



*Old Dominion University
Climate Change and Sea Level
Rise Initiative*

Spring 2012



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IDEA FUSION

Old Dominion University Climate Change and Sea Level Rise Initiative

Spring Update 2012

Larry Atkinson

Contents of this Update

Thoughts from the Coordinator	1
ODU Supports Interdisciplinary Climate Change and Sea Level Rise Research	3
Networking with other universities	5
Recent Events.....	5
Insurance Executive Speaks at ODU on Increased Risk and Protection from Flooding	5
Interviews Conducted in Search for Senior Faculty Position in Climate Change and Sea Level Rise	5
Upcoming Events	5
CC/SLRI-relevant courses at ODU	6
Websites	7

Thoughts from the Coordinator

The initiative is now more than one year old and I have a few comments on the progress we have made and where we are going.

The first year – It is important to remember that when the Climate Change and Sea Level Rise Initiative (CC/SLRI) was started I said it would take several years, and possibly five, to create a viable initiative. The main reason was that that we had few faculty members involved in this area of research and education. So the first order of business was to disseminate information on campus about the initiative, about climate change issues, and sea level rise issues. And, of course, we kept a specific, local focus on increased flooding risk due to sea level rise. So through a series of networking events, faculty became more involved. Some faculty decided that this might be an interesting and productive area of research.

The University has now funded approximately \$200,000 in interdisciplinary seed grants related to the CC/SLRI as well as supported faculty meetings, forums and invited speakers. A new faculty position in Climate Change and Sea Level Rise was created and the search is currently underway. From that, we have a solid core of faculty who are becoming more familiar with issues of interest to CC/SLRI. With the publication of research papers on these topics, these faculty members will become more credible as experts in this topic.

One of the most important parts of the activities in the first year was to identify leaders among the faculty. These are people who have both an entrepreneurial and an altruistic streak in them. The good news is new leaders have stepped up, especially from among younger faculty and from all the colleges.

The complexity of this initiative ranges from interactions with engineers at the city of Norfolk, to groups like the Urban Land Institute, engineering societies, state legislators, federal agencies, and on and on.

What is the best role for ODU? That was a key question that President Broderick asked us to address when he launched this initiative. It is becoming clear that a major role for the university will be to provide leadership in the region as the public and private sectors try to meet the challenge of increased flooding risk. The second role is to facilitate faculty research and education opportunities. The trick is to figure out the right balance in being a regional leader, while at the same time facilitating the pursuit of research grants and contracts by faculty and creating or adapting courses to support the initiative. Research funding usually does not come from local or regional sources, but from federal agencies who have a broader view. So it helps for research proposals to take a national or even international view of a problem.

Collaborative multi-institutional proposals – The National Science Foundation has new programs that fund the development of innovative ways to attack challenging complex problems: problems that require more than one university to attack. Faculty members at ODU have already been involved in two CC/SLRI-related proposals as collaborators. I believe that by this summer or fall, our faculty will be able to competitively propose a networking project with colleagues at other nearby universities. Since this is an NSF proposal, it will be extremely competitive and require solid reputation and credibility. Hopefully the ODU seed grants already given out and other efforts by the faculty will give us the boost we need to be competitive.

Our multidisciplinary focus – It turns out that the most unusual thing we are doing with CC/SLRI compared to other universities is drawing expertise from many different disciplines, ranging from communication to ecosystem management and business risk management to storm water engineering. This first year, the funding emphasis has been on the social sciences. The way I looked at it, we were bringing faculty members who were not previously involved in climate change research/instruction up to speed in the field. This supports the formation of multidisciplinary research teams that extend well beyond the disciplines of the sciences and engineering. By doing this we can become very competitive with NSF.

What others think – Discussions I've had with people at other universities indicate that we are really breaking new ground by combining the sciences with social sciences, communication/theatre arts and all the other disciplines involved in our initiative. The people being interviewed for a senior faculty position that was created to support CC/SLRI were particularly impressed by our initiative.

Planting our flag – Over the past year I've had the opportunity to see what other universities, agencies and nonprofits are doing relative to our initiative. I've come to the conclusion that ODU needs to host a symposium on a topic specific to our initiative with invitees from coastal universities throughout the mid-Atlantic, south Atlantic and possibly the Gulf of Mexico. This would help establish ODU as a forward thinking university with respect to sea level rise and related coastal hazards.

