

Antar Jutla

Civil and Environmental Engineering,
West Virginia University, Morgantown, WV 26506
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<http://research.hydroepidemiology.com/>

Professional Appointment(s)

- 2012- **Assistant Professor** (*Tenure track: tenure decision pending*),
Department of Civil and Environmental Engineering, West Virginia University,
Morgantown, WV.
- 2011-2012 **Post-Doctoral Researcher**,
National Oceanic and Atmospheric Administration (NOAA), Silver Spring, MD.

Education

- 2011 **Ph.D.**, Civil and Environmental Engineering, *Tufts University, USA*. (Major: Water Resources) ADVISOR: Dr. Shafiqul Islam
- 2006 **M.Sc.**, Civil and Geological Engineering *University of Saskatchewan, Canada*. (Major: Water Resources)
- 2003 **M.Tech.**, Soil and Water Engineering, *Punjab Agricultural University, India*. (Major: Water Resources)
- 2001 **B. Tech.**, Agricultural Engineering, *Punjab Agricultural University, India*.

Research Interests

- Hydroclimate-Environment-Human Health nexus.
- Remote sensing of hydrological processes (including prediction of extreme events).
- Food security, human nutrition and water governance.

Awards and Honors

- 2018 National Science Foundation-CAREER award
- 2015 Outstanding Researcher of the year- WVU, Morgantown.
- 2014 Best paper award from Remote Sensing and Programmetry Society Letters, UK, for manuscript published in Remote Sensing Letters.
- 2014 International Scholar Appreciation Award, West Virginia University, USA
- 2010-2011 Jonathan Curtis Fellowship, Tufts University, USA
- 2009-2010 Littleton Fellowship, Tufts University, USA
- 2009-2010 Tufts Institute of Environment Fellowship, Tufts University, USA
- 2006, 2008 Graduate Research Fellowship, Tufts University, USA
- 2003-2005 Graduate Fellowship, Ministry of Human Resources, Government of India.
- 2001 *'Innovation Potential of Students'* Project Award-2001, Indian National Academy of Engineering, India.
- 2001-2003 University Fellowship, Punjab Agricultural University, India
- 1997-2001 University Fellowship, Punjab Agricultural University, India
- 1990-1997 National Scholarship, Government of India.

Scholarly Experience

- 2005-2011 Graduate Research Assistant, Tufts University, USA
- 2003-2005 Graduate Research Assistant, University of Saskatchewan, Canada
- 2000-2001 Research Intern, National Agro Industries, India
- 1999-2000 Trainee-in-Research , Farm Machinery Training and Testing Institute, India

Professional Development

- 2017 MERRA-2 Applications Workshop, June 19, 2017, NASA -GSFC, MD
- 2015 Integrating prediction and forecasting for decision-making: dengue epidemic prediction. Office of Science and Technology Policy, **White House**, Washington DC, September 21, 2015.
- 2015 2nd ICESat-2 Applications Workshop, March 10 & 11, NASA -GSFC, MD
- 2014 How to engineer engineering education, Bucknell University, Lewisburg, PA
- 2013 Prediction of pathogenic vibrios using satellites, Office of Science and Technology Policy Workshop for Predict the Next Pandemic, **White House**, Washington DC.
- 2012 Chesapeake Bay & Puget Sound Health Workshop on Integrating Climate and Environmental Information with Disease Surveillance to Address Pathogens and Algal Toxins of Concern to Public Health, University of Maryland, MD.
- 2012 Annual Climate Prediction Applications Science Workshop, University of Florida, Miami.
- 2011 2nd Soil Moisture Active Passive (SMAP) Applications Workshop, Washington, DC
- 2007 MODIS Data Workshop, University of Maryland-Baltimore County, USA
- 2005 Introduction to University Teaching, University of Saskatchewan, Canada
- 2003 HTML-Basics, University of Saskatchewan, Canada
- 2004 Dreamweaver-Introduction, University of Saskatchewan, Canada
- 2004 Dynamics of Science-Societal Interaction, University of Saskatchewan, Canada
- 2001 Programming in C++, Ludhiana Institute of Management Association, India

Conference Sessions Chaired/Convened

Water and Climate (Co-Chair).

International One Health Congress, Saskatoon, Canada, June 22-27, 2018.

Climate, Hydroepidemiology and Health

American Geophysical Union's Fall Meeting, San Francisco, Dec 14-18, 2015.

Water and Climate (Co-Chair).

International One Health Congress, Netherlands, March 13-15, 2015.

Hydroepidemiology: Understanding Connections Between Hydrology and Human Health.

American Geophysical Union's Fall Meeting, San Francisco, Dec 15-19, 2014.

Water, Climate and Health.

European Geosciences Union General Assembly, Vienna, Austria, April 27-May 02, 2014.

Water, Climate and Health.

European Geosciences Union General Assembly, Vienna, Austria, April 05-09, 2013.

Hydro-epidemiology: Understanding Connections Between Hydrology and Human Health
American Geophysical Union's Fall Meeting, San Francisco, Dec 3-7, 2012.

Water, Climate and Health.

European Geosciences Union General Assembly, Vienna, Austria, April 22-27, 2012.

Hydroepidemiology: Connecting Hydrology with Human Health.

American Geophysical Union's Fall Meeting, San Francisco, Dec 5-9, 2011.

Hydroepidemiology: Connection of Hydrology with Human Health.

American Geophysical Union's Fall Meeting in San Francisco, Dec 13-18, 2010.

Reviewer

American Journal of Public Health
American Journal of Tropical Medicine and Hygiene
Bulletin of World Health Organization
Earth Perspectives
Ecological Applications
Emerging Infectious Diseases
Environmental Modeling and Software
Epidemiology and Infections
GeoJournal
Hydrological Sciences Journal
International Journal of Environmental Research and Public Health
International Journal of Remote Sensing
Journal of American Water Resources Association
Journal of Coastal Research
Journal of Water Resources Planning and Management
Neural Computing and Applications
PLOS One
PLOS-Neglected Diseases
Remote Sensing
Remote Sensing of Environment
Remote Sensing of Letters
Water Resources Research

Professional Service

Editor , GeoHealth, AGU-Wiley Publication	2016-current
Associate Editor , Frontiers Journal of Public Health	2013-current
Guest Editor , Water Resources Research, AGU	2013-2014
NASA Panel Member	2015
NASA EPSCoR Panel Member	2015
NASA Post-Doctoral Review Board Panel	2014, 2015
NSF Panel Member	2018

