Monitoring weather factors like temperature, rain, and snowfall is one way to predict the timing and intensity of rotavirus, a disease that causes extreme diarrhea, dehydration and thousands of deaths annually, particularly among children.

In a paper published in the journal *PLoS One*, a research team led by Professor Elena Naumova, director of the Tufts Initiative for the Forecasting and Modeling of Infectious Diseases (InForMID), correlated temperature and precipitation with rotavirus outbreaks in one of the hardest-hit regions of the world, South Asia.

In 2004, rotavirus resulted in 527,000 deaths worldwide in children younger than five years, the study noted. The majority of deaths are clustered in poor areas of developing countries in Africa and Asia. Being able to predict infection increases opportunities for health professionals to take effective preventive measures such as vaccination that could substantially reduce deaths.

Naumova’s research focuses on developing methodology for analysis of large databases to enhance disease surveillance. In this

Continued on page 3
Dear CEE Alumni and Friends,

It my pleasure to introduce the 2012 edition of the CEE Newsletter, which highlights department activities and accomplishments over the past year, including faculty and student awards, research initiatives and alumni news. Much of my attention was directed toward the ABET-accreditation process, and I am very pleased to report that both the Civil Engineering (BSCE) and Environmental Engineering (BSEVE) degrees were accredited. Professors Wayne Chudyk and John Durant, who serve as directors of the programs, played instrumental roles in the review process, which was supported by faculty, students and several members of our External Advisory Board. I continue to focus on improving department facilities to support our academic and research missions. In February 2012, a two million dollar renovation of the 3,000 sq. ft. Emerging Contaminants Laboratory (ECL) was completed with support from the National Science Foundation and matching funds from the School of Engineering. In addition, three new faculty offices, two graduate student suites, and a computer-aided design (CAD) laboratory were created in existing space. Since completing these projects, our attention has turned toward upgrading the geotechnical and structural engineering teaching laboratories in Anderson Hall.

To strengthen our programs in Geotechnical and Geo-environmental Engineering (GGE) and Environmental Health (EH), we added three new faculty positions. Dr. Rachid Hankour, president and director of laboratory systems at the Geocomp Corporation, joined the GGE last fall as a Professor of the Practice. Dr. Robert Viesca also joined the GGE group as an Assistant Professor after completing his doctorate at Harvard University and a post-doctoral fellowship at Dalhousie University in Halifax. Dr. Daniele Lantagne joined the EH group as an Assistant Professor after completing a post-doctoral fellowship at Harvard’s Kennedy School of Government and her doctorate from the London School of Hygiene and Infectious Disease. Read more about our new faculty on page 4.

In May, we celebrated the achievements of our undergraduate and graduate students. We are grateful for the continued alumni support, which allows us to provide our students with scholarships and awards to recognize their achievements. The student chapter of the American Society of Civil Engineers (ASCE) remains an integral part of the undergraduate experience, coordinating the faculty-student dinner and softball game, the “buddy” support system, steel bridge competition, and participating in Tufts engineers week, which they won for the 4th year in a row! Please feel free to visit if you are in the area, and I hope to see you at the next Alumni and Student Awards Dinner on Sunday, May 5, 2013.

With Best Regards,
Kurt

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FROM THE CHAIR

Notables...

Associate Professor Laurie Baise received the School of Engineering’s Faculty Teaching and Mentoring Award for her outstanding support of graduate students. Associate Professor Andrew Ramsburg and Professor of the Practice Eric Hines shared the department’s ASCE Faculty Member of the Year Award.

The Hydrology Section of the American Geophysical Union named Maia Majumder, E12, a recipient an Outstanding Student Paper Award for her paper “Water Quality vs. Sanitation Accessibility: What is the most effective intervention point for preventing cholera in Dhaka, Bangladesh?”

Matthew Becker, a doctoral candidate in Environmental and Water Resources Engineering, was awarded a 2011 Environmental Protection Agency STAR fellowship to study fate and transport of engineered nanomaterials in porous media.

Students Leticia Lopez-Benitez, E14, and Kelvin Manuel Perez Macario, E12, were honored at the 2012 Latino Science & Engineering Awards Celebration.

Joanna Stowell, E14, received a scholarship from the Society of American Military Engineers (SAME) Boston Post.
study, the team examined seasonal differences in the environment by creating mathematical models based on factors such as temperature, humidity and precipitation in the region over 22 years.

