



Weather Support for High Profile Events

NOAA's National Weather Service (NWS)
New York, NY Office

Gary Conte, Warning Coordination Meteorologist
Brandon Smith, Lead Forecaster



National Weather Service New York, NY

- ◆ Brookhaven National Laboratory (Long Island)
- ◆ Staff of 27 professionals provide “local” warning, forecast, and observation services 24 hours/day, 365 days/year





AWIPS Work Station



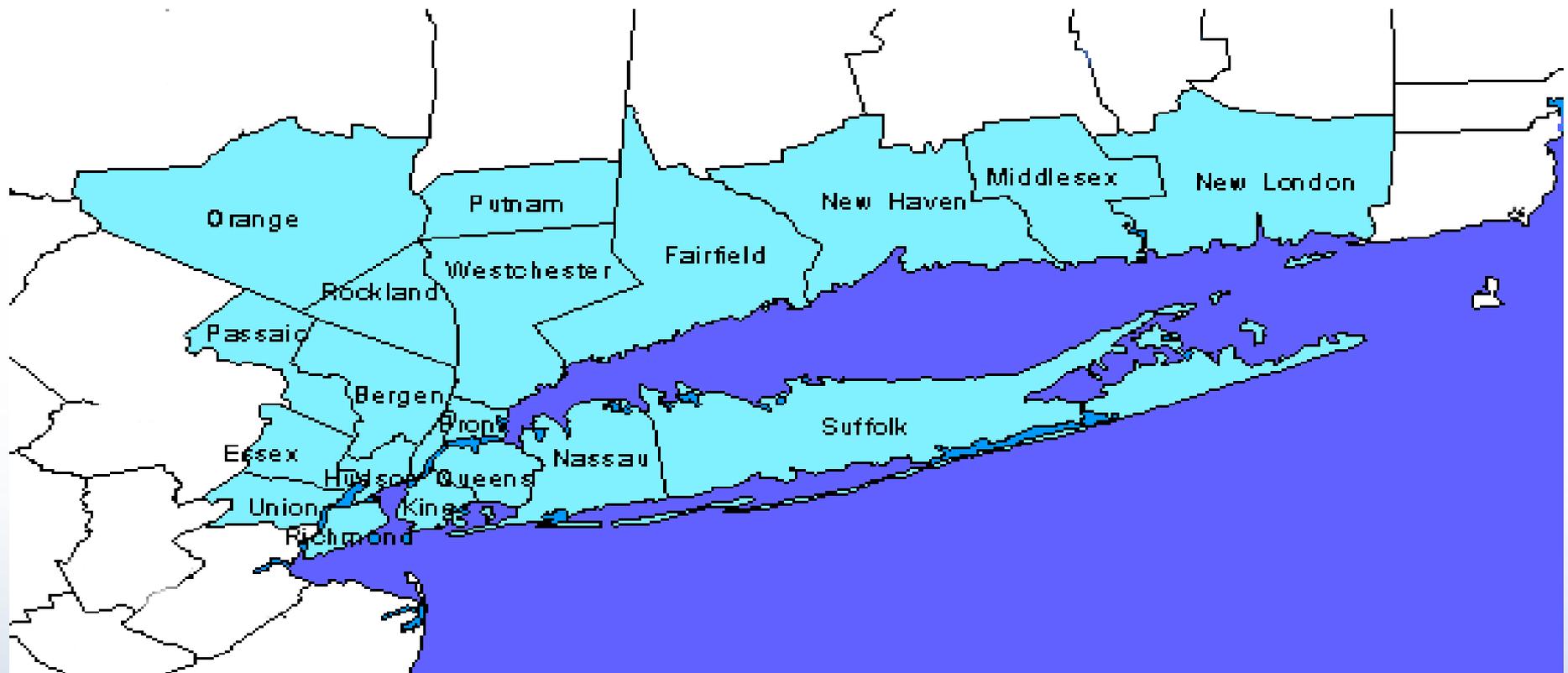


Meet Our Staff





Service Area



Population: ~ 18.6 Million



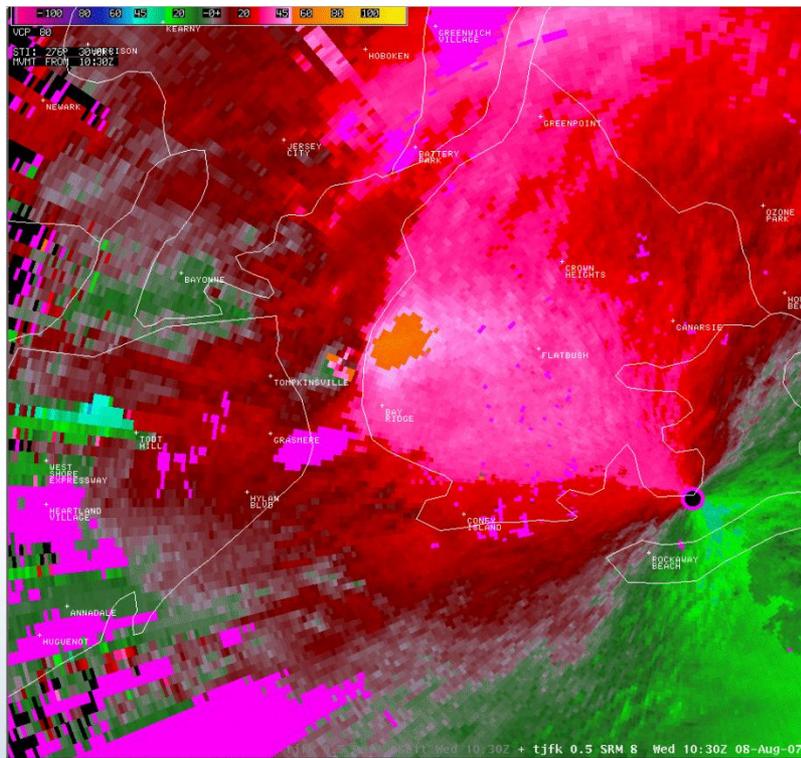
New York City: 8 Million Plus





High Profile NYC Weather Events

EF2 Tornado in Brooklyn, NY 8/8/07



JFK FAA Radar @ 6:30 am



High Profile NYC Weather Events

Flash Floods in NYC 8/8/07



Total Rainfall 2-3.5"/Hr.