Teaching and Course Development

Course	Institute
• Hydrotechnical Engineering* (CE322)	West Virginia University
• Assessment of American Civil Infrastructure* (<i>new course</i>)	West Virginia University
• Water Resources Engineering (CE427)	West Virginia University
• Water, Health and Environmental Sustainability** (<i>new course</i>)	West Virginia University
• Environmental Systems Modeling ** (<i>new course</i>)	West Virginia University
• Environmental Health and Modeling ⁺ (<i>new course</i>)	West Virginia University
• Introduction to Geomatics* (CE305)	West Virginia University
• Hydrological Modeling using HEC-HMS for Water Professionals	World Bank
• Hydrology & Water Resources Engineering* (CEE112)	Tufts University
• Water Resources Engineering* (CE464)	University of Saskatchewan, Canada
• Engineering Mechanics* (GE124)	University of Saskatchewan, Canada

* Undergraduate; **Graduate; ⁺ Undergraduate/Graduate;
Student Evaluation Score (cumulative for past five years): 4.2 (out of 5)

Publications

Peer Reviewed Journal Articles

h-index : 13

1. Alfi, H., **Jutla, A.**, Akanda, A. Quantification of rotavirus diarrheal risk due to hydroclimatic extremes over South Asia: Prospect of satellite based observations in detecting outbreaks, *GeoHealth*. doi: 10.1002/2017GH000101
2. Uprety, S., Hond, P., Sadik, N., Dangol, B., Ashikari, R., **Jutla, A.**, Shisler, J., Degnan, P., Nguyen, T., The effect of the 2015 Earthquake on the bacterial community compositions in water in Nepal. *Frontiers in Microbiology*. doi: 10.3389/fmicb.2017.02380
3. Akanda, A., Aziz, S., **Jutla, A.**, Huq, A., Colwell., R. 2017. Earth observations for cholera prediction. *Earth Observing System (Accepted)*.
4. *Khan, R., Nguyen, T., Shisler, J. **Jutla, A.**, Colwell, R., 2017. Evaluation of risk of cholera after a natural disaster: Lessons learned from the 2015 Nepal earthquake, *ASCE- Journal of Water Resources Planning and Management (Accepted)*.
5. *Khan, R., *Anwar, R., Akanda, S., McDonald, M., Huq, A., **Jutla, A.**, Colwell, R., 2017. Assessment of risk of cholera in Haiti following Hurricane Matthew, *American Journal of Tropical Medicine and Hygiene*. 97(3):896-903. doi: 10.4269/ajtmh.17-0048.
6. **Jutla, A.**, *Khan, R., Colwell, R. 2017. Natural disasters and cholera outbreaks: Current understanding and future outlook, *Current Environmental Health Reports*, DOI: 10.1007/s40572-017-0132-5
7. *Nasr, F., *Khan, R., Rahimikollu, J., Unnikrishnan, A., Akanda, A., Alam, A., Huq, A., **Jutla, A.**, Colwell, R., 2016. Hydroclimatic sustainability assessment of changing climate on cholera

in the Ganges-Brahmaputra Basin. *Advances in Water Resources*, DOI:10.1016/j.advwatres.2016.11.018

8. **Jutla, A.**, *Aldaach, H., *Billian, H., Akanda, A., Huq, A., and Colwell, R. 2015. Satellite based assessment of hydroclimatic conditions related to cholera in Zimbabwe. *PLOS-One*, doi: 10.1371/journal.pone.0137828.
9. **Jutla, A.**, Unnikrishnan, A., Akanda, A., Huq, H., and Colwell, R. 2015. Predictive time series analysis linking Bengal cholera with terrestrial water storage measured from GRACE sensors. *American Journal of Tropical Medicine and Hygiene*. DOI: 10.4269/ajtmh.14-0648
10. *Nasr, F.A., Unnikrishnan, A., Akanda, A. Islam, S., Alam, M., Huq, A., **Jutla, A.**, Colwell, R. 2015. A framework for downscaling river discharge to access impacts of climate change on endemic cholera, *Climate Research*, doi: 10.3354/cr01310
11. **Jutla, A.S.**, Huq, A. and Colwell, R. 2015. Diagnostic approach for monitoring hydroclimatic conditions related to emergence of West Nile Virus in West Virginia. *Frontiers Journal of Public Health*. doi: 10.3389/fpubh.2015.00010.
12. *Luo, T., **Jutla, A.S.**, and Islam, S. 2015. Evapotranspiration estimation over agricultural plains using modis data for all sky conditions, *International Journal of Remote Sensing*, doi: 10.1080/01431161.2015.1009648.
13. Akanda, A.S., **Jutla, A.S.** and Colwell, R. 2014 Global diarrhoea action plan needs integrated climate-based surveillance, *The Lancet-Global Health*, 2(2):69-70.
14. **Jutla, A.S.**, Whitcombe, E, Hasan, H., Haley, B., Akanda, A., Huq, A., Alam, M., Sack, B., Colwell, R. 2013. In Response: Environmental factors influencing epidemic cholera. *American Journal of Tropical Medicine and Hygiene* 89(6): 1231–1232.
15. **Jutla, A.S.**, Whitcombe, E, Hasan, H., Haley, B., Akanda, A., Huq, A., Alam, M., Sack, B., Colwell, R. 2013. Environmental factors influencing epidemic cholera. *American Journal of Tropical Medicine and Hygiene*, 89(3):597-607.
16. **Jutla, A.S.**, Akanda, A.S. and Islam, S. 2013 A framework for predicting endemic cholera using satellite derived environmental determinants. *Environmental Modelling and Software*, 47:148-158
17. **Jutla, A.S.**, Akanda, A.S., Huq, A., Faruque, A., Colwell, R. and Islam, S. 2013 A water marker monitored by satellites to predict endemic cholera, *Remote Sensing Letters*, 4(8):822-831.
18. Akanda, A.S., **Jutla, A.S.**, Gute, D., Sack, R., Alam, M., Huq, A., Colwell, R., and Islam, S. 2013. Population vulnerability to biannual cholera outbreaks and associated macro-scale drivers in Bengal Delta, *American Journal of Tropical Medicine and Hygiene*, 89(5):950-959.
19. **Jutla, A.S.**, Akanda, A.S. and Islam, S. 2012. Satellite space-time variability of chlorophyll in Bay of Bengal: Connections to cholera outbreaks. *Remote Sensing of Environment*. 123:196-206.
20. Akanda, A.S., **Jutla, A.S.**, Gute, D.M., Evans, T. and Islam, S. 2012. Reinforcing Cholera Intervention Through Prediction Aided Prevention. *Bulletin of the World Health Organization*, 90(3):243-244.

