

# Kimberly Gay Rogers

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## EDUCATION

2012 Ph.D. Environmental Engineering, Vanderbilt University  
2000 B.Sc. Geological Sciences & Physical Geography (minor), University of Texas at Austin

## PROFESSIONAL APPOINTMENTS

2014—present *Research Associate*, Institute of Arctic and Alpine Research  
University of Colorado Boulder  
2015 *Shipboard Sedimentologist*, International Ocean Discovery Program  
Singapore to Colombo Sri Lanka  
2012—2014 *Postdoctoral Research Scholar*, Community Surface Dynamics Modeling System  
University of Colorado Boulder

## SCHOLARLY APPOINTMENTS

2018 *Research Affiliate*, Center for Science and Technology Policy Research  
University of Colorado Boulder  
2018 *Visiting Researcher*, Policy Instruments and Socio-ecological Systems Research Group  
Helmholtz Centre for Environmental Research, Leipzig Germany  
2016 *Visiting Scholar*, Ostrom Workshop in Political Theory and Policy Analysis  
Indiana University  
2014—present *Research Affiliate*, Center for the Analysis of Social-Ecological Landscapes  
Indiana University

## GRANTS and FELLOWSHIPS

2018—2021 Bangladesh Water Development Board with funding from World Bank, Key Science  
Personnel: **Rogers, K.G.**, *Long Term Monitoring, Research and Analysis of Bangladesh  
Coastal Zone (Sustainable Polders Adapted to Coastal Dynamics)*, Coastal Embankment  
Improvement Project (CEIP)  
2017—2022 National Science Foundation, Dynamics of Coupled Natural-Human Systems (CNH), PI:  
**Rogers, K.G.**, University of Colorado Boulder, \$1,498,721, Title: *Socioecological system  
dynamics related to livelihood, human migration, and landscape evolution*  
2014—2019 National Science Foundation, Science, Engineering and Education for Sustainability  
(SEES) Fellowship, PI: **Rogers, K.G.**, University of Colorado Boulder, \$568,532, Title:  
*Linking Rural Smallholder Soil and Water Management Practices in Tropical Deltas to Sea  
Level Rise Vulnerability*  
2016 Consortium for Ocean Leadership, Post-Expedition Award, PI: **Rogers, K.G.** University  
of Colorado Boulder, \$14,841  
2014 U. S. Science Support Program and International Ocean Discovery Program,  
Participation Award, PI: **Rogers, K.G.**, University of Colorado Boulder, \$20,400

- 2012–2014 Postdoctoral Research Fellowship, National Science Foundation, Division of Earth Sciences, PI: I. Overeem, Named Postdoc: **Rogers, K.G.**, University of Colorado Boulder, Title: *Modeling Floodplain Dynamics: Can the Ganges-Brahmaputra Delta keep up with 21st Century Sea Level Rise?*
- 2005–2011 Graduate Fellow Tuition Scholarship, Vanderbilt University
- 2005–2011 Graduate Research Travel Grant, Vanderbilt University
- 2004–2005 Graduate Fellow Tuition Scholarship, Stony Brook University

### PENDING GRANTS and PROPOSALS IN PREPARATION

*Sustainability, Awareness, and Global Environmental Change (SAGE) in the Aysén Region of northern Patagonia*, National Science Foundation, International Research Experience for Students

*Pleistocene Climate, Source to Sink Transport, and Detrital Zircon U-Pb Dating of the Himalayan Bengal Fan System*, National Science Foundation, Marine Geology and Geophysics

*Climate-Resilient and Migrant-Friendly Cities in Bangladesh: Shifting the Narrative on Coastal Migration*, Natural Geographic Storytelling Grant: Documenting Human Migrations

### WORKING PAPERS

- Rogers, K.G.**, Brondizio, E.S., Syvitski, J.P.M. and Roy, K. “Cross-scalar sediment transport and infrastructure governance in delta socioecological systems”
- Rogers, K.G.**, Mallick, B., and Sultana, Z. “Why leave? Coastal hazards and immobility of borderland farmers in coastal Bengal”
- Rogers, K.G.**, Dreßler, G., Mallick, B., and Müller, B. “Scaling local infrastructure governance to regional climate vulnerability: an agent-based modeling approach”