Aviation Incidents





Marine Incidents





Multi-alarm fires or Sensitive Locations





Building Collapses



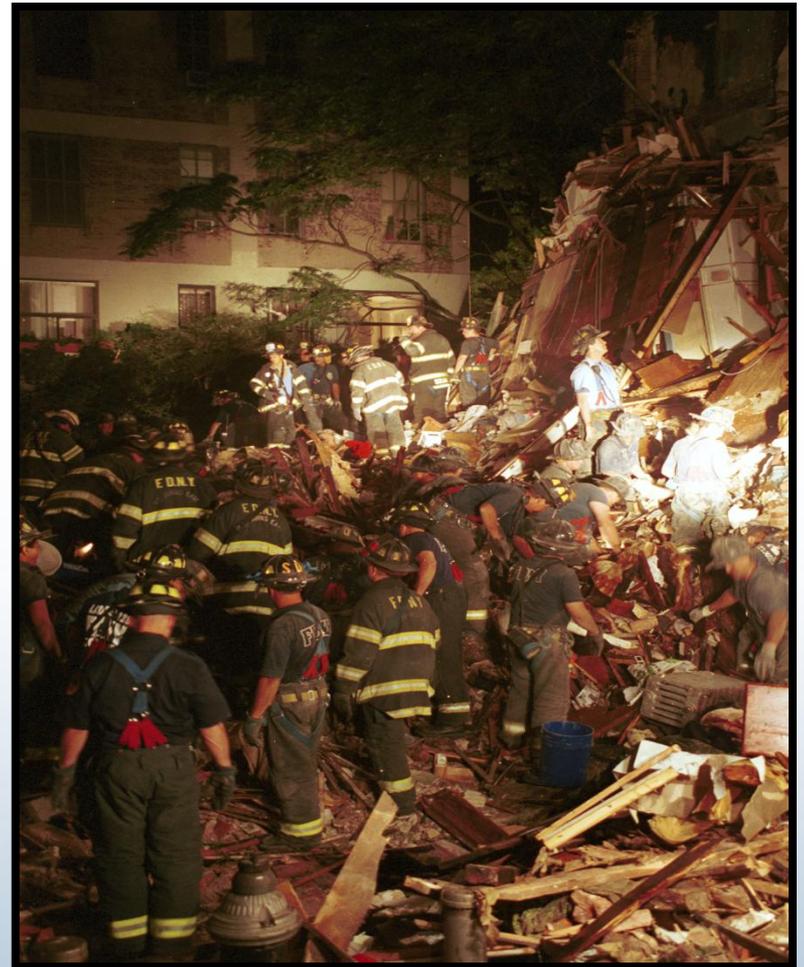


Infrastructure Emergencies





Gas Explosions



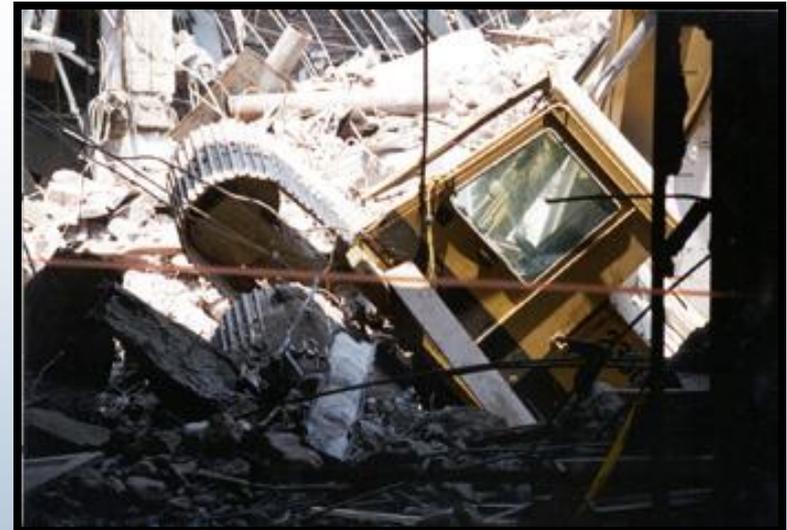