21. **Jutla, A.S.**, Akanda, A.S, Griffiths, J. Islam, S. and Colwell, R. 2011. Warming oceans, phytoplankton, and river discharge: Implications for cholera outbreaks. *American Journal of Tropical Medicine and Hygiene*. 85(2):303-8.
22. Akanda, A.S., **Jutla, A.S.**, Siddique, A.K., Alam, M., Sack, R., Huq, A., Colwell, R. and Islam, S. 2011. Hydroclimatic influences on seasonal and spatial cholera transmission cycles: Implications for public health intervention in the Bengal Delta, *Water Resources Research*, 47, W00H07, doi:10.1029/2010WR009914
23. **Jutla, A.S.**, Akanda, A.S. and Islam, S. 2010. Tracking cholera in coastal regions using satellite observations. *Journal of American Water Resources Association*. 46(4):651-662. Doi: 10.1111/j.1752-1688.2010.00448.x.
24. Akanda, A. S., **Jutla, A.S.** and Islam, S. 2009. Dual peak cholera transmission in Bengal Delta: A hydroclimatological explanation, *Geophysical Research Letters*, 36, L19401, doi:10.1029/2009GL039312.
25. Jiang, L., Islam, S., **Jutla, A.**, Senarath, S., Ramsey, B. H., and Eltahir, E. 2009. A satellite-based daily actual evapotranspiration estimation algorithm over South Florida, *Global Planetary Review*, 67(1–2): 62–77.
26. Elshorbagy, A., **Jutla, A.**, Barbour, L., and Kells, J. 2007. Simulation of the hydrological processes on reconstructed watersheds using system dynamics, *Hydrological Sciences Journal*, 52(3): 538-562.
27. **Jutla, A.S.**, Small, D. and Islam, S. 2006. A precipitation dipole in Eastern North America, *Geophysical Research Letters*, 33, L21703, doi:10.1029/2006GL027500.
28. Elshorbagy, A., **Jutla, A.**, Barbour, L. and Kells, J. 2005. System dynamics approach to assess the sustainability of reclamation of disturbed watersheds. *Canadian Journal of Civil Engineering*, (32):144–158.

* graduate student(s) of my research group;

Five other manuscripts are at various stages of review process

Book(s) and Book Chapters

1. Akanda, A.S., **Jutla, A.S.** and Islam, S. 2013. Hydroclimatology and Large Scale Population Vulnerability to Cholera Outbreaks in Bengal Delta; in Hossain, F. et al., *Climate Vulnerability: Understanding and Addressing Threats to Essential Resources – Water*. Elsevier
2. **Jutla, A.S.**, Akanda, A.S and Islam, S. 2010. Satellite remote sensing based forecasting of cholera outbreaks in the Bengal Delta. Pp 241-243. In Khan, S., et al Hydroclimatology: New Tools for solving wicked water problems, IAHS Publication 338.
3. Akanda, A. S., **Jutla, A.S.** and Islam, S. 2010. Hydrology, Climate and Human Health: a hydroclimatological approach to understand cholera transmission in South Asia and sub Saharan Africa. Pp 237-238; in Khan, S., et al Hydroclimatology: New Tools for solving wicked water problems, IAHS Publication 338.

4. **Jutla, A.S.**, Elshorbagy, A. and Kells, J. 2009. Hydrologic modeling of reconstructed watersheds using a system dynamics approach, VDM Verlag Publishing House, Monograph ISBN: 978363915538.

Technical Reports

1. **Jutla, A.**, Elshorbagy, A. and Kells, J. 2006. Simulation of the hydrological processes on reconstructed watersheds using system dynamics. *CANSIM Series Report No. CAN-06-01*, Centre for Advanced Numerical Simulation (CANSIM), Department of Civil & Geological Engineering, University of Saskatchewan, Saskatoon, SK, Canada, pp. 139.
2. Elshorbagy, A. and **Jutla, A.** 2006. Tracing the evolution of reconstructed watersheds using the parameters of the system dynamics watershed model. *CANSIM Series Report No. CAN-06-03*, Centre for Advanced Numerical Simulation (CANSIM), Department of Civil & Geological Engineering, University of Saskatchewan, Saskatoon, SK, Canada, pp. 32.

Presentations

Invited Talks / Oral Presentations

1. PREDICT: A next generation platform for near real-time prediction of cholera. *American Geophysical Union Fall meeting*, New Orleans, December 11-15 (with Colwell, R.)
2. Satellite search for cholera: A modern Cassandra. NASA Hyperwall, *American Public Health Association*, November 2017 (with R. Colwell).
3. Remote Sensing of Zika virus in the Americas. *American Public Health Association*, Atlanta, GA, November 10-14 (with R. Colwell).
4. Searching Cassandras to detect and prevent environmental disasters, *Carnegie Mellon University*, October 13, 2017.
5. Reanalysis data for water borne infections, MERRA-2 Workshop, NASA-GSFC, MD June 19, 2017 (with Colwell, R.)
6. A multiscale satellite based prediction of diarrheal disease: Case study from cholera. *American Meteorological Society annual meeting*, Jan 22-26, 2017 (with Colwell, R.).
7. Understanding Hydroclimatological Controls on Predictability of Zika Virus in Continental US. *American Meteorological Society annual meeting*, Jan 22-26, 2017 (with Colwell, R, Usmani, M., Lin, L).
8. Eyes in the sky: Natural disasters and human health, 4th International conference on global warming and ecosystem productivity, Ras-Al-Khaimah, UAE April 4, 2017 (with Colwell, R.)
9. Understanding coupling between natural and human systems to ensure disease resilient societies. *American Geophysical Union*, San Francisco, California, December 12-16, 2016 (with Nguyen, T. and Colwell, R.).
10. Utilizing earth observations for reaching sustainable development goals in water, sanitation and public health. *American Geophysical Union*, San Francisco, California, December 12-16, 2016 (with Akanda, A., Hasan, M., Nusrat, F., Jutla, A., Huq, A., Alam, A., and Colwell, R.).
11. Managing burden of diarrheal diseases in Sub-Saharan Africa, Health in Africa and the Post-2015 Millennium Development Goals. *University of Illinois, Urbana*, May 20-22, 2015 (with Nguyen, H., Iwelunmor, J.)
12. Role of precipitation in creating environmental conditions for diarrheal pathogens, *GPM Applications Workshop*, Washington DC, June 09, 2015 (with Colwell, R.)