“We found that rotavirus is sensitive to seasonal patterns that are defined as a combined effect of temperature and precipitation,” said Naumova. This work builds on Naumova’s previous research developing mathematical models to predict the timing, severity, and impact of diseases. “Our goal is to develop an integrated model which will allow monitoring the virus and also forecasting outbreaks.”

Collaborators on the study included Jyotsna Jagai, N09, of the U.S. Environmental Protection Agency, Rajiv Sarkar, Deepthi Kattula, and Gagandeep Kang of the Christian Medical College in Vellore India; Denise Castronovo of Mapping Sustainability LLC; Jesse McEntee of Cardiff University in Cardiff Wales; and Honorine Ward of Tufts University School of Medicine.

Read the full study in PLoSOne: doi:10.1371/journal.pone.0038168

RESEARCH HIGHLIGHTS

Pennell and Colleagues Wins NSF Grant for Nanotoxicology Research

Professor and Chair Kurt Pennell, Professor and Dean Linda M. Abriola, Research Assistant Professor Yonggang Wang, and Assistant Professor John Fortner at Washington University were awarded a grant to understand the effects of surface coating aging on the fate and transport of several representative engineered nanomaterials (iron and manganese oxides) in sands and natural soils. Although most commercially-available nanomaterials are produced with surface coatings, little information is available regarding their longevity and impact on nanomaterial fate over time.

Cápiro Wins NSF Grant for Bioremediation of Chlorinated Solvents

Research Assistant Professor Natalie Cápiro and Kurt Pennell (co-PI) were awarded a grant to design experiments and mathematical models to evaluate a new a method for remediating chlorinated solvents, such as trichloroethylene. Using organic compounds called partitioning electron donors, or PEDs, (e.g., n-butyl acetate) can help promote the growth of chlorinated solvent-degrading bacteria in close proximity to a contaminated area. The knowledge gained from the testing and validation of this novel remediation technique will provide a sustainable approach to reduce chlorinated solvent source zone longevity and remediation costs through an improved understanding of enhanced biological treatment.

Moaveni Wins NSF Grant for Earthquake Damage Assessment

Assistant Professor Babak Moaveni was awarded a grant to dynamically test a reinforced concrete frame building in-filled with unreinforced masonry walls. Using mobile shakers, Moaveni and lead investigator, Andreas Stavridis, assistant professor at the University of Texas, Arlington, will simulate earthquake conditions for a two-story 1920s structure. The experimental data collected will enhance the understanding of the complex behavior of these structures and their failure mechanisms. The tests will also provide benchmark data for earthquake engineering researchers and practitioners.

Quick Hits

Professor Elena Naumova participated in a United Nations conference on sustainable development as part of a panel hosted by Tufts Center for International Environment & Resource Policy (CIERP).

Professor of the Practice Eric Hines discusses the recent addition to Tufts University's School of Dental Medicine building in a recent issue of Modern Steel Construction.

In Structure magazine, Hines outlines four principles to address the National Council of Structural Engineers Association's goal of improving “technical and practical quality of education for structural engineering students.”

Professor Masoud Sanayei and Professor of the Practice Brian Brenner were featured in Structure magazine for their work with collaborators on a structural health monitoring system that incorporates more than 200 sensors on the Vernon Avenue Bridge in Barre, Mass.
On August 11, 2012, Associate Professors John Durant and David Gute received the “Development and Sustainability of Okyeman Award” as conferred by the Okyeman Association of New England—a non-profit organization with a mission to unlock the potential of the people of the Akyem state of Ghana (Abuakwa, Bosome, Kotoku) to build and sustain healthy communities.

The Okyeman Award recognizes the contributions of Tufts faculty and students aimed at the primary prevention of urogenital schistosomiasis in Ghana. Since the work began in 2006, more than 4,500 children have been screened for the presence of this parasitic disease. Ghana Health Services, through the provision of medical treatment, and the Noguchi Memorial Institute of Medical Research, through assistance in field epidemiology and community outreach, have been active project partners.

This work also featured the stellar leadership of Dr. Karen Kosinski, EG11, in the performance of community-level epidemiological studies. Her research culminated with the successful piloting of a water recreation area as a means of reducing disease burden among community youth.

NEW FACES **RACHID HANKOUR, DANIELE LANTAGNE 
& ROBERT VIESCA**

**Rachid Hankour**

Dr. Rachid Hankour, EG91, joined the Geotechnical and Geo-environmental Engineering last fall as a Professor of the Practice. In addition to teaching courses in the measurement of soil properties, Dr. Hankour is vice president and director of laboratory systems at the Geocomp Corporation, where he is responsible for worldwide sales, installation, and training for the company’s line of automated materials testing equipment. Dr. Hankour’s goal is to bridge the gaps between the university, the private sector, and government institutions by offering real-life experience in the field of geotechnical engineering to the CEE department.

