

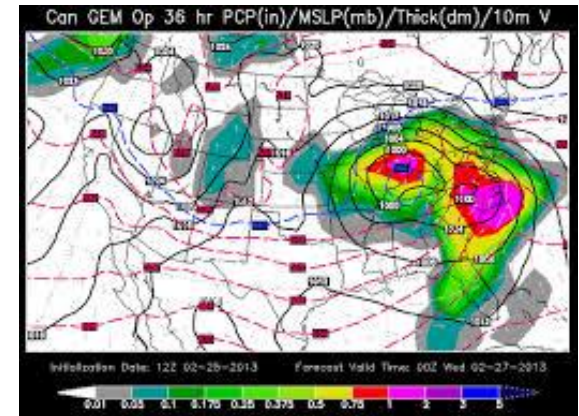
How to Predict the Future

Amy Freeze, WABC-TV New York
AMS Certified Broadcast Meteorologist
MES, University of Pennsylvania



Forecasting

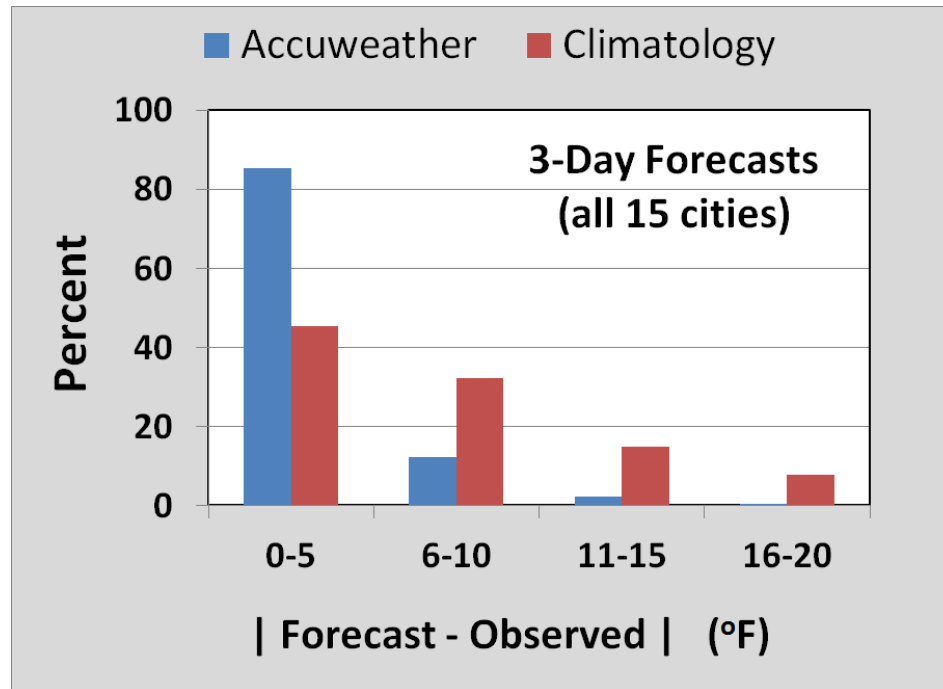
How Weather Prediction Works



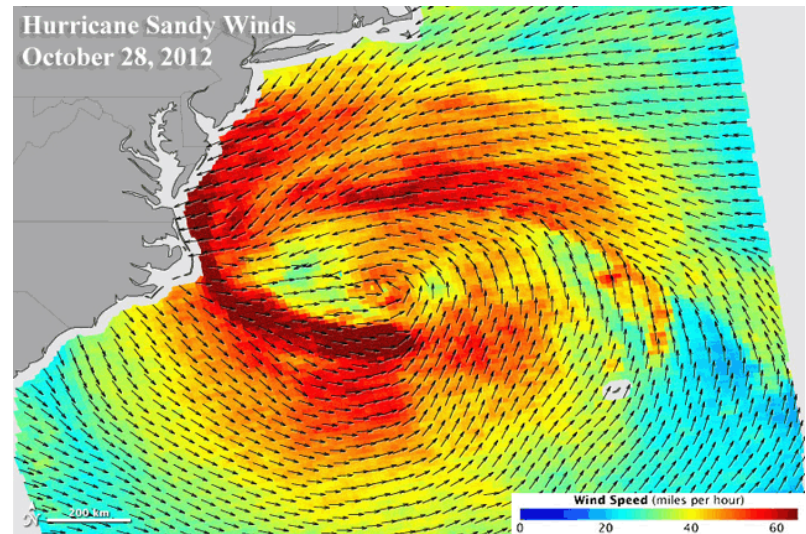
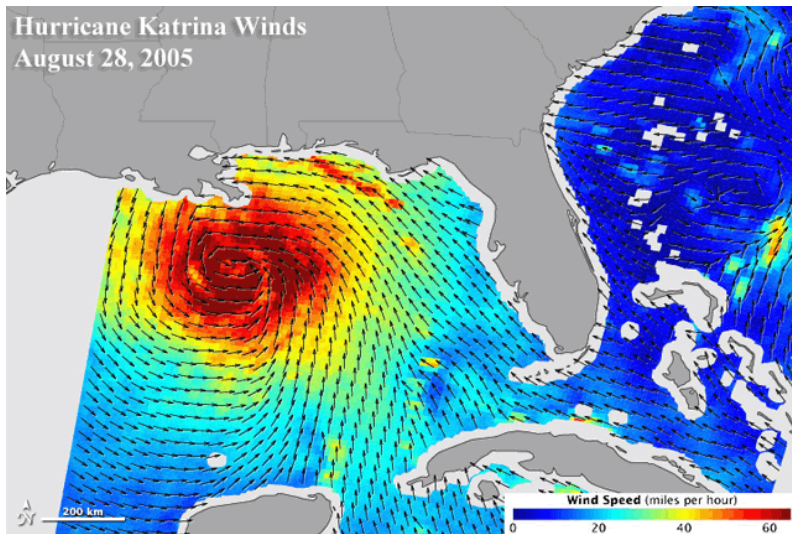
- Better Technology, Better Skill
 - Chance of Death by Lightning
 - Tornado Warning Times
 - Hurricane Path/Landfall Predictions
 - Flash Flood Warnings