13. Understanding climate change impacts in a cholera endemic megacity: disease trends, hydroclimatic indicators and near future-term projections. *American Geophysical Union*, San Francisco, California, December 14-18, 2015 (with Akanda, A., Colwell, R).
14. Jutla, A., Prediction of Dengue using statistical approaches, Integrating Prediction and Forecasting for Decision-Making: Dengue Epidemic Prediction. *Office of Science and Technology Policy, White House, Washington DC*, September 21, 2015.
15. How changing climate will impact cholera in Asia and Africa, Climate Prediction Applications Science Workshop, *George Mason University, VA*. May 06-08, 2014 (with Colwell, R.)
16. Revisiting cholera-climate teleconnections in the native homeland: ENSO and other extremes through the regional hydroclimatic drivers. *Proceedings of the American Geophysical Union*, San Francisco, California, December 15-19, 2014 (with Akanda, A., Huq, A., Colwell, R.)
17. The challenge to predict diarrheal diseases, Cholera symposium in the Kruger National Park, Pretoria, South Africa, 13-15 Feb 2013 (Invited)
18. Hydroclimatological Controls of endemic and non-endemic cholera of the 20th century. *American Geophysical Union, San Francisco, California*, December 03-07, 2012 (with Colwell, R., Whitecombe, E.).
19. Regional water security and public health implications in Bengal Delta. *Oxford Water Security Conference, Oxford, UK*, April 16-18, 2012 (with Akanda, A., Islam, S.).
20. Hydrology, Climate and Water-related Diseases: Challenges and Opportunities. *Science Symposium on Climate and Health*. Atlanta, GA. September 12-13 2012 (with Colwell, R.).
21. Hydrology, climate and water-related diseases: Predicting cholera using satellite remote sensing, *Texas A & M University*. April 2012.
22. Hydroclimatological controls and prediction of water-related diseases: Challenges and Opportunities, *West Virginia University*, March 2012.
23. Linking Hydrology, Climate and Water-related Diseases: A challenge for which remote sensing offers a solution, *University of Maryland*, March 2012.

Conference Proceedings/Non-Refereed Articles

1. McDonald, C., Usmani, M., Colwell, R. and **Jutla, A.** 2017 Inferences from the chronology of dengue and zika outbreaks in human population. *Proceedings of the American Geophysical Union*, New Orleans, December 11-15.
2. Anwar, R., Khan, R., Usmani, M., Colwell, R., and **Jutla, A.** 2017. System dynamics based dengue modeling environment to simulate evolution of dengue infection under different climate scenarios. *Proceedings of the American Geophysical Union*, New Orleans, December 11-15.
3. Usmani, M., Kondal, A., Lin, L., Colwell, R., and **Jutla, A.** 2017. Understanding complexities in coupled dynamics of human-water and food security. *Proceedings of the American Geophysical Union*, New Orleans, December 11-15.
4. Akanda, A., Hasan, M., **Jutla, A.**, Aziz, S., Alam, M., Ahsan, G., Huq, A., and Colwell, R., 2017. Empowering Local Organizations and Decision-makers in a Changing Climate: EO-guided Environmental Surveillance of Cholera and Rotavirus for South Asia. *Proceedings of the American Geophysical Union*, New Orleans, December 11-15.
5. **Jutla, A.**, Aziz, S., Akanda, A., Alam, M., Ahsan, G., Huq, A., and Colwell, R., 2017. PREDICT: A next generation platform for near real-time prediction of cholera. *Proceedings of*

- the American Geophysical Union, New Orleans, December 11-15.*
6. Hasan, M., Akanda, A., **Jutla, A.**, Huq, A., and Colwell, R., 2017. Understanding hydro-climatic drivers of infectious diarrheal diseases in South Asia and their projected risks from regional climate models. *Proceedings of the American Geophysical Union, New Orleans, December 11-15.*
 7. Khan, R., Jutla, A., Colwell, R. 2017. Satellite based hydroclimatic understanding of evolution of Dengue and Zika virus. *Proceedings of the American Geophysical Union, New Orleans, December 11-15.*
 8. **Jutla, A.** and Colwell, R. 2017 Remote Sensing of Zika virus in the Americas. *Proceedings of the American Public Health Association, Atlanta, GA, November 10-14.*
 9. **Jutla, A.**, and Colwell, R. 2017. Eyes in the sky: Natural disasters and human health, *4th International conference on global warming and ecosystem productivity, Ras-Al-Khaimah, UAE, April 4-9.*
 10. **Jutla, A.**, Usmani, M., Sharma, R., Lian-Shin Lin., and Colwell, R., and 2017. Understanding Hydroclimatological Controls on Predictability of Zika Virus in Continental US. *Proceedings of American Meteorological Society, Jan 22-26*
 11. **Jutla, A.**, and Colwell, R. 2017. A Multiscale Satellite Based Prediction of Diarrheal Disease: Case Study from Cholera. *Proceedings of American Meteorological Society, Jan 22-26*
 12. Usmani, M., Khan, R., Lin, L., Sharma, R., **Jutla, A.** and Colwell, R. 2016. Hydroclimatic assimilation of big data for inferring ecological controls on trigger of Zika Virus. *CUAHSI Fifth Biennial Colloquium, Shepherdstown, WV, July 24-27.*
 13. Hasan, M., Akanda., A., **Jutla, A.**, and Colwell, R. 2016 Geo(spatial) Health Investigation of Rotavirus in an Endemic Region: Hydroclimatic Influences and Epidemiology of Rotavirus in Bangladesh. *Proceedings of the American Geophysical Union, San Francisco, California, December 12-16.*
 14. Akanda, A., Hasan, M., Nusrat, F., **Jutla, A.**, Huq, A., Alam, A., and Colwell, R. 2016 Utilizing Earth Observations for Reaching Sustainable Development Goals in Water, Sanitation and Public Health. *Proceedings of the American Geophysical Union, San Francisco, California, December 12-16.*
 15. **Jutla, A.**, Nguyen, T. and Colwell, R. 2016. Understanding coupling between natural and human systems to ensure disease resilient societies. *Proceedings of the American Geophysical Union, San Francisco, California, December 12-16.*
 16. Khan, R., **Jutla, A.**, Chen, A, Huq, A. and Colwell, R. 2016. Understanding scale dependency between microbiological and climatic processes for prediction of vibrios in estuarine environments. *Proceedings of American Meteorological Society, Jan 10-14, New Orleans, USA.*
 17. Nasr-Azadani, F., **Jutla, A.**, and Colwell, R. 2016. Impact of changing climate on diarrheal diseases: a case study for cholera. *Proceedings of American Meteorological Society, Jan 10-14, New Orleans, USA.*
 18. **Jutla, A.**, and Colwell, R. 2016. Satellite remote sensing based assessment of environmental sustainability of water, vibrios and human health. *Proceedings of American Meteorological Society, Jan 10-14, New Orleans, USA.*
 19. Akanda, A., Huq, A., **Jutla, A.**, and Colwell, R. 2015. Understanding Climate Change Impacts in a Cholera Endemic Megacity: Disease Trends, Hydroclimatic Indicators and Near Future-Term Projections. *Proceedings of the American Geophysical Union, San Francisco, California, December 14-18.*