### PUBLICATIONS—PEER REVIEWED

- 2018 Blum, M., **Rogers, K.G.**, Gleason, J. and Najman, Y. Allogenic and autogenic signals in the stratigraphic record of the deep-sea Bengal Fan. *Nature: Scientific Reports* 8:7973, 10.1038/s41598-018-25819-5
- 2018 Higgins, S.A., Overeem, I., **Rogers, K.G.**, Kalina, E. Impacts of India’s National River Linking Project on rivers and deltas. *Elementa: Science of the Anthropocene* 6(1):20, 10.1525/elementa.269
- 2017 **Rogers, K.G.**, and Overeem, I. Doomed to Drown? Sediment accretion in the low-lying human-modified landscape of the Ganges-Brahmaputra-Meghna Delta, Bangladesh. *Elementa: Science of the Anthropocene* 5:65, 10.1525/elementa.250
- 2015 **Rogers, K.G.**, Goodbred Jr., S.L., and Khan, S.R. Shelf-to-canyon connections: Transport-related morphology and mass balance at the shallow-headed, rapidly aggrading Swatch of No Ground Canyon (Bay of Bengal), *Marine Geology* 369: 288-299, 10.1016/j.margeo.2015.09.011
- 2015 France-Lanord, C., Spiess, V., **Rogers, K.G.**, and Expedition 354 Scientists. Bengal Fan: Neogene and late Paleogene record of Himalayan orogeny and climate: A transect across the Middle Bengal Fan, *International Ocean Discovery Program Report*
- 2013 **Rogers, K.G.**, Goodbred Jr., S.L., and Mondal, D.R. Monsoon sedimentation on the ‘abandoned’ tide-influenced Ganges-Brahmaputra delta plain. *Estuarine, Coastal and Shelf Science* 131, 297-309, 10.1016/j.ecss.2013.07.014
- 2013 **Rogers, K.G.**, Syvitski, J.P.M., Overeem, I., Higgins, S., and Gilligan, J.M. Farming Practices and Anthropogenic Delta Dynamics. In *Deltas: Landforms, Ecosystems and Human Activities*, Young and Perillo (eds.), *IAHS Redbook* No. 358, ISBN-13: 9781907161360

- 2010 **Rogers, K.G.** and Goodbred Jr., S.L. Mass failures associated with the passage of a large tropical cyclone over the Swatch of No Ground submarine canyon (Bay of Bengal). *Geology*, 38 (11), 1051-1054, 10.1130/G31181.1

#### **PUBLICATIONS—OTHER**

- 2018 **Rogers, K.G.**, Hagedorn, A.D., Hagedorn, J., Pearce, K., and Sanga, U. Infrastructure Governance and Environmental Justice in Bangladesh, SESYNC Open Source Case Study collection (<https://www.sesync.org/for-you/educator/case-study-collection>)
- 2014 **Rogers, K.G.** and Goodbred Jr., S.L. The Sundarbans and Bengal Delta: the world's largest tidal mangrove and delta system. In Kale, V. S. (ed.), *Landscapes and Landforms of India*. Springer Verlag, 181-188
- 2013 **Rogers, K.G.** Herschel Island—Qikiqtaryuk: A natural and cultural history. *Arctic, Antarctic and Alpine Research*, 45(2): 297-298. 10.1657/1938-4246-45.2.297
- 2012 **Rogers, K.G.** Spatial and temporal sediment distribution from river mouth to remote depocenters in the Ganges-Brahmaputra Delta, Bangladesh. *Vanderbilt University*

#### **TEACHING EXPERIENCE and CURRICULUM DESIGN**

##### **University of Colorado Boulder**

Global Intensive: Environmental Governance in the Mekong Delta of Vietnam (upper-division undergraduate case-study curriculum writer; in-class testing SU 2019)

##### **Vanderbilt University Department of Earth and Environmental Sciences**

Transdisciplinary Initiative on Environmental Systems: Water, Culture, and Social Justice in Bangladesh (graduate capstone course curriculum writer; lecturer; SP 2010)

Oceanography (undergraduate lab curriculum writer; instructor of record; FA 2005-SP 2009)

##### **Stony Brook University Marine Sciences Research Center**

Research Experience for Undergraduates, Coastal Geology (mentor, SU 2005)

Coastal Oceanography (lecturer, SP 2005)

Introduction to Oceanography (TA, FA 2004)