Watermain Breaks



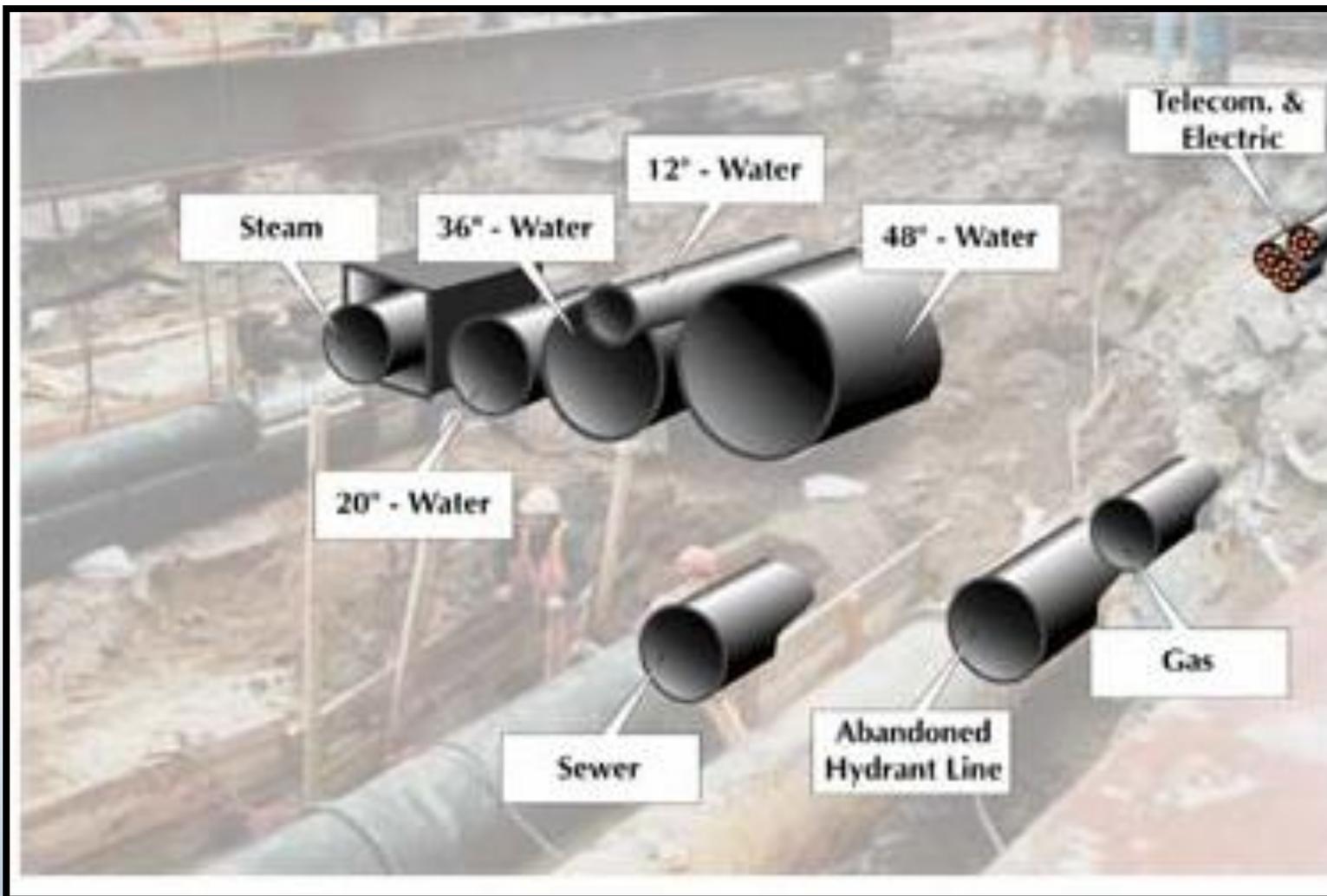


Construction Accidents





Utility Emergencies



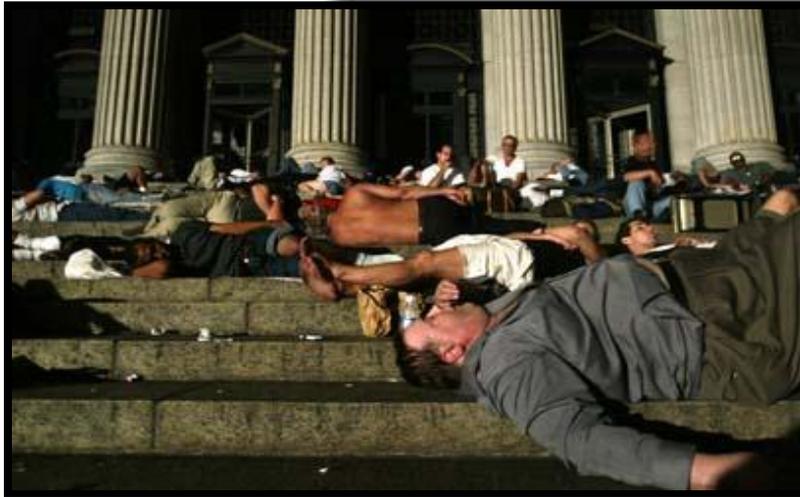


Telecommunications Outages





Electric Service Disruptions





HAZMAT Incidents