On the local front, ODU's CC/SLRI has been engaged by the City of Norfolk to serve on its Flooding Advisory Group, and has been participating in the City's Citizen Task Force meetings to provide input to Norfolk's flood prevention, mitigation and adaptation plans.

The College of Engineering has hosted one forum and will soon host a second on storm water management. Participants include engineers and policy makers from every stakeholder in the region.

Where we are going – We chose to start an initiative rather than institute or center. We did this because much of our early work has been exploratory. In the coming few months we will be finalizing the hiring of a coastal engineering faculty member and a senior faculty position in climate change and sea level rise. The people who are hired to fill those positions will no doubt have significant input in the future direction of the initiative. Whatever it's called and whatever its structure is, we will no doubt continue to be very multidisciplinary, cutting across all of ODU's colleges. We will need to continue to look at models and other universities for similar activities that appear to work particularly well.

Additional support for CCSLRI - CCSLRI is one of several efforts on campus to initiate collaborations across colleges. To help with that effort Ms. Elizabeth (Liz) Smith has been hired on a part time basis to help mainly with CC/SLRI but also the Modeling and Simulation Certificate Programs and Geospatial Studies in the future. Liz has a BSc in Marine Science from the University of South Carolina and an MSc in Physical Oceanography from Florida State University. Early in her career she was a Project Scientist at the California Institute of Technology, Jet Propulsion Lab. More recently she was the Coastal Research Program Manager for the Southeastern Universities Research Association (SURA) and still helps manage a multi-institutional, environmental modeling testbed program for SURA. Liz can be reached at exsmith@odu.edu

ODU Supports Interdisciplinary Climate Change and Sea Level Rise Research

"...In an effort to promote and support faculty interested in forming teams to address Climate Change and Sea Level Rise issues facing a metropolitan environment, the Office of Research will accept proposals for short-term seed funding supported in part by the Perry Fund for the Study of Critical Issues." **Mohammad Karim, Vice President for Research**

The awarded projects are:

"The Disparate Impacts of Sea Level Rise on Hampton Roads' Underserved Populations Residing in the Chesapeake Bay's Coastal Zone: A Multidisciplinary Approach to Understanding the Impact of Various Remediation Policy Options to Address Contaminated Environments" **\$37,800** awarded to **Rafael Diaz**, Research Assistant Professor, Virginia Modeling, Analysis and Simulation Center (VMASC); **Hua Liu**, Assistant Professor, Political Science and Geography; **Michael Finewood**, Visiting Instructor, Political Science and Geography; **Joshua Behr**, Associate Professor, VMASC; and **Paula Jasinski**, Analyst, Chesapeake Environmental Communications.

Rising waters could spread the pollution in soils along the Chesapeake Bay that are contaminated with hazardous waste. Remediation projects are likely to be funded to clean up these sites ahead of the rising waters. Yet low-income and minority communities will be least able to influence the prioritization of remediation funds despite being the most vulnerable to regional environmental change related to sea level rise, thus the rise in the bay may be expected to have a disparate impact upon communities of interest. The central objectives of this project are to 1) identify the hazardous sites around the bay and attach to each site an index of health-related contamination risk and 2) model the sensitivity of vulnerable populations to the various remediation policy options intended to address these contaminated environments.

"Human Dimensions in Public Engagement and Support for Environmental Resiliency Policies" **\$37,456** awarded to **Maura Hametz**, Associate Professor, History; **Poornima Madhavan**, Assistant Professor,

Psychology; **Leona Tam**, Assistant Professor, Marketing; and **Cynthia Tomovic**, Professor, STEM Education and Professional Studies.

The purpose of this study is to construct and test a social science-driven process model of communicating information about climate change and sea level rise in order to promote public engagement and broaden support for environmental resiliency policies. To measure public engagement and attention, the study will focus on local flooding, an issue of significant community concern, as a lens through which to examine public response to the broader impacts of climate change and sea level rise. Local findings will then be utilized to generate a social marketing model incorporating human dimensions and scientific knowledge for the use of other communities in Hampton Roads and beyond that are interested in engaging the public to address climate change and sea level rise.