**Daniele Lantagne**

Daniele Lantagne comes to Tufts from a postdoctoral fellowship in sustainability science at Harvard’s Kennedy School of Government. Lantagne earned her bachelor’s and master’s degrees in environmental engineering from the Massachusetts Institute of Technology in 1996 and 2001. She received her Ph.D. from the London School of Hygiene and Tropical Medicine in 2011. Between her degrees she worked as a Public Health Engineer at the Centers for Disease Control and Prevention (2003–2010) and the Programs Director of the Ipswich River Watershed Association (1997–2000). Since 2000, she has provided technical assistance to, and evaluation of, water treatment programs in more than 40 countries in Africa, Asia, and Central/South America.

**Robert Viesca**

Robert Viesca, E05, completed his master’s and doctoral degrees in engineering sciences from Harvard University under the mentorship of Professor James R. Rice. He then completed a postdoctoral fellowship with Professor Dmitry I. Garagash at Dalhousie University. His research is concerned with problems in theoretical mechanics, particularly those that emerge from the fields within earth sciences and engineering. Problems of recent interest include surficial and crustal processes, including landsliding, seafloor sedimentation, fault rupture initiation and propagation, involving the fields of seismology, tectonophysics, civil and environmental engineering, ocean sciences, and hydrology, and the mechanics behind friction, fracture, porous media flow and deformation.
Congratulations to Our 2011–2012 Graduates

Undergraduate Awards

**Eric Johnson** received the Max O. Urbahn, F.A.I.A. Scholarship from Society of American Military Engineers New York City Post. He also received the William P. Morse Scholarship from BSCES/ASCE.

**Ryan Marshall,** received the Howe Walker Award from BSCES/ASCE.

**Zachary Cousens** received the Joseph Bocchino Award and a Boston Post award from the Society of American Military Engineers Boston Post.

**Cameron Bradley** received the Earle F. Littleton Fellowship and will continue his studies at Tufts.

Littleton Awards

**Emily S. Anderson, Jack G. Birger,**
**Sarah M. Boudreau, Maren K. Frisell,**
**Eric S. Johnson, Robert W. Keene, Yun Luo,**
**Ryan A. Marshall, Christine E. Suhonen**

Bachelor of Science in Civil Engineering

Emily Schick  
Cristina Tovar  
Mariana Zak

Bachelor of Science in Environmental Engineering

Emily Anderson  
Kathryn Booras  
Brianna Cilley  
Caillt Collins  
Zachary Cousens  
Kyle Donahue  
Maren Frisell  
Daniel Halpert  
Ashton Imlay  
Piers MacNaughton  
Chad Milano  
Shhuei Miyasaka  
Amanda Parker  
Joanna Sebik  
Christine Suhonen  
Allison  
Wahrenberger  
Eric Wilburn  
Danielle Wilson

Graduate Awards

**Sandeep Sathyamoorthy** was awarded the Jonathan Curtis Fellowship.

**Jesse Sipple** was awarded the Kentaro Tsutsumi Fellowship.

**Bradford Berry** was awarded the William Edgerton Fellowship.

Littleton Awards

**Negin Ashoori, Davene Daley,**
**Pradeep Maurya, Chris Paetsch, Ana Rosner**

Master of Science

**Matthew D. Becker**

**Lauren R. Caputo**

**Jeffrey Conroy Cegan**

**Davene J. Daley**

**Jessica Lynne Englehart**

**William Hastings Farmer**

Doctoral Recipients

**Ali Shafqat Akanda**

Dissertation: Hydrology, Climate and Water-Borne Disease Transmission: Role of Large Scale Hydroclimatology in Cholera Dynamics of Bengal Delta  
Advisor: Dr. Shafiqul Islam

**Rhiannon E. Ervin**

Dissertation: Assessment of Partitioning Tracers for Estimation of DNAPL Source Zone Architecture  
Advisor: Dr. Andrew Ramsburg

**Yongxuan Gao**

Dissertation: Environmental Flow in the Context of Small Reservoirs in West Africa  
Advisor: Dr. Richard Vogel

**Antarpreet Singh Jutla**

Dissertation: Hydrology, Remote Sensing and Water Related Diseases: Predicting Cholera Outbreaks in Bengal Delta  
Advisor: Dr. Shafiqul Islam