20. **Jutla, A.**, Sen, S. 2015. Can rainfed agriculture adapt to uncertainty in availability of water in Indus Basin? *Proceedings of the American Geophysical Union*, San Francisco, California, December 14-18.
21. Nasr-Azadani, F., Colwell, R., **Jutla, A.** 2015. Understanding Scale dependency of climatic processes with diarrheal diseases. *Proceedings of the American Geophysical Union*, San Francisco, California, December 14-18.
22. Khan, R., Aldaach, H., Akanda, A., Huq, A., **Jutla, A.**, and Colwell, R. 2015 Social-hydrological-health framework for understanding risks of occurrence of diarrheal diseases. *Proceedings of the American Geophysical Union*, San Francisco, California, December 14-18.
23. **Jutla, A.**, Akanda, A., and Colwell, R. 2015 Predictive Modeling of Cholera using GRACE and TRMM Satellite Data. *Proceedings of the American Geophysical Union*, San Francisco, California, December 14-18.
24. **Jutla, A.**, and Colwell, R. 2015 What does climate change mean for diarrheal diseases? 64th *Annual meeting of the American Society of Tropical Medicine and Hygiene*, Philadelphia, Oct 25-29.
25. Khan, R., Aldaach, H., Akanda, S., Huq, A., **Jutla, A.**, Colwell, R. 2015 Can diarrheal diseases be predicted in advance? 64th *Annual meeting of the American Society of Tropical Medicine and Hygiene*, Philadelphia, Oct 25-29.
26. **Jutla, A.**, Akanda, A., and Colwell, R. 2014. Long Range River Discharge Forecasting Using the Gravity Recovery and Climate Experiment (GRACE) Satellite to Predict Conditions for Endemic Cholera. *Proceedings of the American Geophysical Union*, San Francisco, California, December 15-19.
27. Nasr, A., **Jutla, A.**, Akanda, A., and Colwell, R. 2014. How Will Climate Change Impact Cholera Outbreaks? *Proceedings of the American Geophysical Union*, San Francisco, California, December 15-19.
28. Billian, H., **Jutla, A.**, and Colwell, R. 2014. Hydroclimatic Assessment of West Nile Virus Occurrence Across Continental US. *Proceedings of the American Geophysical Union*, San Francisco, California, December 15-19.
29. Aldaach, H., **Jutla, A.**, Akanda, A., and Colwell, R. 2014. Linking Satellite Derived Land Surface Temperature with Cholera: A Case Study for South Sudan. *Proceedings of the American Geophysical Union*, San Francisco, California, December 15-19.
30. Akanda, A., **Jutla, A.**, Huq, A. and Colwell, R. 2014. Revisiting Cholera-Climate Teleconnections in the Native Homeland: ENSO and other Extremes through the Regional Hydroclimatic Drivers. *Proceedings of the American Geophysical Union*, San Francisco, California, December 15-19.
31. Hasan, M., Akanda, A., **Jutla, A.**, Islam, S, Huq, A., and Colwell, R. 2014. Co-evolving Hydroclimatic Signatures and Diarrheal Disease Dynamics in Bangladesh: Implications for Water Management and Public Health. *Proceedings of the American Geophysical Union*, San Francisco, California, December 15-19.
32. **Jutla, A.S.** and Akanda, A. S 2013. Hydroepidemiology: Linking hydroclimatology with human health. *Hydrology Section Newsletter of American Geophysical Union*, 9-12.
33. **Jutla, A.S.**, Akanda, A. S. and Colwell, R. 2013 Understanding impacts of climatic extremes

on diarrheal disease epidemics: Insights from mechanistic disease propagation models. *Proceedings of the American Geophysical Union*, San Francisco, California, December 09-13.

34. Akanda, A., **Jutla, A.S.**, Huq, A., Faruque, A., Colwell, R. 2013 Urban Cholera and Water Sustainability Challenges under Climatic and Anthropogenic Change. *Proceedings of the American Geophysical Union*, San Francisco, California, December 09-13.
35. **Jutla, A.S.**, Whitcombe, E. and Colwell, R. 2012 Hydroclimatological Controls of Endemic and Non-endemic Cholera of the 20th Century. *Proceedings of the American Geophysical Union, San Francisco, California*, December 03-07.
36. ElNemr, W., **Jutla, A.S.**, Constantin de Magny, G., Hasan, N.A., Islam, M., Sack, B., Huq, A., Hashem, F. and Colwell, R. 2012. Environmental Monitoring of Endemic Cholera. *Proceedings of the American Geophysical Union, San Francisco, California*, December 03-07.
37. Singla, C., Garg, S., Aggarwal, R. and **Jutla, A.S.** 2012. Are Industrial Towns Safe for Human Dwelling? *Proceedings of the American Geophysical Union, San Francisco, California*, December 03-07.
38. Akanda, A.S., **Jutla, A.S.** and Islam, S. 2012. Hydroclimatic Extremes and Cholera Dynamics in the 21st Century *Proceedings of the American Geophysical Union, San Francisco, California*, December 03-07.
39. **Jutla, A. S.** and Colwell, R. 2012. Hydroclimatology, Remote Sensing and Water-related diseases: Challenges and Opportunities. *Water and Health Conference: Science, Policy and Innovation*. UNC, Chapel Hill, NC. 29 October – 2 November. (*did not present*)
40. Akanda, A.S., **Jutla, A.S.** and Islam, S. 2012. Regional Water Security and Public Health Implications in Bengal Delta. *Oxford Water Security Conference, Oxford, UK*, April 16-18.
41. **Jutla, A. S.**, Hossain, R., Lopez, C. and Trtanj, J. 2012 Is climate driving safe drinking water availability and access to sanitation facilities? *10th Annual Climate Prediction Applications Science Workshop*, March 13–15.
42. **Jutla, A.S.** and Akanda A. S. 2012. Is climate driven sanitation and water access causing increase in water-related diseases?, *World Water Forum 6*, Marseilles, France, March 12-17.
43. **Jutla, A.S.** and Akanda A. S. 2012. Hydroclimatic drivers, water-borne diseases, and population vulnerability in Bengal delta. *General Assembly of the European Geosciences Union*, Vienna, Austria, April 22-27 (Invited).
44. **Jutla, A.S.**, Akanda, A.S and Islam, S. 2011. Satellite Water Impurity Marker (SWIM) for predicting seasonal cholera outbreaks. *Proceedings of American Geophysical Union, Fall Meeting 2011*, San Francisco, USA. December 5-9.
45. Luo, T., **Jutla, A.S.**, and Islam, S. 2011. Satellite based estimation of evapotranspiration for all sky conditions. *Proceedings of American Geophysical Union, Fall Meeting 2011*, San Francisco, USA. December 5-9.
46. Akanda, A., Prasher, D., **Jutla, A.S.** and Islam, S. 2011. Climate change in the Eastern Himalayas: implications for regional water and food security, ecosystems and public health. *Proceedings of World Delta Submit*, Jakarta. Indonesia. November 21-24.
47. Akanda, A.S., **Jutla, A.S.**, Eltahir, E.E. and S. Islam. 2011. A spatially explicit and seasonally

