

2009 AMS Public-Private Partnership Forum

DHS Science & Technology

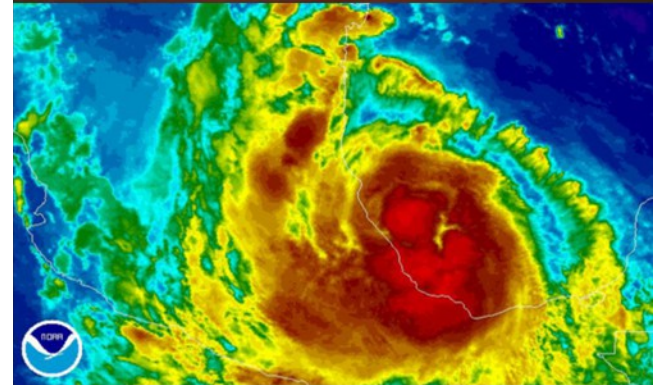
Directorate Brief

21 April 2009 • Washington D.C.

Mr. William D. Laska

Making the Nation Safer: Challenges and
Opportunities in Science and Technology

Department of Homeland Security
Science and Technology Directorate



Homeland Security



Homeland Security Mission



Natural disasters are a continuing threat to the security of the United States

Potential loss of life, physical devastation, economic impact and loss of public confidence posed by a major hurricane could be as detrimental to the United States as any terrorist attack

Threats are significant and the magnitude of the impacts are increasing. In limited cases it may be possible to proactively mitigate their destructive effects



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Weather In-Situ Deployment Optimization Method (WISDOM) NOAA/DHS Partnership

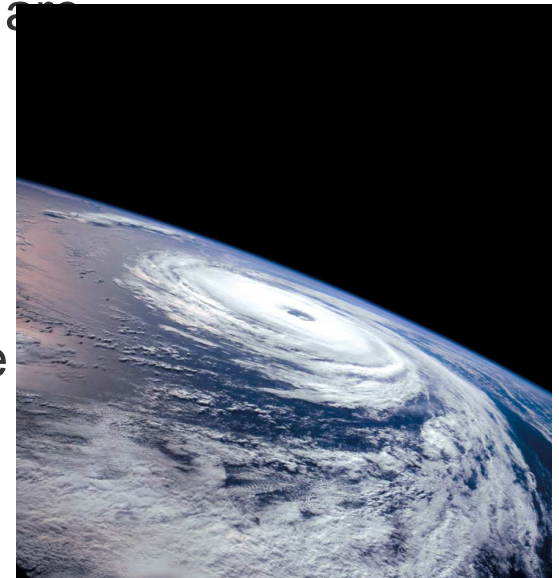
- Improve the 3 to 7 day predictions of Atlantic hurricane track and intensity by deploying specialized balloons into important data sparse regions of the atmosphere.
- "Super-pressure" balloons will rise to a specified altitude and float along the previously estimated trajectory into the targeted region.
- Each balloon will carry a mini (100 gram) GPS unit, atmospheric measuring devices, and transmitters to send location and weather data at regular intervals to satellite or surface receivers.



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Hurricane Aerosol and Microphysics Project (HAMP)

- Investigate the microphysics underlying the formation of hurricanes to improve forecast capability. Successful understanding of the microphysics should result in a better understanding of the forces behind the wind effects.
- Quantitatively test most promising hurricane mitigation hypotheses by means of rigorous numerical simulations that are interactive with and validated by hurricane observations
- Coordinate/Use data from WISDOM and UAS projects and NOAA aircraft missions that provide data in support of the hypotheses



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Rapid Repair of Levee Breaches

- Research, develop, and demonstrate technologies to rapidly repair breaches in levees to stop the flow of water through a breach within a few hours after the formation of a breach.
- Developed and tested by Army Corps of Engineers, successfully demonstrated to stop a leak of a roughly 1/4 scale model of the size required to prevent a repeat of the Hurricane Katrina size failures
- Will be fully operational by 2010



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FROM SCIENCE...SECURITY

Explosives



Chemical/Biological



**Command, Control, &
Interoperability**



Borders/Maritime



Human Factors



Infrastructure/Geophysical



FROM TECHNOLOGY...TRUST