Improving Engineering Education Outreach in Rural Counties through Risk Analysis and Hands-on Activities	2009	Engineering Coordinator, Virginia Tech.
Mohammed Chowdhury	Thesis	Improving spatial mapping of arsenic contamination in Groundwater	2009	British Petroluem
Nitin Katiyar	Thesis	Development of an Open-Book Watershed Modeling Framework for Flood Forecasting Systems in International River Basins	2007	Hydro-QUAL – New York
Amanda Harris	Thesis	Investigating Optimal Configuration of Hydrologic Models during Data Denial Situations Using Satellite Data	2007	US Army Corps of Engineers – Nashville District
Preethi Raj	Thesis	Error Budget Analyses of Hydrologic Models: Understanding Applications for Satellite Rainfall Data	2007	Returned to India

RESEARCH ACTIVITIES

Funded Research

Funding Agency	Title	Total Amount	University Matching, if any	My Amount	Role	Dates
UNIVERSITY OF WASHINGTON						
NASA	Operational Services for Water, Disaster and Hydropower Applications for Lower Mekong Populations Using NASA Earth Observations and Models	$661k (PI from University of Houston	$0	$333k	Co-I	01/20-12/22
NSF	NSF Research and Training (NRT) - Training a Scientifically Innovative, Communication Savvy STEM Workforce for	$2.99 million	$0	$60k	Co-PI	10/2019-09/2024

	Sustaining Food-Energy-Water Services in Large and Transboundary River Ecosystems					
NASA	Tracking Water Storage in Lakes: Citizens and Satellites	$1.5 million (PI – from UNC)	$0	$300k	Co-I	04/18 - 03/21
NSF	Linking Current and Future Hydrologic Change to Hydropower, Human Nutrition, and Livelihoods in the Lower Mekong Basin"	$1.24 million (PI from UW Fisheries)	$0	$280k	Co-I	07/17-06/20
JPL	NASA Jason-2, Jason-3 Altimetry Missions Applications Activities	$50k	$0	$50k	PI	03/18-08/19
JPL	NASA Jason-2, Jason-3 Altimetry Missions Applications Activities	$50k	$0	$50k	PI	03/17-08/18
NASA	Building Lasting Capacity for Water Management in Vulnerable Deltas of Indo-China	$510k (PI from University of Houston)	$0	$280k	Co-PI	07/16-06/19
NASA	Towards Operational Water Resources Management in South Asia Exploiting Satellite Geodetic and Remote Sensing Technologies	$ 1.48 million	$0	$914k	PI	11/14-10/18
DoD	Effects of Global Change on Extreme Precipitation and Flooding	$850,110 (PI from UCLA)	$0	$40,000	Co-I	5/15-4/18
USAID-DIV Stage 1	Satellite-based Flood Inundation Warning on Affordable Mobile Platforms to Empower Farmers	$175,000 (5 million & 15 million for Stage 2 and 3, respectively)	$25,000	$150,000	PI	10/15-09/17
NASA	Globalizing Societal Application of Scientific Research and Observations from Remote Sensing: The Path Forward	$93,437	$0	$93,437	PI	05/15-04/16
NASA	SWOT Science Team Preparations for Ground-truthing, Discharge Product Development and Water Management Applications in Asian River Systems	$428,437	$0	$428,437	PI	06/16-12/20

NASA	Operational Flood Forecasting in Flood-prone River Deltas of the Developing World: Setting the Path forward for Current and Future Satellite Water Missions	$90,000	$0	$90,000	PI	09/16-08/19
NASA	Improving the Accuracy and Reliability of Space-Borne Discharge Estimation from SWOT for Low-lying Humid Tropical Regions of the World	$ 215,740	$0	$215,740	PI	12/12-3/16
NASA	A Satellite-based Early Warning, Mapping and Post-Disaster Visualization System for Water Resources of Low-lying Deltas of the Hindu Kush-Himalayan Region	$780,000	$0	$660,000	PI	8/14-7/16
NASA	Toolbox Development for River Height Extraction from Radar Altimeters: Facilitating Global Applications using JASON-2	$59,500	$0	$29,500	PI	08/14-07/15
NSF	Bangladesh Delta: Assessment of the Causes Of Sea-Level Rise Hazards And Integrated Development Of Predictive Modeling Towards Mitigation And Adaptation (BAND-AID)	$138,733	$0	$138,733	PI	04/14-03/17
NASA	The Future of Our Cities and Ageing Dams: Using NASA Satellites to Understand Changing Patterns of Infrastructure Safety for Resource-Hungry US Cities	$82,800	$0	$82,800	PI	08/13-07/16
NASA	Understanding Atmospheric Rivers, Terrain and Anthropogenic Land Cover Changes on Storm Modification around Large Dams using Multi-sensor	$82,800	$0	$82,800	PI	08/12-07/15