**Karen Claire Kosinski**

Dissertation: Evaluation of a Novel Primary Prevention Technique for the Control of Urogenital Schistosomiasis: A Pilot Intervention in Adasawase, Ghana  
Advisor: Dr. David Gute

**Eugene C. Morgan**

Dissertation: Stochastic Modeling Techniques for Offshore Geohazards  
Advisor: Dr. Laurie Baise

**Bindu Panikkar**

Dissertation: Migration, Work, Health and Justice: Occupational Safety and Health Among Immigrant Workers in Somerville, MA  
Advisor: Dr. David Gute

**Yu-Shiou E. Tsai**

Dissertation: Statistical Methods for Assessing Climatic and Anthropogenic Impacts on Streamflow, Storage Reservoir Yield, and Effectiveness of Water Conservation Programs  
Advisor: Dr. Richard Vogel

Master of Engineering

**Maryam Aboosaber**

**Casey E. Bartlett**

**Allen Eric Berber**

**Negar Dastjerdi**

**Brian A. Ferguson**

**Babak E. Kashef**

**John R. Melcher**

**Margarita M. Shirley**

**Farahnaz Soleimani**

**Irena A. Svetieva**
‘06 Jimmy Edgerton, director of jWEST Solutions in Washington, DC, developed a project for renovating a burned-out rowhouse that won jWEST a design and construction award from the District of Columbia Historic Preservation Office and Office of Planning. The project, which used renewable and green building technology, also won the annual community award from the Historic Mount Pleasant Society.

‘03 Erin Santini Bell, EG98, was the recipient of the CEE department’s Distinguished Service Award.

‘83 Lissa Robinson has joined the Portland, ME, office of GEI Consultants, one of the nation’s leading geotechnical, environmental, water resources, ecological science, and engineering firms. A licensed professional engineer and certified geologist, she has more than twenty-two years of experience in areas ranging from groundwater contamination to land-use planning.

‘81 Robert Fitzpatrick Jr. was recently named special counsel at WilmerHale.

‘72 Tufts Board of Trustees Chair James Stern, A09P, joined Sol Gittleman, A85P, the Alice and Nathan Gantcher University Professor at Tufts, in launching the United Jewish Appeal-Federation of New York’s Westchester King David Society university educational series.

‘71 Emory Campbell was recipient of the CEE department’s Outstanding Achievement Award.

‘70 Bill Edgerton received the 2012 Beaver Award for Engineering from the Beavers Heavy Engineering Construction Association. He has worked in engineering for forty-one years. He joined Jacobs Associates in 1987 and served as company president from 1999 to 2011.

4 ways to share the events of your life with your classmates
1. Join us each May for the annual CEE Alumni and Student Awards Dinner
2. Email classnotes@tufts.edu
3. Visit Tufts Online Community: www.alumniconnections.com/tufts (go to “Classnotes,” then click on “Submit/Edit a Class Note”)
4. Mail to Class Notes, Alumni Relations, Tufts University, 80 George Street, Medford, MA 02155

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Celebrating the CEE Alumni and Student Awards Dinner

Ryan Marshall, E12, and Eric Johnson, E12, winners of BSCES/American Society of Civil Engineers (ASCE) awards

Chair Kurt Pennell with the recipients of the graduate Littleton Awards (L to R): Negin Ashoori, Davene Daley, Pradeep Maurya, Chris Paetsch, and Ana Rosner

Bradford Berry receives the William Edgerton Fellowship.

Society of American Military Engineers award winners Alyssa Kody, E13, Zachary Cousens, E12, and Eric Johnson, E12

Chair Kurt Pennell with the recipients of the undergraduate Littleton Awards (L to R): Maren Frisell, Emily Anderson, Jack Birger, Yun Luo, Eric Johnson, Christine Suhonen, Robert Keene, and Ryan Marshall

Jesse Sipple receives the Kentaro Tsutsumi Fellowship.

Sandeep Sathyamoorthy receives the Jonathan Curtis Fellowship

Seniors Amanda Parker, Maren Frisell, and Emily Anderson

Former Department Chair N. Bruce Hanes celebrates with the recent graduates.
As part of the kickoff event for the Water Diplomacy IGERT doctoral program, Dr. Edward Olowo-Okere World Bank Regional Manager for Financial Management in the Africa Region delivered a keynote address “Meeting Africa’s Water Challenge: The Time is Now.” Watch the seminar: waterdiplomacy.tufts.edu