varying cholera prevalence model with distributed macro-scale environmental and hydroclimatic forcings. *Proceedings of American Geophysical Union*, Fall Meeting 2011, San Francisco, USA. December 5-9.

48. Prashar, D., Akanda, A., Vogel, R.M, **Jutla, A.S.**, Small, D., Islam, S. 2011. Monthly discharge estimation for large remote watersheds. *Proceedings of American Geophysical Union*, Fall Meeting 2011, San Francisco, USA. December 5-9.
49. Akanda, A.S., **Jutla, A.S.** and S. Islam. 2011. Climate change, hydroclimatic extremes, and cholera dynamics. *Proceedings of Water and Health: Where Science Meets Society*, The University of North Carolina, Chapel Hill, NC, October 3-7.
50. **Jutla, A.S.**, Akanda, A.S and Islam, S. 2011. Hydroepidemiology of cholera: predicting outbreaks using satellite derived global cholera index. *General Assembly of the European Geosciences Union*, Vienna, Austria, April 3-8.
51. Akanda, A.S, **Jutla, A.S.**, Elfatih, E. and Islam, S. 2011. Hydroepidemiology of cholera transmission in Bangladesh: a spatially explicit and seasonally varying cholera prevalence model. *General Assembly of the European Geosciences Union*, Vienna, Austria, April 3-8.
52. Islam, S., **Jutla, A. S.**, Akanda, A. 2011. Hydroepidemiology: A synthesis of micro- and macro-scale processes: combining macro-scale hydroclimatology, coastal ecology, and satellite remote sensing for predicting cholera outbreaks in South Asia and Africa, Civil and Environmental Engineering, *NSF Ecology of Marine Infectious Disease Workshop, San Juan, PR*, February 11-13.
53. Akanda, A. S., **Jutla, A. S.**, Huq, A., Colwell, R. and Islam, S. 2010. From fall to spring, or spring to fall? Seasonal cholera transmission cycles and implications for climate change. *Proceedings of American Geophysical Union*, Fall Meeting 2010, San Francisco, USA. December 13-17.
54. **Jutla, A.S.**, Akanda, A.S and Islam, S. 2010. Hydrology and human health: predicting cholera outbreaks using remote sensing data. *Proceedings of American Geophysical Union*, Fall Meeting 2010, San Francisco, USA. December 13-17.
55. Akanda, A.S., **Jutla, A.S.**, and S. Islam. 2010. Climate change, hydrologic extremes and cholera dynamics. *Water, and Health: Where Science Meets Policy*, October 25-26, Chappel Hill, NC.
56. **Jutla, A.S.**, Akanda, A.S., and S. Islam. 2010. remote sensing based forecasting of cholera outbreaks, *Remote Sensing and Hydrology Symposium*, September 27-30, Jackson, Wyoming.
57. Akanda, A.S., **Jutla, A.S.**, and S. Islam. 2009. Rivers as corridors of diarrheal disease transmission: role of coastal and terrestrial hydroclimatology. *Proceedings of the AGU Americas Meeting*, Foz do Iguacu, Brazil. August 8-12
58. Akanda, A.S., **Jutla, A.S.** and Islam, S. 2010. Hydroclimatic extremes and cholera dynamics in the 21st century. *Steve Burges Retirement Symposium*, University of Washington, Seattle, WA March 24-26
59. **Jutla, A.S.**, Akanda, S. and Islam, S. 2009. Satellites and human health: potential for tracking cholera outbreaks. *Proceedings of the American Geophysical Union, San Francisco, California*, December 14-18.