#### **INVITED PRESENTATIONS, PANELS and SYMPOSIUMS**

- 2018 Dynamics of Human-Natural (and Technical) Systems in the Bengal Delta. Going Coastal: Early Career Contributions in Coastal and Climate Science, East Carolina University
- 2018 Coupled Human-Natural (and Technical) Systems in the Bengal Delta, Bangladesh. Helmholtz Environmental Research Center UFZ, Leipzig, Germany
- 2018 Livelihood, Human Migration, and Landscape Evolution in Southwest Bangladesh. International Center for Climate Change Adaptation and Development, Dhaka, Bangladesh
- 2018 Sediment, Sea Level Rise and Flood Control Infrastructure. International Affairs Program, University of Colorado Boulder
- 2017 Sediment Dynamics and the Static Infrastructure Dilemma of Delta Socioecological Systems. Environmental Studies Colloquium, University of Colorado Boulder
- 2017 The Paradox of Infrastructure as both Protector and Limiter of Common Pool Resources in the Bengal Delta, Bangladesh. Future Deltas Symposium, Utrecht University, Netherlands
- 2017 Practicing the Commons in Deltas. XVI Biennial International Association for the Study of the Commons Conference, Utrecht, Netherlands

- 2017 The Role of Technology in SocioEcological Systems. 2nd Programme on Ecosystem Change and Society - Place-based transdisciplinary research for global sustainability, Oaxaca, Mexico
- 2016 Doomed to Drown? Sediment Dynamics and the Threat of Sea Level Rise in the Bengal Delta. Geological Sciences Colloquium, Indiana University Bloomington
- 2016 Coupled Human-Environmental Dynamics in the Bengal Delta, Bangladesh. School of Global and International Studies, Indiana University Bloomington
- 2016 Ambiguous Geographies Symposium. Center for the Study of Global Change, Indiana University Bloomington
- 2015 River Deltas, Monsoons, and Climate Change. American International School, U.S. Embassy, Dhaka Bangladesh
- 2012 Consultation Workshop on Sediment Dynamics and Sea Level Rise in the Coastal Areas of Bangladesh. World Bank Multidisciplinary Workshop, Dhaka Bangladesh
- 2012 Monsoon Sedimentation in the 'Abandoned' Tidal-Influenced Ganges-Brahmaputra Delta. Department of Geology, Dhaka University, Dhaka Bangladesh
- 2010 Water, Culture and Social Justice in Bangladesh: A Transdisciplinary Initiative on Environmental Systems Approach to Education. CSDMS Executive Committee Meeting, Boulder CO

**CONFERENCE ACTIVITY** (\*presenter)

- 2018 Blum, M.\*, **Rogers, K.G.**, Gleason, J., and Najman, Y. Fingerprints of Climate Change in the Detrital-Zircon U-Pb Record of the Deep-Sea Bengal Fan? American Geophysical Union (AGU), Washington DC (invited)
- 2017 Barton, M.C.\*, Nelson, G.C., Tucker, G.E., Lee, A., Porter, C., Ullah, I., Hutton, E.W.H., Hoogenboom, G., **Rogers, K.G.**, and Pritchard, C. A community framework for integrative, coupled modeling of human-Earth systems. AGU, New Orleans LA
- 2017 **Rogers, K.G.\*** and Overeem, I. Doomed to Drown? Sediment accretion in the low-lying human-modified landscape of the Ganges-Brahmaputra-Meghna Delta, Bangladesh. AGU, New Orleans LA
- 2017 Blum, M.D.\*, **Rogers, K.G.**, Gleason, J.D., and Najman, Y. Allogenic and autogenic signals in the detrital zircon U-Pb record of the deep-sea Bengal Fan. AGU, New Orleans LA
- 2017 Kane, S.C.\* and **Rogers, K.G.** Sociocultural dynamics in global human-environmental systems models: Adding local depth to decision making algorithms, and example from the Paraná Delta, Buenos Aires, Argentina. Community Surface Dynamics Modeling System (CSDMS) Annual Meeting, Boulder CO
- 2015 **Rogers, K.G.\***, Brondizio, E.S., Roy, K. and Syvitski, J.P.M. Linking river basin modifications and rural soil and water management in tropical deltas to sea level rise vulnerability. AGU, San Francisco CA
- 2014 Overeem, I.\*, **Rogers, K.G.**, Passalacqua, P., Canestrelli, A., Cohen, S., and Ahmed, K.M. Sedimentation patterns in the Ganges-Brahmaputra Delta System. American Association of Petroleum Geologists Annual Meeting, Houston TX
- 2014 **Rogers, K.G.\*** and Overeem, I. Simplifying the Ganges-Brahmaputra sediment dispersal system using a coupled model-field approach. CSDMS Annual Meeting, Boulder CO
- 2014 Hossain, A.\*, Ahmed, K.M, Overeem, I., and **Rogers, K.G.** Assessing morphological changes due to hydro-meteorological influences in Mehendiganj Island, Meghna Estuary, Bangladesh. AGU, San Francisco CA

