Mid Atlantic Coastal Resilience Institute (MACRI)

The Path Forward

University of Delaware
Integrating Coastal Flood Research, Modeling and Monitoring to Improve Coastal Resiliency in the Mid-Atlantic Workshop
Vulnerability to Sea Level Rise
Mid-Atlantic Coastal Resilience Institute

• **Vision**
  – The Mid-Atlantic will be the best understood coastline in the United States and a destination for coastal science research and public policy integration for coastal resilience worldwide.

• **Purpose/Outcome**
  – The Mid-Atlantic Coastal Resilience Institute will be the platform to combine and leverage the capabilities of participating institutions to provide an unprecedented integration of science and its applications to understand, predict, and integrate resilience for both human and natural coastal communities into local, state, and regional policy planning.

• **Objectives**
  – Leverage combined research technology and asset capabilities of partners
  – Create an unprecedented, multi-variable prediction model using world-class satellite, in-situ, and precision-scaled data to assist local decision-makers
  – **Allow local and regional stakeholders to provide recommendations** for MACRI research objectives
Mid-Atlantic Coastal Resilience Institute

- NASA Goddard Space Flight Center
- Chincoteague Bay Field Station of the Marine Science Consortium
- College of William and Mary
- The Nature Conservancy
- University of Delaware
- University of Maryland
- University of Virginia
- U.S. Fish and Wildlife Service
- U.S. Geological Survey

New Members: Old Dominion University, Rutgers University, and National Park Service
Mid-Atlantic Coastal Resilience Institute

• Inaugural workshop held on August 28, 2014
• Discussions on communication, strategic planning, and opportunities for collaboration
• Created working groups whose deliverables will feed into the Strategic Plan
  – Inventory of assets and research projects
  – Stakeholder advisory group roles and members
  – Communications and outreach
• Established short-term goals
  – Synthesis of remote sensing capabilities and data
  – Validation of Global Precipitation Monitoring Mission
  – Extension of Coastal Flood Monitoring System
Next Steps

- Finalize Agreement for ODU, Rutgers, and National Park Service membership
- Strategic Plan session late October/Early November
  - Research themes
  - Advisory group/stakeholder participation
  - Communication/governance
- Ongoing collaboration for National Toolkit Applications and Whole of Government Approach to Climate Resilience
- Collaborative research opportunities: introducing IBIS
Proposed Research Themes

• Seaside barrier island system dynamics and evolution
• Marsh migration
• Sea level rise and storm surge
• Climate change effects on biodiversity and human health
IBIS – Integrated Barrier Island System Project

Source: GISS
http://www.giss.nasa.gov/research/features/201508_risingseas/wallops_oli_2015206.jpg
IBIS – Integrated Barrier Island System Project

IBIS is a long-term (5+ year) project which will include the following elements of study along the coastlines of Assateague Island and Wallops Island:
- Establishment of a high-resolution in situ observation system;
- Coastal (including shallow-water) LiDAR;
- Coastal and back-bay bathymetry;
- Historical barrier island movement;
- Geology of barrier islands;
- Local sediment transport;
- Biodiversity of barrier islands with different management strategies;
- Unmanned aerial vehicle and unmanned submersible vehicle use for remote sensing;
- Barrier island management strategy effects and effectiveness;
- Upscaling to LandSat data; and
- Downscaling from cubesat data.

This project would be managed the MACRI and would include the following partners:
- NASA
- USACE
- USFWS
- USGS
- VIMS
- Accomack-Northampton Planning District Commission
- Chincoteague Bay Field Station
- TNC
- Town of Chincoteague
- Mid-Atlantic Aviation Partnership Association for Unmanned Vehicle Systems International
Wallops Island: Launch Range and Living Laboratory
Coastal Resilience Modeling Tool

- Currently aligning existing datasets, multiple disciplines, and both local and regional expertise to create a coastal resilience model scaled for Wallops Island as a beginning
- In the future, the model will expand to include, and be ground-truthed in, the other barrier islands in the Mid-Atlantic, owned by our partners
- The end goal is a tool that can be used by decision-makers in any of the nation’s coastal areas
Coastal Resilience Modeling Tool

- Goddard is excited to lead efforts in developing this tool
- Wallops is the ideal testbed – a living laboratory
- We will get it right at Wallops so that local decision-makers everywhere can get it right at home
- Planning to expand the tool from Wallops Island to the barrier islands north and south
- Aiming for inclusion in the White House National Security Council’s Climate Toolkit