60. Akanda, A.S., **Jutla, A.S.**, and S. Islam. 2009. Dual peak cholera transmission in South Asia: a hydroclimatological explanation. *Proceedings of the American Geophysical Union, San Francisco, California*, December 14-18.
61. Akanda, S., **Jutla, A.S.**, and Islam, S. 2009. Climate, water and human health: Large scale hydroclimatic controls in forecasting cholera epidemics. *Proceedings of the American Geophysical Union, San Francisco, California*, December 14-18.
62. Islam, S., **Jutla, A.S.**, Akanda, S. and Islam, S. 2009. Integrating terrestrial hydrology and coastal ecology: understanding cholera dynamics using remote sensing data. *Proceedings of the American Geophysical Union, San Francisco, California*, December 14-18.
63. **Jutla, A.S.**, Akanda, S. and Islam, S. 2009. Tracking Cholera outbreaks from satellites: space-time variability of chlorophyll in northern Bay of Bengal. *Research Day on Global Health and Infectious Disease, Tufts University, USA. October 5.*
64. Akanda, S., **Jutla, A.S.**, and Islam, S. 2009. Climate extremes and infectious diseases: large scale hydroclimatic controls in forecasting cholera epidemics. *Research Day on Global Health and Infectious Disease, Tufts University, USA. October 5.*
65. **Jutla, A.S.**, Akanda, S. and Islam, S. 2009. Relationship between phytoplankton, sea surface temperature and river discharge in Bay of Bengal. *General Assembly of the European Geosciences Union, Vienna, Austria, April 19-24.*
66. **Jutla, A. S.**, Akanda, S. and Islam, S. 2009. Spatial and Temporal Variability of Chlorophyll in Bay of Bengal. *General Assembly of the European Geosciences Union, Vienna, Austria, April 19-24.*
67. Akanda, S., **Jutla, A. S.**, and Islam, S. 2009. Bimodal Explanation of cholera in Bangladesh: a hydroclimatological explanation. *General Assembly of the European Geosciences Union, Vienna, Austria, April 19-24.*
68. Islam, S., Akanda, S., **Jutla, A.S.**, Lin, C. and Gao, Y. 2009. AquaPedia: building intellectual capacity through shared learning and open access platform to resolve water conflicts. *General Assembly of the European Geosciences Union, Vienna, Austria, April 19-24.*
69. Islam, S., Moomaw, W., Akanda, S., **Jutla, A.S.**, Schulz, A., Lin, C. and Grogan, D. 2009. AquaPedia: Building Capacity to Resolve Water Conflicts. ‘Education, Knowledge and Capacity Development Strategies’ session, *World Water Forum 5, Istanbul, Turkey.*
70. Akanda, S., **Jutla, A. S.**, and Islam, S. 2009. Seasonal forecasting in Bangladesh: prediction and preparation for water disasters, *World Water Forum 5, Istanbul, Turkey.*
71. **Jutla, A.S.** and Islam, S. 2008. Instantaneous shortwave radiation for all sky conditions using MODIS. *General Assembly of the European Geosciences Union, Vienna, Austria, April 13-18.*
72. Akanda, A., **Jutla, A.** and Islam, S. 2008 Understanding the seasonality of cholera transmission in South Asia role of hydroclimatology. *General Assembly of the European Geosciences Union , Vienna, Austria, April 13-18.*
73. **Jutla, A.S.**, Flores, A, Vogel, R. and Islam, S. 2008. On probability distribution of extreme precipitation events. *General Assembly of the European Geosciences Union, Vienna, Austria, April 13-18.*

74. **Jutla, A.S.**, Small, D. and Islam, S. 2008. A precipitation dipole and its seasonality in Eastern North America. *General Assembly of the European Geosciences Union, Vienna, Austria, April 13-18.*
75. Akanda, A.S, **Jutla, A.** and Islam, S. 2007. Understanding the hydrology of cholera in South Asia, *Proceedings of the American Geophysical Union, San Francisco, California, USA. Dec, 13-18.*
76. Akanda, A.S, **Jutla, A.**, and Islam, S. 2007. Hydrology of cholera in South Asia: issues of seasonality, scale and remote sensing, *Boston-India Symposium: Essential Interfaces in Public Health, Boston. October, 22-23.*
77. **Jutla, A.**, and Islam, S, 2007. An algorithm for estimating evapotranspiration for all sky conditions, *Proceedings of the American Geophysical Union, Acapulco, Mexico, May 22-24.*
78. **Jutla, A.**, Islam, S., Niyogi, D. and Carlson, T. 2006. A simple method for estimating canopy resistance using Penman-Monteith equation and remotely sensed evapotranspiration. *International Conference on Mesoscale Processes in Atmosphere, Ocean and Environmental Systems (IMPA2006), Indian Institute of Technology, New Delhi, India. February 14-17.*
79. **Jutla A.**, Small D and Islam S. 2006. Is increased precipitation over central United States related to the decreased precipitation over Hudson Bay in Canada? *Research Days, Tufts University, Medford, MA.*
80. Elshorbagy, A. and **Jutla, A.** 2006. Hydrological modeling of reconstructed watersheds using system dynamics. *General Assembly of the European Geosciences Union , Vienna, Austria, April 2-7.*
81. **Jutla, A.**, Elshorbagy, A., and Kells, J. 2005. Beyond rainfall-runoff modeling: hydrologic simulation of reconstructed watersheds using system dynamics. *17th Canadian Hydrotechnical Conference, Edmonton, AB, Canada, August 17-19, 11-20.*
82. **Jutla, A.S.**, Elshorbagy, A. and Kells, J.A. 2004. Predicting Spring Runoff in Canadian Prairies using Artificial Neural Networks, *Proceedings of the Annual Conference of Canadian Society of Civil Engineers, Saskatoon, Saskatchewan, June 2-5.*
83. **Jutla, A.** (1999) Pollution and its impact on ecosystem, *Proceedings of Second Annual Convention of Students' Chapter ISTE, Maharashtra, India 89.*
84. **Jutla, A.** and Anand, S. (1999) Rural technology, *Proceedings of Second Annual Convention of Students' Chapter ISTE, Maharashtra, India 92.*

Student Advisor/Committee Member

Name	Degree	Thesis Title
Graduate Level-Currently Enrolled		
3. Moiz Usmani	Ph.D.	<i>To be decided</i>
2. Rakibul Khan	Ph.D.	<i>To be decided</i>
1. Ashish Kondal	M.Sc.	<i>To be decided</i>

Graduated

5. Rifat Anwar	M.Sc. (2017)	<i>SYStras: System dynamics approach to simulate dengue trigger and transmission mechanism in human population</i>
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|----|------------------|-----------------|---|
| 4. | Fariborz Azadani | Ph.D.
(2016) | <i>Assessment of climate change on occurrence of diarrheal diseases</i> |
| 3. | Lubna Hamdan | Ph.D.
(2016) | <i>Understanding coupling of global and diffuse solar radiation with climatic variability (co-advisor)</i> |
| 2. | Haidar Aldaach | M.Sc.
(2015) | <i>Applicability of Land Surface Temperature in prediction of diarrheal diseases.</i> |
| 1. | Tianyi Luo | M.Sc.
(2012) | <i>Estimation of evapotranspiration for all sky conditions using remote sensing data (with S. Islam at Tufts University).</i> |