- 2013 **Rogers, K.G.\*** and Overeem, I. Modeling floodplain dynamics: Will the Ganges-Brahmaputra Delta survive 21<sup>st</sup> century sea level rise? AGU, San Francisco CA
- 2013 Gilligan, J.M.\*, Ackerly, B., Ahmed, K.M., Benneyworth, L., Goodbred, S.L., Hall, M., Jacobi, J.H., Mondal, D.R., Pickering, J. **Rogers, K.G.**, Roy, K. and Auerbach, L.W., 2013. Water and Social Justice in Bangladesh: A transdisciplinary and intercultural approach. AGU, San Francisco CA
- 2012 **Rogers, K.G.\*** Seasonal-scale spatial and temporal sedimentation patterns on the tide-dominated lower Ganges-Brahmaputra Delta plain. The Oceanography Society/American Society of Limnology and Oceanography/AGU Ocean Sciences Joint Meeting, Salt Lake City UT
- 2011 **Rogers, K.G.\*** and Goodbred Jr., S.L. Seasonal-scale spatial and temporal sedimentation patterns on the lower Ganges-Brahmaputra Delta plain. National Center for Earth Surface Dynamics, Summer Institute for Earth Surface Dynamics, Minneapolis MN
- 2010 Goodbred Jr., S.L.\* and **Rogers, K.G.** Predicting long- and short-term climate-related impacts in the Bengal Delta, a robust natural system limited by societal constraints. American Association of Petroleum Geologists (AAPG) Annual Meeting, New Orleans LA
- 2010 **Rogers, K.G.\*** and Goodbred Jr., S.L. Sedimentation patterns and transport pathways linking river mouth to remote depocenters in the Ganges-Brahmaputra Delta, Bangladesh. AAPG Annual Meeting, New Orleans LA
- 2008 **Rogers, K.G.\*** and Goodbred Jr., S.L. Storms as potential change agents on the Ganges-Brahmaputra Delta: coevolving clinoform and canyon morphology. Society for Sedimentary Geology Special Meeting: Clinoform Sedimentary Deposits, Rock Springs WY
- 2008 **Rogers, K.G.\***, Goodbred Jr., S.L., Khan, S.R., and Ullah, S.A. From river mouth to remote depocenters: coupled oceanographic and climatic controls on Ganges-Brahmaputra sediment dispersal across the Bengal Margin. Geological Society of America Annual Meeting, Houston TX
- 2007 **Rogers, K.G.\*** Sediment transport pathways in a high-energy source-to-sink system: results from the submarine topsets of the Ganges-Brahmaputra Delta, Bangladesh. AGU, San Francisco CA

#### **DEPARTMENTAL TALKS**

- 2018 Sediment Dynamics and Coupled Human-Natural Systems in the Bengal Delta, Bangladesh. Institute for Arctic and Alpine Research Seminar, University of Colorado Boulder CO
- 2016 Intersections of Sustainability and the Problem of Institutional Fit in Delta Socioecological Systems. Ostrom Workshop Research Colloquium, Indiana University Bloomington
- 2014 Sediment Dynamics, Sea Level Rise, and the Ganges-Brahmaputra Delta. Institute for Arctic and Alpine Research Seminar, University of Colorado Boulder CO
- 2010 Coastal Sediment Dynamics and Environmental Change. Transdisciplinary Initiative on Environmental Systems Seminar, Vanderbilt University, Nashville TN

#### **MENTORING**

- 2017 TU Dresden (Germany) Institute of Applied Geosciences Master's Student: perceptions and experiences of coastal and infrastructural hazard vulnerability collected through key informant interviews