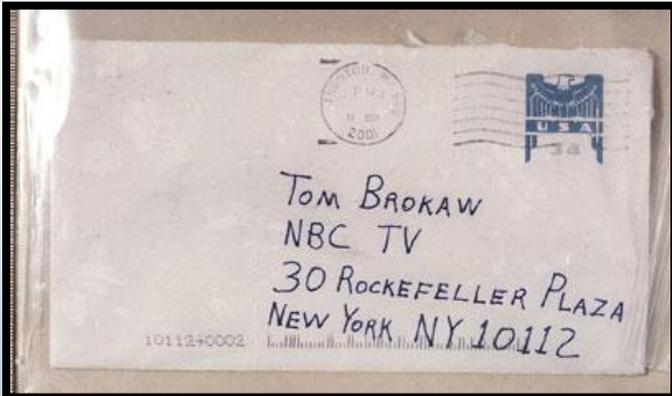
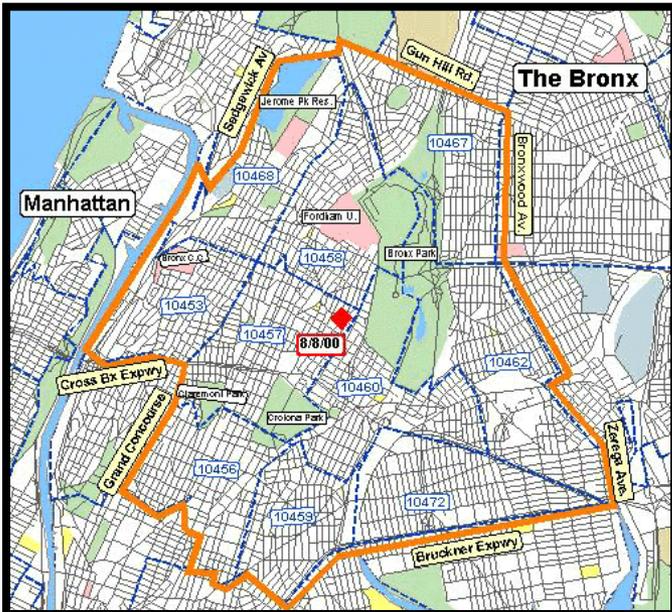
GETTY IMAGES



AP



Public Health Emergencies





Weather Related Incidents

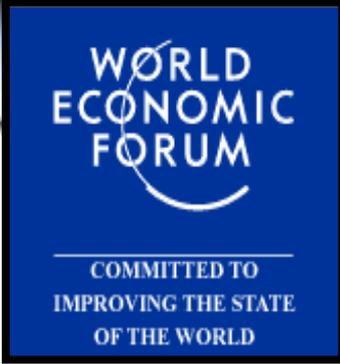
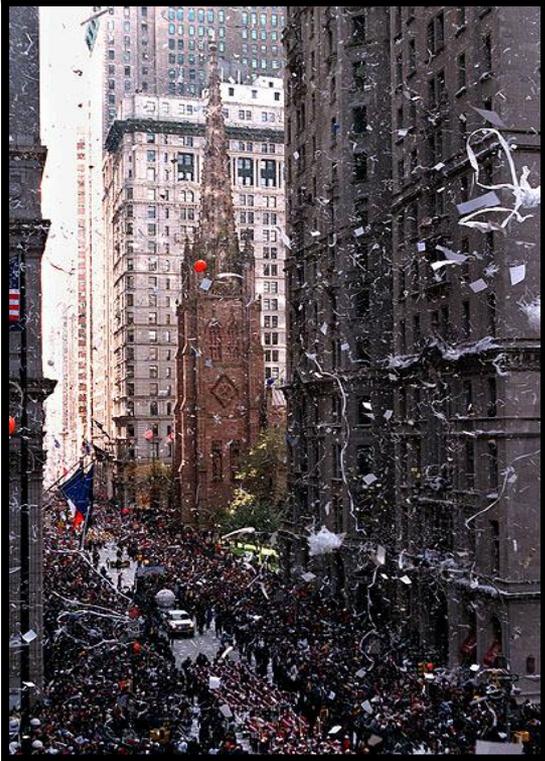