"A Decision-Support Model Addressing Issues Related to Sea Level Rise in Hampton Roads" **\$45,000** awarded to **Michael Robinson**, Research Assistant Professor, VMASC; **Saikou Diallo**, Research Assistant Professor, VMASC; **Jose Padilla**, Research Scientist, VMASC; and **Peter Foytik**, Senior Project Scientist, VMASC.

Scientific evidence points to significant sea level rise in Hampton Roads during this century. This study will be the first to objectively identify a comprehensive list of factors, such as relocation of threatened houses and businesses or improvement of current infrastructure that must be considered by decision makers. The researchers propose to create a conceptual model that can assist decision makers in making choices that help them minimize the negative impact of rising sea levels on the Hampton Roads region. This model would consist of specific factors and how these factors relate to one another so the decision maker is aware of tradeoffs between possible choices. Criteria could include economic stability and growth, social vulnerability, social equity and transportation efficacy.

"Scientific Awareness Through Theatre: Inspiring Young People to Value Scientific Practice as We Adapt to Sea Level Rise and Climate Change" **\$44,631** awarded to **Jenifer Alonzo**, Assistant Professor, Communication and Theatre Arts; **Victoria Hill**, Research Assistant Professor, Ocean, Earth and Atmospheric Sciences; **Fred Dobbs**, Professor, Ocean, Earth and Atmospheric Sciences; **Amy Adcock**, Associate Professor, STEM Education and Professional Studies.

This is a proof-of-concept project through which the investigators will create two 15-minute segments of plays about climate change research. A promotional video will be produced to show how ODU scientists, educators and theater artists worked together to communicate climate change research to young people. Information presented in the plays will be supported by Internet games that young people may play at any time.

In addition to these four projects, another project relevant to the CC/SLRI mission was funded in January 2012 under the annual Multidisciplinary Seed Grant competition sponsored by the Office of Research:

"Virginia Legislators' Knowledge, Awareness and Perceived Risks Concerning Sea Level Rise" **\$34,371** awarded to **Burton St. John, III**, Communication; **Ivan Ash**, Psychology; and **Wie Yusuf**, Public Administration.

This study will map policy viewpoints among Virginia's leaders concerning sea level rise. In particular, this study will survey Virginia's state legislators' understandings of SLR facts and risks, credibility of SLR information sources and potential effective policy options. Researchers will use the data to determine the range of heuristic decision factors that influence legislative agenda setting as regards climate change-related policy. Particular emphasis is placed on how that legislative agenda-setting process is informed by legislators' perceptions of risk and the concerns/preferences of legislators' constituents.

Networking with other universities

In the coming months we hope to facilitate meetings with faculty at East Carolina University, the University of Delaware and the University of Maryland. The goal of this is to get faculty acquainted with each other so we can submit joint research proposals to NSF and other federal agencies.

Recent Events

Insurance Executive Speaks at ODU on Increased Risk and Protection from Flooding

Lindene Patton, Chief Climate Product Officer for Zurich Financial, gave a public lecture at ODU on February 20th entitled, "Increased Flooding Risk, Adaptation and Insurance: Using Intelligent Tools to Maintain Quality of Community."

Sponsored by the CC/SLRI and College of Business and Public Administration, this event was a production of the ODU's Office of Community Engagement and included faculty and student forums in addition to the public lecture. Karen Meier, who heads ODU's Office of Community Engagement, said the work of CC/SLRI and the public lectures are supported in part by the Perry Fund for the study of critical issues, an initiative funded by Doug and Patricia Perry, the benefactors whose name is associated with the university's Perry Library.

Read more about Patton's talk at the News@Old Dominion website:

<http://www.odu.edu/ao/news/index.php?todo=details&todo=details&id=31568>

Interviews Conducted in Search for Senior Faculty Position in Climate Change and Sea Level Rise

In late February, the CC/SLRI hosted seminars by three prominent scientists who comprised the final slate of candidates for the Senior Faculty Position in Climate Change and Sea Level Rise:

- Dr. Tom Allen, Department of Geography, East Carolina University
- Dr. Diane Horn, Department of Geography, Environment and Development Studies, Birkbeck College, University of London
- Dr. Asbury Sallenger, U.S. Geological Survey

Their presentations were both interesting and stimulated much discussion about the CC/SLRI.