- 2015 Khulna University (Bangladesh) Environmental Science Master's Students: indicators of climate stress and adaptation by farmers collected through ethnographic survey techniques
- 2014 Broomfield High School Female Student: The Effect of Human Activities in the Ganges River Delta on Soil Organic Carbon --student won *Colorado Frolicsome Survey Environmental Science Award* at Intel Science Talent Search Competition
- 2012 Dhaka University (Bangladesh) Geology Master's Student: collection, processing and analyses of sediment and remote sensing data to quantify morphologic change

### **SHORT COURSES and ADDITIONAL TRAINING**

- 2017 Teaching Socio-Environmental Synthesis with Case Studies. National Socio-Environmental Synthesis Center, Annapolis MD
- 2017 How to Model Human Decision Making in Socio-Ecological Agent Based Models. Center for Behavior, Institutions and the Environment, Tempe AZ
- 2013 Pan-American Advanced Studies Institute—Toward a Sustained Operational River-to-Shelf Observation & Prediction System for the Amazon. Rio de Janeiro and Ubatuba, Brazil
- 2011 National Center for Earth Surface Dynamics, Summer Institute—Coastal Processes and the Dynamics of Deltaic Systems. Minneapolis MN
- 2010 Subsidence & Sea Level Rise in Coastal LA, Short Course and Field Trip. New Orleans LA
- 2008 Sequence Stratigraphy Short course for Graduate Students. Houston TX

### **OTHER RESEARCH and PROFESSIONAL EXPERIENCE**

- 2011 Chevron Energy Technology Company, San Ramon CA, Research Intern
- 2011 Shell International E&P, Houston TX, Research Intern
- 2009 ExxonMobil Upstream Research Company, Houston TX, Research Intern
- 2005–2010 Vanderbilt University, Nashville TN, Research Assistant

### **PROFESSIONAL SERVICE**

#### **Panels**

- 2019, 2017 Panel and Ad hoc Reviewer, National Science Foundation
- 2018 Co-chair: The Sustainability and Resilience of Coastal Systems: Creating Synergy Among Federal, State, and NGO Initiatives II, American Geophysical Union (AGU) General Assembly, Washington, DC
- 2018 Chair: Re-envisioning “sustainable” deltas through critical physical geography, American Association of Geographers Annual Meeting, New Orleans LA
- 2017 Co-chair: The Sustainability and Resilience of Coastal Systems: Creating Synergy Among Federal, State, and NGO Initiatives, AGU General Assembly, New Orleans LA
- 2016 Chair: Advances in Integration of Earth Systems Dynamics and Social Systems Models, AGU General Assembly, San Francisco CA
- 2013 Co-chair: Water, Climate Variability and the Anthropocene; AGU General Assembly, San Francisco CA

#### **Workshop Coordination**

- 2016 Linking Earth System Dynamics and Social System Modeling Workshop, CSDMS Human Dimensions Focus Research Group, Boulder CO

## **Journal Peer Review**

*Regional and Environmental Change; Marine Geology; Estuarine, Coastal and Shelf Science; Geology; Environmental Health Perspectives; Environmental Science: Processes and Impacts*

## **Committees**

- 2018 Executive Committee Member, Network for Computational Modeling in Social and Ecological Sciences (CoMSES Net)/Open Agent Based Modeling Network
- 2014 INSTAAR Diversity Committee
- 2009 Vanderbilt Earth and Environmental Sciences Department Colloquium Committee

## **OUTREACH and MEDIA CONTRIBUTIONS**

- Rising Seas Are Flooding Bangladeshi Farms with Salt Water. In *Slate*, August 2017
- Delta Subsidence, An Imminent Threat to Coastal Populations. In *Environmental Health Perspectives*, Vol. 123, No. 8, August 2015, 10.1289/ehp.123-A204
- "Q&A with a JR Scientist", Video broadcasts with global college, secondary and high school students, live from the Indian Ocean aboard the research vessel *Joides Resolution*, 2015
- "Turbidite Transport: Sediment's Journey", Educational video: International Ocean Discovery Program Education and Outreach Series: Expedition 354
- City of Boulder Open Space and Mountain Parks Volunteer, Bat Monitor

## **PROFESSIONAL MEMBERSHIPS**

American Association of Geographers, American Geophysical Union, Community Surface Dynamics Modeling System, Geological Society of America, Women in Science and Engineering (CU Boulder Chapter)