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	Satellite Data, Cloud Tracking and Numerical Modeling					
NASA	Modeling the hydrologically-relevant features of uncertainty of NASA's high resolution precipitation products for advancing global applications over ungauged regions.	$82,800	$0	$82,800	PI	08/08-07/11
US Dept. of State	Strengthening Institutional Resilience of Bangladesh to Recurrent Flooding By Improving Operational Capacity For Early Detection Using Satellites	$24,000	$0	$24,000	PI	07/12-06/13
NASA	Advancing the Hydrologic potential of NASA's TRMM-based Satellite Rainfall Estimation System for Global Flood Monitoring in Anticipation of GPM	$310,000 (NASA New Investigator Program)	$0	$310,000	PI	07/08-06/12
NASA	Defining Optimality Criteria for the Effective Use of Satellite Precipitation Datasets in Land Surface Hydrology and Water Cycle Studies	$425,000 (PI from Univ. Connecticut)	$0	$156,000	Co-PI	05/07-04/11
NASA	Validating Prototype GPM Data for SERVIR System in MesoAmerica	$30,000	$0	$30,000	PI	05/07-04/08
NASA	GPM Data Integration in HEC-HMS	$64,655	$0	$64,655	PI	05/07-04/08

DOCUMENTATION OF TEACHING EFFECTIVENESS

Courses Taught & Student Evaluations

Course	Title	Qtr	Cr. Hrs	Enroll-ment	Evaluation Response	Item 1	Item 3	Item 4	Avg (1-4)
CEE	Capstone-	Spring	5	15	15/15	4.3	4.0	4.1	4.0

444/445	Hydraulics and Environment	2019							
CEWA 578	Water Management	Winter 2019	3	32	32/32	4.5	4.5	4.5	4.5
CEWA 566	Satellite Remote Sensing for Water Resources	Autumn 2018	3	14	14/14	4.8	4.6	4.7	4.7
CEE 444/445	Capstone-Hydraulics and Environment	Spring 2018	5	12	12/12	3.3	4.5	3.8	3.8
CEWA 579	Quantitative Water Management	Winter 2018	3	22	19/22	4.4	4.6	4.4	4.4
CEE 444/445	Capstone – Hydraulics and Environment	Spring 2017	5	20	19/20	3.7	3.5	3.4	3.5
CEWA 579	Quantitative Water Management	Winter 2017	3	9	9/9	4.0	4.6	4.1	4.0
CEWA 566	Satellite Remote Sensing for Water Resources	Autum 2016	3	14	14/14	3.8	4.2	4.5	3.9
CEWA 579	Quantitative Water Management	Winter 2016	3	15	15/15	3.6	4.1	4.3	4.0
CEWA 566	Satellite Remote Sensing for Water Resources	Spring 2015	3	7	7/7	4.6	4.6	4.6	4.5
CEWA 566	Satellite Remote Sensing for Water Resources	Spring 2014	3	17	12/17	3.2	3.2	3.3	3.3
TESC 453A	Environmental Remote Sensing	Fall 2014	5	5	5/5	2.2	3.0	2.4	2.7

AT TENNESSEE TECHNOLOGICAL UNIVERSITY (2004-2013)

Course evaluation is on a scale of 0 -4 where students are asked to rate their level of learning on a series of syllabus topics. 0 - No Opinion; 1- Strongly Disagree; 2- Disagree; 3-   Agree;4- Strongly Agree. For example, students in Engineering Mechanics are asked to rate "*I can describe forces in terms of their vector components as well as determine vector sums*" on a scale of 0-4. The score below provides the average of scores over all syllabus topics.

Course	Title	Semesters Taught	Credit Hrs	Enrollment	Overall Score (max is 4)
TENNESSEE TECHNOLOGICAL UNIVERSITY					
CEE 4420-	Engineering	Fall 2013	3	7	3.51