Accuweather vs. Climate Data



Superstorm Sandy



[Storm Coverage WABC-TV New York](#)



Call to Action vs *Calming Voice*



👉 Forecast

- 👉 Predictions
- 👉 Impacts
- 👉 Warnings
- 👉 Experience Bias

👉 Verification

- 👉 [Before/After](#)

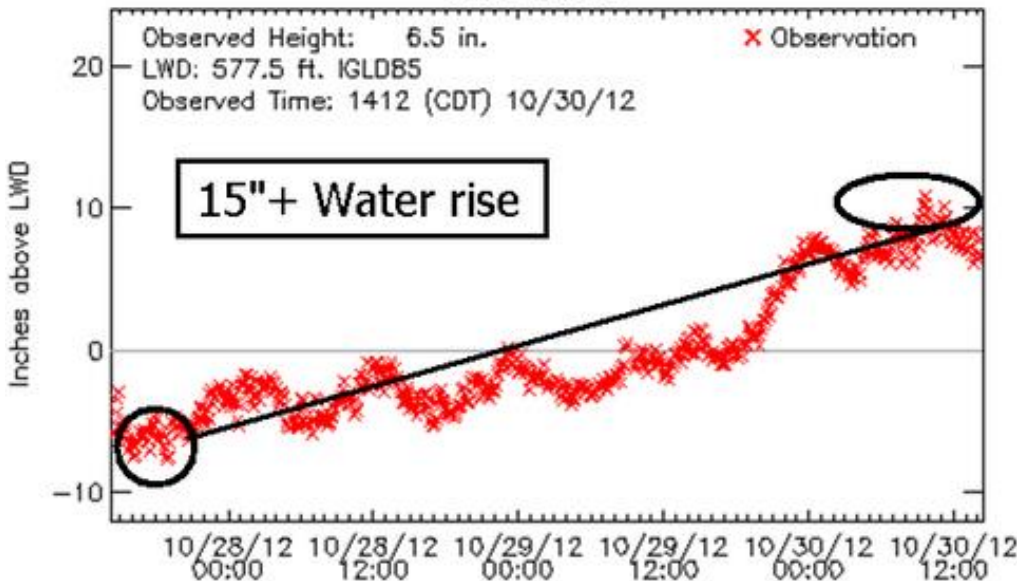
The New Normal

- Infrastructure Changes
 - Population Change
 - Temperature Rise
- Frequency of Storms
- Intensity and Duration
 - Sea Level Rise
 - Information Age



Expect the Unexpected

9087044 Calumet Harbor, IL
Water Levels



- ◆ As a 600-mile wide tropical system Sandy sent winds across Lake Michigan gusting to 64 mph which produced two-story-tall waves at the shoreline.
- ◆ The southern end of Lake Michigan experienced a lake level rise of 15 inches as the winds pushed water down the lake. Lake Huron experienced 23-foot waves and a wind gust of 74 mph was recorded at Port Gratiot at the southern end of the lake.



How to Predict the Future

- ◆ Expert Prognosticators “Dr Doom”
- ◆ Technology Advancements
- ◆ Computer Modeling/Futurecasting
 - ◆ [100 Year Flood Zones](#)
 - ◆ [NYC New Evacuation Zone](#)

Initial Conditions

◆ “Butterfly Effect”

chaos
theory





The Secret to Future Guessing

YOU DON'T NEED ALL THE
ANSWERS YOU ONLY NEED TO
ASK THE RIGHT QUESTIONS



Stormwater Action Alert Program

Three specific objectives that relate to how much runoff is going down the drain include: reducing the amount of water going into the sewer system during high runoff events (help lessen CSOs,) minimizing the pollution that happens in stormwater runoff, and use of stormwater as a resource. These three objectives can be broadly conveyed to the community with 3 Rs:

- ◆ Ration Water Consumption
- ◆ Reduce Use of Pollutants
- ◆ Redirect Runoff

Storm treatment facilities have extensive databases that could lead to more information about how drainage happens and how the rationing, reducing, and redirecting can be the most effective. Their database provides a wealth of information about the geography and drainage rates for specific areas, according to their geographical parameters. Alert can be defined and issued according to specific parameters defined by the MWRD database. The alert should suggest an action that will help reach the objectives (3 Rs above) for protecting water quality.

“The empires of the future
are the empires of the mind.”

- *Winston Churchill*



Thank You!

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WABC-TV

Stormwater Action Alert Program Huffington Post

Stormwater Action Alert Capstone Project