

iFAST: The International Forum on Advanced Environmental Sciences and Technology

A series of distinguished seminars by eminent scientists

8:00 a.m. CDT; 9:00 a.m. EDT; 2:00 p.m. GMT; 10:00 p.m. Beijing

Wednesday, November 11, 2020



Rita Colwell

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<https://www.umiacs.umd.edu/people/rita-colwell>

Rita Colwell is a Distinguished University Professor at the University of Maryland at College Park and at Johns Hopkins University Bloomberg School of Public Health. Her interests are focused on global infectious diseases, water, and health. She developed an international network to address emerging infectious diseases and water issues, including safe drinking water for both the developed and developing world, in collaboration with Safe Water Network, headquartered in New York City. She served as director of the National Science Foundation from 1998 to 2004 and was previously the president of the University of Maryland Biotechnology Institute. Professor Colwell has been awarded 63 honorary degrees from institutions of higher education and was awarded the 2006 National Medal of Science by the president of the United States. She is a member of the U.S. National Academy of Sciences, the Royal Swedish Academy of Sciences, Stockholm, the Royal Society of Canada, the Royal Irish Academy, the Bangladesh Academy of Science, the Indian Academy of Science, the American Academy of Arts and Sciences and the American Philosophical Society. She has held many advisory positions in the U.S. government, nonprofit science policy organizations, private foundations and in the international scientific research community.

Climate, Oceans and Human Health: What Cholera can teach us about COVID-19

Climate and the oceans historically intertwine with human health. Today, significant advances in science and technology have brought new discoveries—from the outer reaches of space, where remote-sensing monitors on satellites circle the earth, to the ultramicroscopic through application of next-generation sequencing and bioinformatics. *Vibrio cholerae* provides a useful example of the fundamental link between human health and the oceans. This bacterium is the causative agent of cholera and is associated with major pandemics, yet it is an aquatic bacterium with versatile genetics and occurs naturally in estuaries, coastal regions, and aquatic systems of the world. *Vibrio* species, both nonpathogenic and those pathogenic for humans, marine animals, and marine vegetation, play a fundamental role in nutrient cycling and respond to warming of surface waters, with increase in their numbers correlated with increased incidence of vibrio disease in humans. The models we developed for understanding and predicting outbreaks of cholera, based on work done in the Chesapeake Bay and the Bay of Bengal, today assist UNICEF and aid agencies in predicting risk of cholera in Yemen and other countries of the African continent. With onset of COVID-19, the models were modified and are used to predict risk of COVID-19, the current pandemic of coronavirus. Thus, molecular microbial ecology coupled with computational science and remote sensing can provide a critical indicator and prediction of human health and wellness.



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Organizing Committee Chair: Jizhong Zhou (University of Oklahoma, USA; <https://www.ou.edu/ieg>)
Xueduan Liu (Central South University, China)