Undergraduate	Hydrology				
CEE 6440 – Graduate	Hydrometeorology	Fall 2013	3	6	N/A
CEE 6480- Graduate	Environmental Applications of Remote Sensing	Fall 2012	3	3	N/A
CEE 6910- Graduate	Seminar Series	Fall 2012	1	17	N/A
CEE 2110- Undergraduate	Engineering Mechanics	Spring 2012	3	25	3.62
CEE 4420- Undergraduate	Engineering Hydrology	Fall 2011	3	20	3.60
CEE 6430 - Graduate	Probabilistic Methods in Hydrosciences	Fall 2011	3	7	N/A
CEE 6910 - Graduate	Seminar Series	Fall 2011	1	12	N/A
CEE 3420 – Undergraduate	Engineering Hydraulics	Spring 2011	3	22	3.25
CEE 3100 – Undergraduate	Computers in Civil Engineering	Spring 2011	3	5	3.26
CEE 4420 – Undergraduate	Engineering Hydrology	Fall 2010	3	18	3.60
CEE 1020- Undergraduate	Connections to Civil Engineering	Fall 2010	1	20	N/A
CEE 6440 – Graduate	Hydrometeorology	Fall 2010	3	4	N/A
CEE 6910 - Graduate	Seminar Series	Fall 2010	1	10	N/A
CEE 3100 – Undergraduate	Computers in Civil Engineering	Spring 2010	3	8	2.77
CEE 4440 – Undergraduate	Water Resources Engineering	Spring 2010	3	14	3.32
CEE 4420 – Undergraduate	Engineering Hydrology	Fall 2009	3	8	3.67
CEE 1020 – Undergraduate	Connections to Civil Engineering	Fall 2009	1	22	3.20
CEE 6480 – Graduate	Environmental Applications of Remote Sensing	Fall 2009	3	6	N/A
CEE 3100 – Undergraduate	Computers in Civil Engineering	Spring 2009	3	12	3.33
CEE 3420 - Undergraduate	Engineering Hydraulics	Spring 2009	3	25	3.66
CEE 6430 – Graduate	Probabilistic Methods in Hydrosciences	Fall 2008	3	5	N/A
CEE 1020 –	Connections to	Fall 2008	1	25	N/A

Undergraduate	Civil Engineering				
CEE 3420- Undergraduate	Engineering Hydraulics	Spring 2008	3	27	3.60
CEE 3100 – Undergraduate	Computers in Civil Engineering	Spring 2008	3	14	3.00
CEE 6440- Graduate	Hydrometeorology	Fall 2007	3	3	N/A
CEE 1020 – Undergraduate	Connections to Civil Engineering	Fall 2007	1	27	3.00
CEE 4420 – Graduate	Engineering Hydrology	Fall 2007	3	14	3.54
CEE 3420 – Undergraduate	Engineering Hydraulics	Spring 2007	3	30	3.50
CEE 4420 – Undergraduate	Engineering Hydrology	Fall 2006	3	11	3.53
CEE 1020 – Undergraduate	Connections to Civil Engineering	Fall 2006	1	21	3.00
CEE 6430 – Graduate	Probabilistic Methods in Hydrosciences	Fall 2006	3	4	N/A
CEE 3420 – Undergraduate	Engineering Hydraulics	Spring 2006	3	38	3.30
CEE 4420 – Undergraduate	Engineering Hydrology	Fall 2005	3	8	3.51
CEE 6440- Graduate	Hydrometeorology	Fall 2005	3	5	N/A
CEE 4440 – Undergraduate	Water Resources Engineering	Spring 2005	3	7	3.30
CEE 6430 – Graduate	Probabilistic Methods in Hydrosciences	Fall 2004	3	5	N/A

SERVICE

Departmental service
Promotion and Tenure Committee, 2018-2019 (Chair in 2019)
Undergraduate Affairs member, 2014-present
Mentor Committee for CEE faculty
Established a 0.5 million dollar Endowment for Graduate Fellowships for Ivanhoe Foundation in 2020

College service
Faculty advisor (with Becca Neumann), *Engineers without Borders* UW Chapter, 2016-2019
EarthLab, Steering Committee, 2017-2018

University service
Faculty senate, 2015-2019
Royalty Research Fund Panel – 2018-2019

Professional society service

Member, New Voices in Science, Engineering and Medicine, National Academies, 2018-2019

Vice President of Academic Affairs, American Institute of Hydrology, 2017-2019

Member, Scientific Advisory Group for A-CCP (Aerosols, Clouds, Convection and Precipitation), NASA, 2018-2019

Member, PO.DAAC User Working Group, 2018-present

Editor, Journal of Hydrometeorology 2015-2020

Associate Editor, Journal of Hydrometeorology, 2014-2015

Chair of ASCE Task Committee (under Environment and Water Resource Institute of ASCE) on *"Infrastructure Impacts of Landscape-driven Weather Change"* 2014-2017

Voting Member, ASCE Watershed Management Technical Council, 2014-present

Award Reviewer, American Society of Engineering Education, 2014-2015

Falkenberg Award Committee, American Geophysical Union, 2015-2017

Science Team member and Applications Lead, NASA-CNES SWOT mission, 2016-present

International, national or governmental service

US Fulbright Program Review Panel (South and Central Asia) – 2014

US PI support (unfunded) for NASA-USAID PEER project *Scaling up of satellite-assisted flood forecasting systems in south and southeast Asian nations*; 2015-2017.