Sensitive Locations



NY Yankees 1996



Special Events





Others???????????





High Profile NYC Metro Events

- ◆ 9/11 Changed the World: 9/11/01- Now
- ◆ Republican National Convention:
8/27 – 9/3/04
- ◆ Annual Macy's Thanksgiving Day Parades
- ◆ Presidential Debate: 10/15/08



Decision Support Service for 9/11



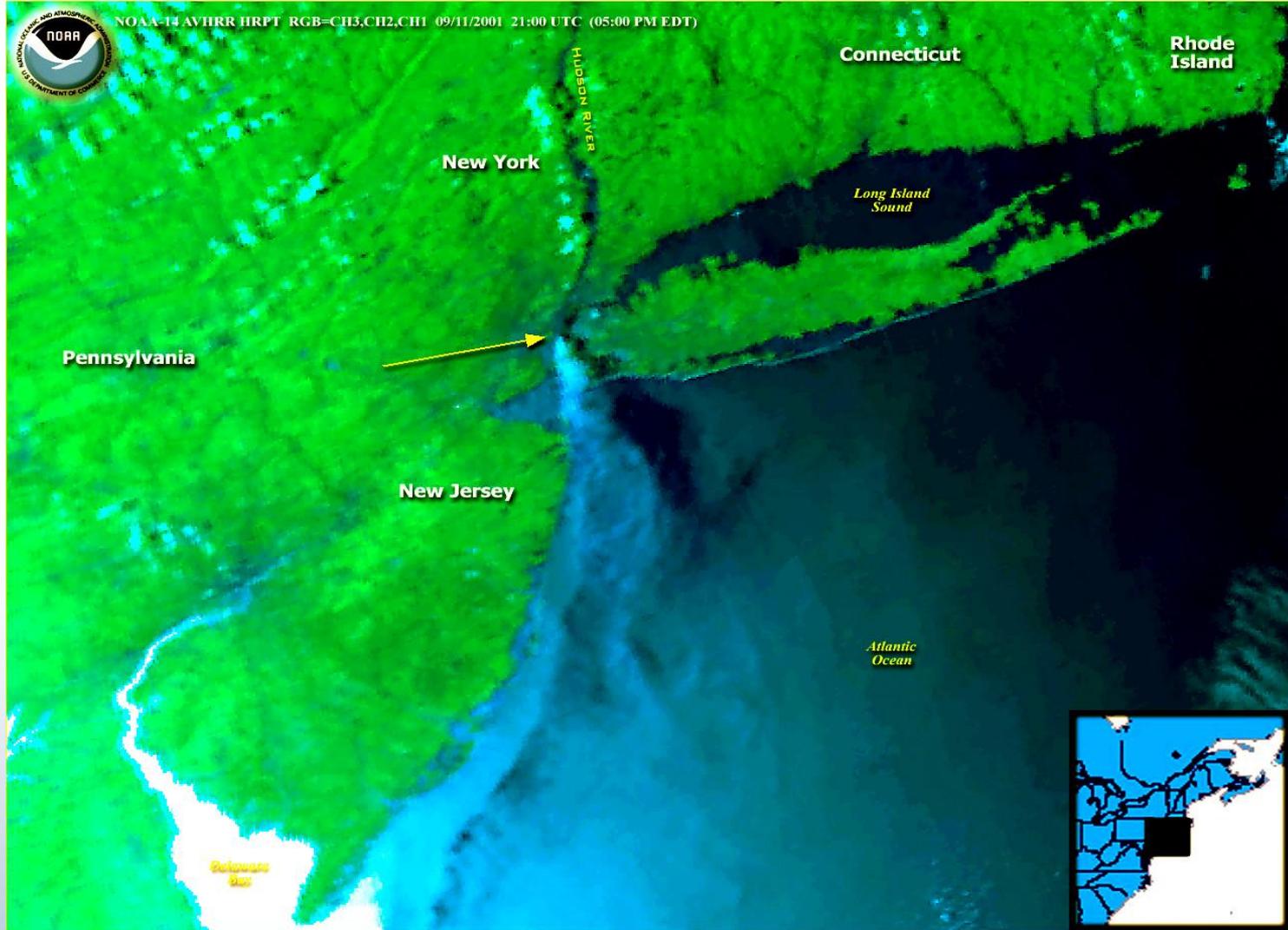






A large smoke and debris plume (light blue haze), indicated by the yellow arrow, is seen emanating from Manhattan Island, New York.