Undergraduate Mentor

- | | | | Project Title |
|----|-------------------|---------------|---|
| 1. | Brandon Bowman | B.Sc.
2013 | Satellite based prediction of West Nile Viruses in West Virginia
<i>(Won NASA undergraduate fellowship)</i> |
| 2. | Rebecca Posa* | B.Sc.
2014 | Scaling land surface temperature for global cholera prediction index using satellites
<i>(Won NASA undergraduate fellowship)</i> |
| 3. | Hannah Billian | B.Sc.
2015 | Linking West Nile Virus with climatic processes
<i>(Won NASA undergraduate fellowship)</i> |
| 4. | Erica Flederbach | B.Sc.
2015 | Understanding seasonality of West Nile Virus in US-1
<i>(Won NASA undergraduate fellowship)</i> |
| 5. | Marrisa Poultney | B.Sc.
2016 | Understanding seasonality of West Nile Virus in US-2
<i>(Won NASA undergraduate fellowship)</i> |
| 6. | Stephan Cavanaugh | B.Sc.
2017 | Demarcation of water bodies using satellite data
<i>(Won NASA undergraduate fellowship)</i> |
| 7. | Claire McDonald | B.Sc. | Zika in Americas-1
<i>(NASA undergraduate fellow)</i> |
| 8. | Nathan Bonham | B.Sc. | Zika in Americas -II |
- **Won NSF graduate fellowship*

Media (Representative Only)

- | | |
|-------------------------------------|---|
| Scientific American
Jan 03, 2018 | Satellite Predict Cholera
https://www.scientificamerican.com/article/satellites-predict-a-cholera-outbreak-weeks-in-advance/ |
| NASA
November 2017 | From Microscopic to Multicellular
(https://www.nasa.gov/feature/goddard/2017/six-stories-of-life-that-nasa-sees-from-space) |
| Forbes
July 2015 | With Global Warming, Expect More Deadly Vibrio Cases
(https://www.forbes.com/sites/judystone/2015/07/30/with-global-warming-expect-more-deadly-vibrio-cases/#19a81d8a2d65) |
| EHP
April 2015 | Warming Trend: How Climate Shapes <i>Vibrio</i> Ecology
(Environmental Health Perspectives: http://ehp.niehs.nih.gov/123-A82/) |
| EOS
January 5, 2015 | Climate Change Predicted to Worsen Spread of Cholera |

- (<https://eos.org/articles/climate-change-predicted-worsen-spread-cholera>)
- American Geophysical Union
Dec 15, 2014 Cholera in a time of changing climate
(<http://fallmeeting.agu.org/2014/press-item/press-conference-cholera-in-a-time-of-changing-climate>)
- Fox News
Dec 17, 2014 Deadly cholera outbreaks could increase with climate change
(<http://www.foxnews.com/health/2014/12/17/deadly-cholera-outbreaks-could-increase-with-climate-change/>)
- Science Daily
(August 16, 2013) New Early Warning System for Cholera Epidemics
(<http://www.sciencedaily.com/releases/2013/08/130815104813.htm>)
- Earthzine Magazine
(Nov 29, 2012) Rita Colwell: Keeping Her Aim on Cholera
(<http://www.earthzine.org/2012/11/28/rita-colwell-keeping-her-aim-on-cholera/>)
- NASA Feature Article
(Nov 20, 2011) *In the Time of Cholera*
(<http://earthdata.nasa.gov/featured-stories/featured-research/time-cholera>)
- New York Times
(Sept 23, 2011) *Sturdy Cholera Bug Thrives as Researchers Look to Stanch Outbreak*
(www.nytimes.com/gwire/2011/09/23/23greenwire-sturdy-cholera-bug-thrives-as-researchers-look-35456.html?pagewanted=1)
- BBC News
(Aug 11, 2011) *Science in Action*
(www.bbc.co.uk/programmes/p00jb7dy)
- Huffington Post
(July 6, 2011) *Satellite Images May Help Predict The Next Cholera Outbreak*
(www.huffingtonpost.com/2011/07/06/cholera-outbreak-prediction-prevention_n_891756.html)
- Science Daily
(Nov 16, 2009) *New Insight Into Predicting Cholera Epidemics in the Bengal Delta*
(www.sciencedaily.com/releases/2009/11/091104101555.htm)

Professional Affiliations

American Geophysical Union [AGU]
 American Meteorological Society [AMS]
 American Public Health Association [APHA]

Active Citizenship

Foundations/ Organizations

2014- Advisory Member, Global Alliance Against Cholera, Veolia Foundation, France
 2015- Member, Global Task Force of Cholera Control, World Health Organization.

2017- Member, Natural Hazards Graduate Research Award, AGU.

WVU

2012-2017	Member	Recruitment Committee, CEE
2013-	Member	Safety Committee, CEE
2013-	Member	Scholarship Committee, CEE
2013-	Member	Digital, Media, and Emerging Educational Technology, CEE
2013-2014	Member	CEE Promotion & Tenure Committee
2014-2015	Member	CEE Water Systems Faculty Search Committee
2015-2016	Member	CEE Transportation Faculty Search Committee
2015-2016	Advisor	ASCE Student Organization
2015	Member	Faculty Council Executive
2015	Member	Goldwater Search Committee
2017-	Member	Statler Computer Committee
2017-	Member	Academic Affairs Committee

Other

2006-2007	President	Indian Student Association at Tufts, Tufts University, USA
2000-2001	President	Indian Society for Technical Education, PAU Chapter, India
2004	Volunteer	Canadian Society for Civil Engineering Symposium, Canada
1999-2000	Secretary	Indian Society for Technical Education, PAU Chapter, India

**Research Grants
Funded**

Funding Source

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| 7. | <p>CAREER: Assessing impacts of enhanced climatic variability and extreme natural events on environmental sustainability of water in fostering disease resilient public health
 PI: A. Jutla \$500,000
 03/01/2018-02/28/2023</p> | NSF |
| 6. | <p>Predictive Assessment of Transmission Conditions of Cholera in the Environment and Human Population using Earth Observations
 PI: A. Jutla \$573,010
 01/01/2018-12/31/2021</p> | NASA |
| 5. | <p>Corridor H Stream Monitoring
 Co-I: A. Jutla \$108,380
 06/01/2105-05/31/2019</p> | US-DOT |
| 4. | <p>A Multi-Sensor Remote Sensing Approach to Predict Cholera
 PI: A. Jutla \$393,596
 03/01/2015-02/28/2019</p> | NASA |
| 3. | <p>Socio-economic Evaluation of Multi-Sensor Remote Sensing Approach to Predict Cholera
 PI: A. Jutla \$247,597
 04/01/2016-02/28/2019</p> | NASA |
| 2. | <p>Healthy West Virginia: Tracking West Nile Virus using Satellites
 PI: A. Jutla \$20,000
 05/15/2013-05/14/2014</p> | NASA-EPSCoR
(Federal grant) |
| 1. | <p>Tracking Cholera Outbreaks Using Remote Sensing
 PI: A. Jutla \$5,000
 07/01/2009-06/30/2010</p> | Institute of
Environment,
Tufts University, MA |