Upcoming Events

March 22nd – Climate Change and Sea Level Rise Mini-Symposium. The Office of Research and the Provost's Office will sponsor a CC/SLR mini-symposium to showcase some of the internally sponsored research projects described above. IRP#2, first floor conference room from 12:00noon-2:30PM. RSVP to spaul@odu.edu.

March 28th – Stormwater Management and Coastal Flooding Research Forum. Presented on behalf of the CC/SLRI and hosted by ODU's College of Engineering. Invitation only, in IRP#1, Rm3200.

March 29th – Hot Issues: The Ethical and Social Aspects of Climate Change. A panel discussion sponsored by ODU's Institute for Ethics and Public Affairs (IEPA) and CC/SLRI. Open to the public; Chandler Recital Hall, Diehn Bldg, 7:30PM. See flyer pg 8.

April 4th – Climate Change and Sea Level Rise: How does it affect Transportation in Hampton Roads? Sponsored by The Eastern Seaboard Intermodal Technical Applications Center (ESITAC) and Parsons Brinckerhoff at Hampton University. Registration required. See flyer pg 9.

April 10th – ECO Conference: Creating Environmental Innovation and Jobs. Sponsored by the ODU Business Gateway and Inside Business. <http://www.engineeringunplugged.com/conference/description> Registration required. Ted Constant Convocation Center, Norfolk, VA.

April 23rd – President’s Lecture Series presents Jean-Michel Cousteau. Open to the public in Webb University Center at 7PM.

April 30th – May 3rd – American Geophysical Union Science Policy Conference. Dr. Larry Atkinson, CC/SLRI Coordinator, is an invited panelist. Registration required. Washington, DC

June 7th – A Community Conversation About Climate Change and Sea Level Rise in Hampton Roads with Dr. Kathryn Sullivan, Assistant Secretary of Commerce for Observations and Predictions, sponsored by ODU’s Office of the President and the CC/SLRI. Invitation only in Webb University Center Board of Visitor’s Room, 10am-3pm. Contact Liz Smith for more information: exsmith@odu.edu

October 14th-19th – Oceans’12 Marine Technology Society/IEEE Hampton Roads: *Harnessing the Power of the Ocean.* As Host University for this important conference, ODU is facilitating exhibit booth space and funding support for faculty and students. If you are interested in this opportunity, please contact Liz Smith exsmith@odu.edu for more information.

CC/SLRI-relevant courses at ODU

Early on in the initiative we wondered how many courses were being taught ODU that included some aspect of climate change and sea level rise. As with many aspects of the initiative we found that somebody was already looking at this. **Krista Harrell-Blair** (kharrell@odu.edu) is a Ph.D. Candidate in ODU’s Higher Education Program and the Sustainability Coordinator for the Sustainability Tracking, Assessment, and Rating System (<https://stars.aashe.org/>). Krista provided the following list.

College of Arts and Letters:

Department of Communication and Theatre Arts
Intercultural Communication Race and TV

Graduate Program in International Studies
Global Environmental Policy
International Migration and Refugees
World Population and Development

Department of Political Science and Geography
Seminar in International Resource Management
Spatial Analysis of Coastal Environments
Marine Geography
Coastal Geography
Europe
Africa
Asia
Latin America

Middle East

Department of Sociology and Criminal Justice
Violence Against Women

Department of Women’s Studies
Social Inequities
Globalization, Justice, & Human Rights
Diversity and the Criminal Justice System

College of Business & Public Adminin:

Department of Economics
Health Economics: A Global Perspective
Urban Economics
Natural Resources and Environmental Economics
International Economics

Department of Urban Studies and Public Administration
Environmental Planning

College of Education:

Department of Human Movement Sciences
Recreation and Tourism Studies:
Recreation and Natural Resources

College of Engineering and Technology:

Civil and Environmental Engineering
Environmental Pollution and Control
Air Quality
Sustainable Development
Pollution Prevention
Design of Coastal Structures

Mechanical Engineering
Energy Conservation

College of Health Sciences:

School of Community and Environmental Health
Community Health Program:
Introduction to Global Health
Critical Issues in Public and Community Health Administration

Environmental Health
Air Pollution and Its Control

Websites

The official ODU website for the initiative is at <http://www.odu.edu/ao/research/ccslri/>. If you have comments about it please let me know.