CREDIT: NOAA

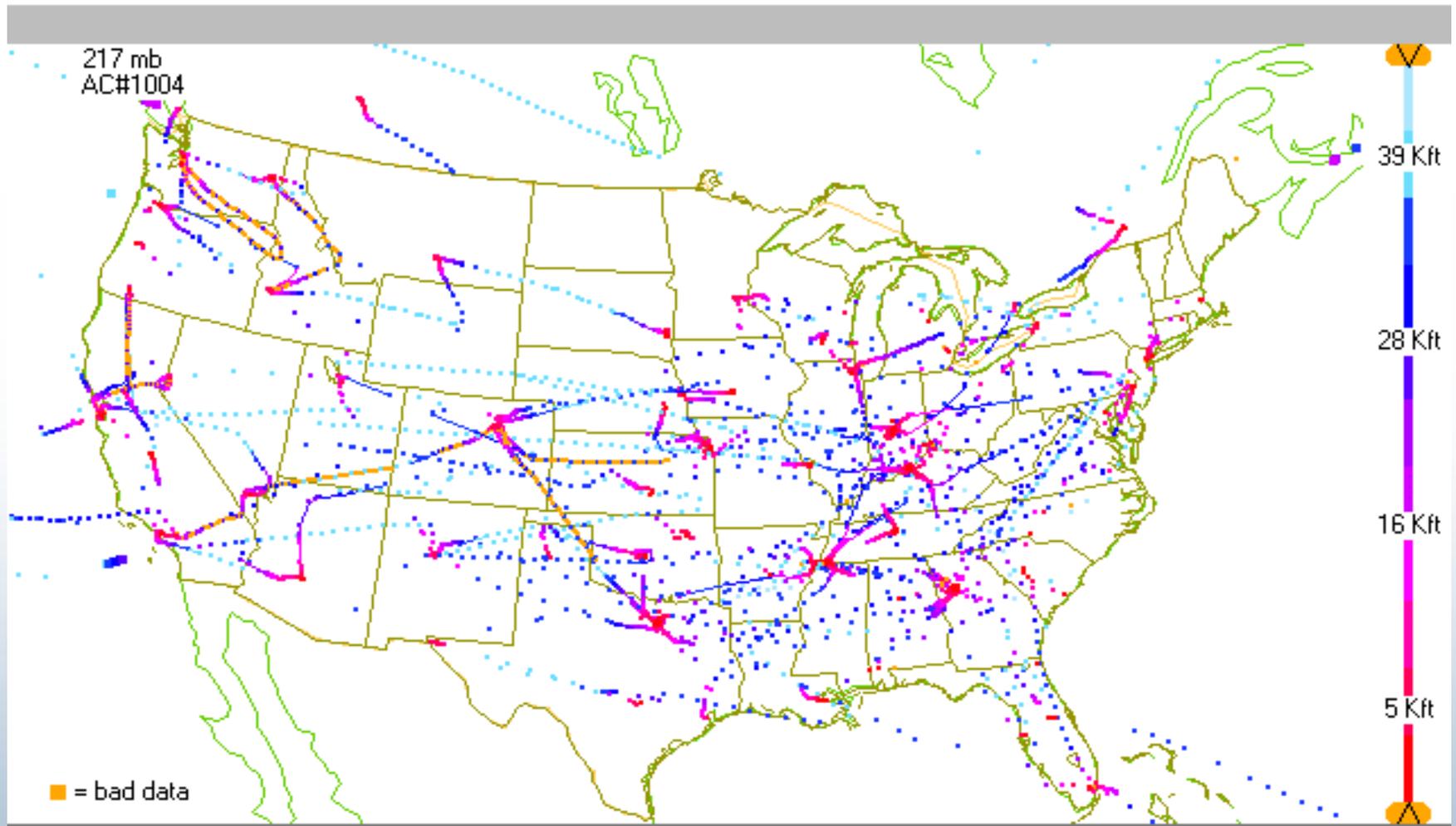




ACARS Upper Air Data 9/11/01; 9 am to Noon

Loaded: 11-Sep-2001 13:00:00 -- 11-Sep-2001 15:59:46 (8627 obs, 4277 displayed)

Altitude range shown: -1000 ft. to 45000 ft. (Change using color bar at right.)