US-PI support (unfunded) for NASA-USAID PEER project *Application of geodetic, satellite remote sensing and physical modeling tools for management of operational groundwater resource in the Red river delta, Vietnam*; 2015-2018.

US PI support (unfunded) for NSF-USAID PEER project *Improving adaptation against coastal vulnerability and enhancing flood forecasting skill in Bangladesh through a satellite data integrative modeling framework in a changing climate,* 2014-2017.

Point of Contact and Instigator of MOUs for UW Civil Engineering with International Center for Integrated Mountain Development (ICIMOD), Pakistan Council of Research in Water Resources (PCRWR), Nanyang Technological University- Singapore (NTU) and Institute of Water Modeling (IWM), 2014-2018.

All other service

External PhD Thesis Examiner – University of Melbourne, Australia, 2018, 2019

External PhD Dissertation Committee member– University of Sherbrooke, Canada, 2016

Lead Organizer, NASA SWOT User Workshop titled "*Engaging the User Community for Advancing Societal Application of Surface Water Ocean Topography (SWOT) mission*" held in USGS HQ, Reston (VA), from April 5-6, 2017.

Lead Organizer, NASA SWOT User Workshop titled "*2nd SWOT Early Adopters Training Workshop*" held in CNES HQ, Paris, May 20-21, 2019.

Lead Organizer, NASA Decadal Survey E2 Workshop titled "*Globalizing Societal Application of Scientific Research and Observations from Remote Sensing: The Path Forward*" held in Tacoma Holiday Inn from June 22-25, 2015.

NASA ROSES review panelist for Interdisciplinary Sciences and Water program, 2015-2016.

Lead Organizer, UW Student Film Contest, Spring 2017-present

Director of Student Recruitment Video for Hydrology and Hydrodynamics group of Civil and Environmental Engineering at UW. [watch online at: https://www.youtube.com/watch?v=-Kz-1M8mIzw], 2014.

AT TENNESSEE TECHNOLOGICAL UNIVERSITY

Departmental Service

Graduate Seminar Coordinator, 2006-2013

Chair, Graduate Affairs Committee 2006 – 2012 [Oversaw two graduate program reviews]
Faculty Co-Advisor, ASCE Student Chapter, TTU, 2009-2012
ABET Committee, 2006-2011
Recruitment and Retention Committee, 2006-2012
Technology Committee, 2006-2012

University Service
Task Force Leader for identifying research thrust areas for College of Engineering – Strategic Planning Initiative. 2012-2013

Professional Society Service
Associate Editor, Journal of Hydrometeorology, 2012-2013
Science Definition Team member, NASA-CNES SWOT mission, 2012-2014
Associate Editor, *Journal of American Water Resources Association* JAWRA. 2006-2010
Working Group Co-Chair, *Hydrologically Relevant Error Metrics for Satellite Rainfall Data,* International Precipitation Working Group (IPWG) – PEHRPP Workshop, World Meteorological Organization, Geneva, Switzerland, December 3-5, 2007.
Session Chair, *Hydrological Sciences for Managing Water Resources of the Asian Developing World*, Guangzhou, China, June 9, 2006.

International, national or government service
Coordinator for curriculum development of the undergraduate civil engineering program for the Kurdistan Regional Government (Iraq). 2009-2010.
Hosted visiting faculty from Koya University (Iraq) on curriculum development. 2009-2010.
Proposal review panelist, *National Science Foundation (NSF) Graduate Fellowship Program,* 2005-2007.
Proposal review panelist for NSF *TUES Program* 2012-2014.
NASA ROSES proposal review panelist on Earth Science and Applied Sciences 2010-2013.
Proposal Reviewer for *NASA-ROSES,* 2006-201present
Proposal Review for *NSF,* 2007-present
Proposal Reviewer for *Hong Kong Research Grants Council,* 2007
Proposal Reviewer for *Swiss National Science Foundation*, 2007
Proposal Reviewer for *Mathematics of Information Technology and Complex Systems Network of Centers of Excellence* (MITACS-NCE) 2004-2012.

Instigator of MOUs with two international water agencies and TTU (2004-2013)

All other service
Book review on "*Water Diplomacy: A Negotiated Approach to Managing Complex Water Networks*" by S. Islam and L.E. Susskind (RFF Press) – Review appeared in *EOS* (American Geophysical Union), 2013.
Lead and invited author in 2009 of chapter titled '*Reservoirs, Transboundary Issues and Human Impacts*' for Mission Science Document of the proposed NASA-CNES Surface Water and Ocean Topography (SWOT) Mission (launch date 2021).
Coordinator and lead organizer of CEE 1020 Student Film Contest, 2007-2009.