A SharePoint site, for ODU faculty and staff, will be on line soon.....

<https://odushare.odu.edu/research/CCSLRI>

Thanks to Dr. Karen Eck and Jim Raper for help preparing this update.

Epidemiology and Biostatistics
Water Pollution Control

Health Promotion and Education
Cultural Issues in Health Promotion and Education

College of Sciences:

Biological Sciences
Introductory Biology
Ethnobotany
Marine ecology
Environmental impact assessment
Ecosystem ecology

Ocean, Earth and Atmospheric Sciences
Introductory oceanography
Environmental Earth science
Environmental geology
Oceanography
Global Earth systems
Ocean and Earth sciences field study
Population ecology
Global environmental change
General aspects of hazardous waste management
Topics in marine environment policy
Environmental reading

Physics
Astronomy – includes co-evolution of climate
Life on Earth



**PARSONS
BRINCKERHOFF**

The Eastern Seaboard Intermodal Technical Applications Center (ESITAC) and Parsons Brinckerhoff invite you to join us for a half-day seminar at Hampton University
Climate Change and Sea Level Rise: How does it affect Transportation in Hampton Roads?



Wednesday, April 4, 2012

William R. and Norma B. Harvey Memorial Library,
Hampton University
Registration 7:30 AM • Seminar begins at 8:00 AM •
Seminar concludes at 12:30 PM
*Delicious Continental Breakfast Provided Courtesy of
Parsons Brinckerhoff*

Abstract: Although there is some debate about climate change, there is no debate about sea level rise or the effects it has on transportation networks. In addition, Virginia's waterways are important components of the regional economy, making this

area very susceptible to negative economic impacts of sea level rise. Part I of this half-day seminar will look at the causes of climate change and their impact on Hampton Roads' transportation network. Part II will be a brainstorming session between industry leaders and students on how to address these issues. Part III will contain presentations how the private and public sectors are working on addressing the issues. Part IV will be a panel discussion comprised of our distinguished guests.

Format: Parts I and III will be presentations. Part II is a group participation exercise; Part IV is a round table discussion. Course is currently undergoing process for CEU/CM credit approval. Stay tuned.

Cost: None

RSVP: Required and seating is limited. Contact Joseph Curtis (757-466-9622; curtisj@pbworld.com) for details. Parking pass is required to park at the University, which will be provided with registration.

Invited Speakers and Panelists include:

- David Pezza, Doctorate of Engineering Candidate, Old Dominion University, Norfolk, VA
- Ben MacFarlane, Regional Planner, Hampton Roads Planning District Commission, Chesapeake, VA
- Lewis White, Senior Water Quality Specialist/Hydrologist, Parsons Brinckerhoff, Norfolk, VA
- Ismail Karatas, PhD, Senior Engineer, Parsons Brinckerhoff, New York, NY

Hosts:

- Joseph Curtis, Transportation Planner, Parsons Brinckerhoff, Norfolk, VA
- Professor Carey Freeman, Chair, Department of Aviation, Hampton University
- Suzanne Johnson, Director of Sustainability, Parsons Brinckerhoff, Herndon, VA

Hot Issues



INSTITUTE FOR ETHICS AND PUBLIC AFFAIRS

The Ethical and Social Aspects of Climate Change

**Sponsored by ODU's Institute for Ethics and Public Affairs (IEPA) and
Climate Change and Sea Level Rise Initiative (CCSLRI)**

Panelists: ***Justin Biddle***

Assistant Professor, Department of Philosophy, Georgia Institute of Technology

Joyce Hoffman

Associate Professor, Department of English, Old Dominion University

Burton St. John

Assistant Professor, Department of Communication and Theatre Arts, Old Dominion University

Moderator: ***Joseph F. Bouchard***

Board of Directors, Virginia Conservation Network

March 29, 2012 at 7:30 pm

Chandler Recital Hall

Diehn Fine and Performing Arts Building