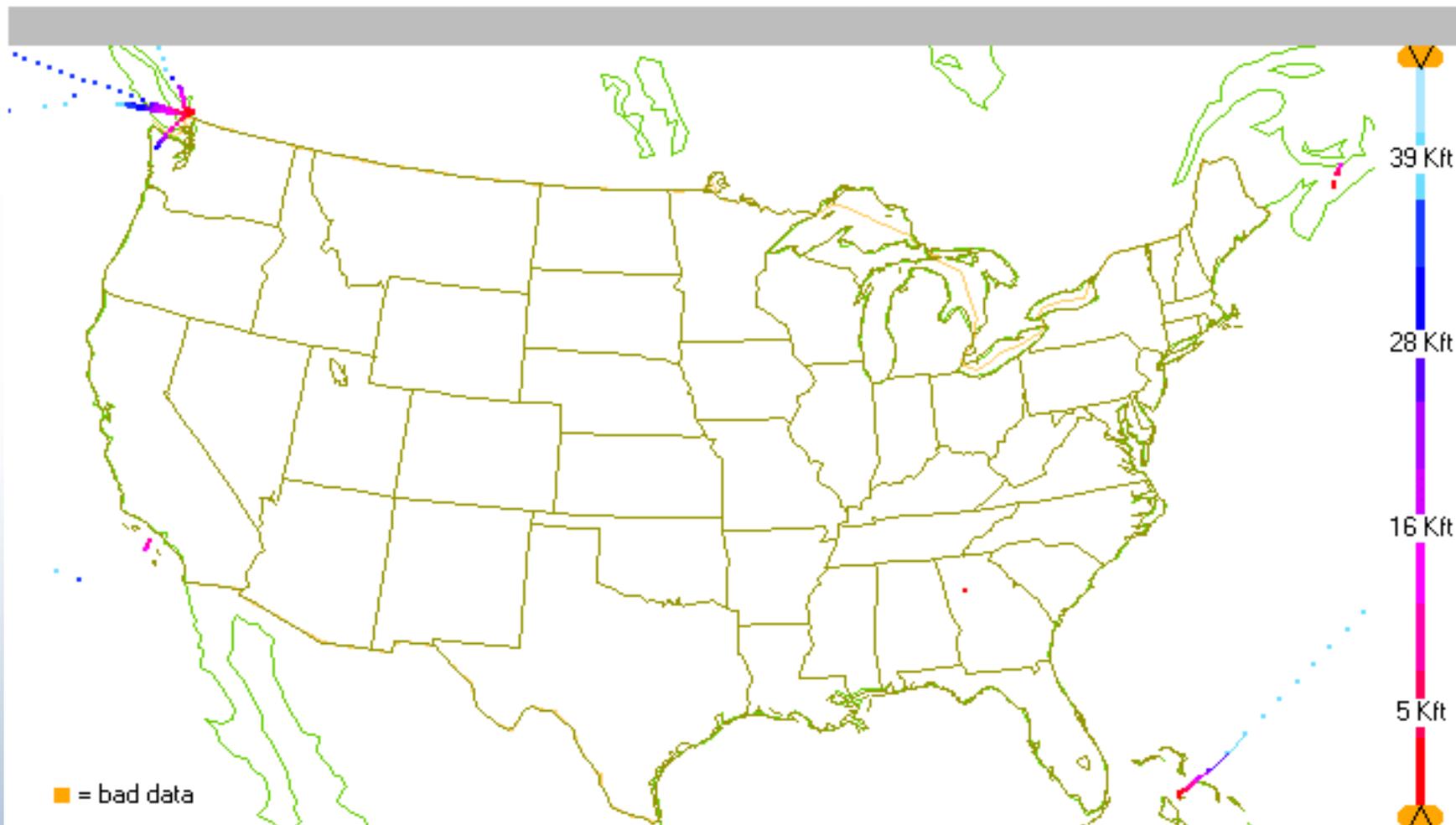




ACARS Upper Air Data 9/11/01; Noon to 3 pm

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Altitude range shown: -1000 ft. to 45000 ft. (Change using color bar at right.)

