Coastal Resilience at NASA Wallops
Bill Wrobel, Director
Wallops by the Numbers

- Annual Budget: $250M
- Estimated economic impact: $802.1M and 5,693 jobs U.S.-wide
- $1.2B in assets on Wallops Island
- 280 NASA civil servants, 800 contractors, 600 tenant personnel
  - U.S. Navy
  - NOAA
  - Virginia Space
  - U.S. Coast Guard
The Wallops Mission:

Wallops provides agile, low-cost flight and launch range services to meet gov't and commercial sector needs for accessing flight regimes worldwide from the surface to the Moon and beyond.
Our Approach to Coastal Resilience

- Only essential functions on the Island
- No critical infrastructure below 11-feet above mean sea level
- Shoreline Protection
Wallops Shoreline Protection Project

- 5 years of planning; w/Army Corps of Engineers
- 3.2 million cubic yards of sand
- Outward beach expansion: 250 feet (+200 feet subaqueous) over 19,600 feet of coastline
- $40 million investment protecting $1.2 billion in assets
Shoreline Protection Put to the Test

- Hurricane Irene
  - August 2011
  - Max Winds: 62 mph
  - Total rain: 6.62”
  - Wachapreague height above mean lower low water (MLLW): 8.40’ (or, about 4 feet of storm surge)

- Hurricane Sandy
  - October 2012
  - Max Winds: 68 mph
  - Total rain: 8.48”
  - Wachapreague height above mean lower low water (MLLW): 8.40’ (or, about 4 feet of storm surge)

- In sum, similar storms with one critical difference: Shoreline Protection (beach/seawall) in place for Sandy, not Irene
Hurricane Irene: One hour before high tide

- Seawall is breached; HIF/Island road and buildings flooded; power is out; no work could be accomplished for several days
Hurricane Sandy: One hour before high tide

- No breach; beach and seawall are absorbing wave energy; no roads or buildings flooded; power is on; work resumes the next day
Post-Hurricane Sandy

- About 20 percent of the beach lost
- Sandy Supplemental: $11.34 million for an out-of-cycle renourishment
- 650,000 cubic yards of sand
- Another replenishment in FY 2019
Mid-Atlantic Coastal Resilience Institute (MACRI)

- MACRI 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
- First MACRI investigation conducted at Wallops in September