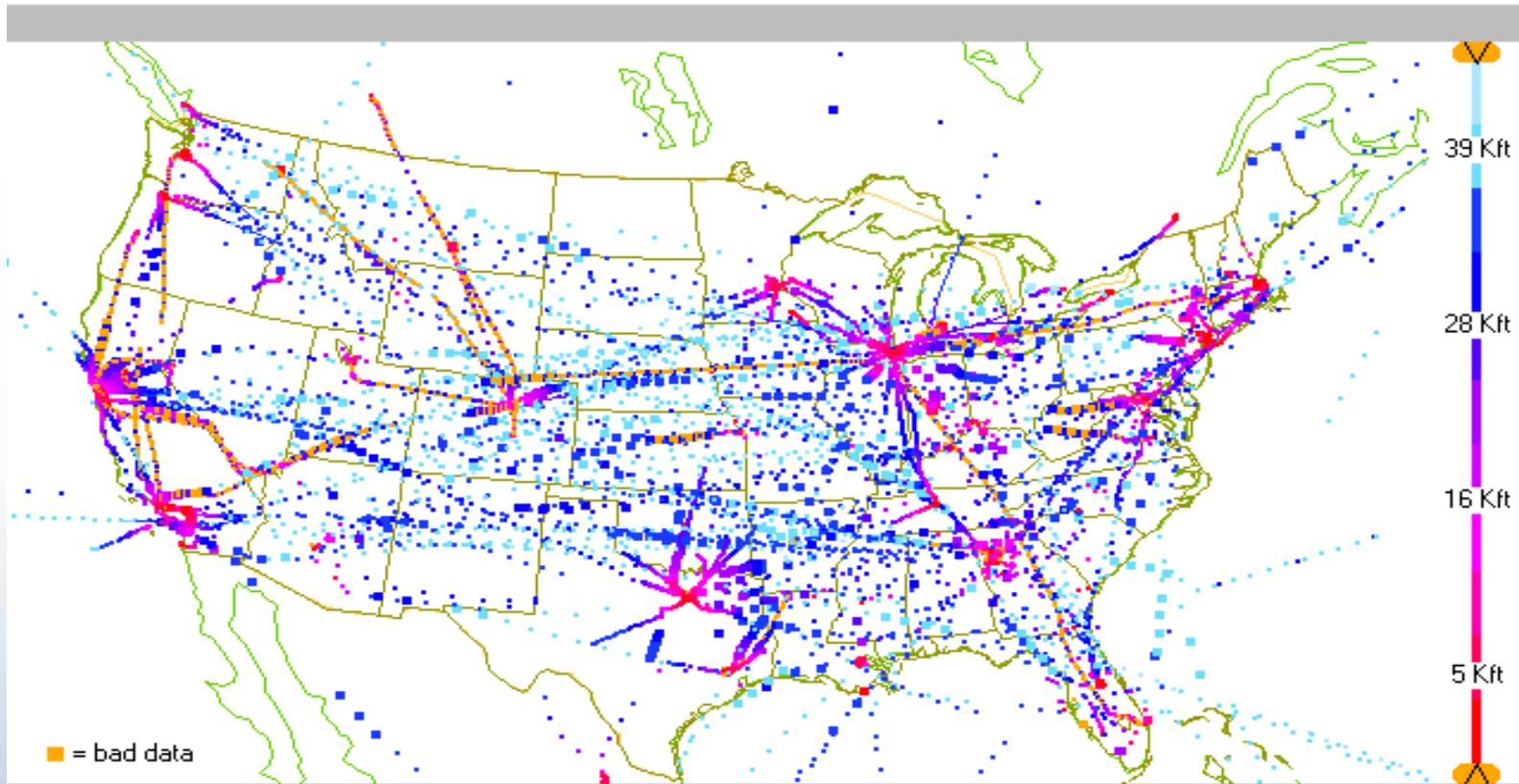




ACARS "Normal" Data Flow 9/10/01; Noon to 3 pm

Loaded: 10-Sep-2001 16:00:00 -- 10-Sep-2001 18:59:50 (13103 obs, 8559 displayed)

Altitude range shown: -1000 ft. to 45000 ft. (Change using color bar at right.)



148 world map segments loaded in 0.6 seconds

588 airports loaded in 0.1 seconds

Aircraft loaded: 570 regular, 12 g (bogus), 33 edr, 14 vapor, 30 vertGust

Aircraft loaded: 99 regular, 0 g (bogus), 0 edr, 1 vapor, 31 vertGust

Aircraft loaded: 535 regular, 13 g (bogus), 25 edr, 1 vapor, 39 vertGust





NWS Services

6 Months for Response and Recovery

- ◆ Telephone Briefings, Faxes and Products Distributed to Many Agencies:
- ◆ Federal – FEMA, EPA, NOAA HAZMAT
- ◆ Regional – Port Authority NY/NJ
- ◆ State - NYSEMO
- ◆ City – Command Posts, OEM, Debris Removal Team
- ◆ Counties – Local Emergency Managers







NYC OEM Weather Requirements

- ◆ Precipitation, Especially Thunderstorms
 - Start and End Times
 - Storm Total
 - Highest Hourly Rates

- ◆ Wind Speed
 - Sustained at 20 mph or Gusts above 35 mph for Safe Operation of Cranes

 - 200 Foot Cranes had Anemometers on Booms with Display Monitors in Cabs



Faxed Forecasts to 14 Agencies

- ◆ Routine Forecasts
 - Text Forecast: 1 Page, Widely Used
- ◆ Experimental Graphical Forecasts
 - Short Term
 - Weekly Quick Cast



Experimental Graphical Tabular Forecast



Your NATIONAL WEATHER SERVICE forecast for

NEW YORK (MANHATTAN) NY

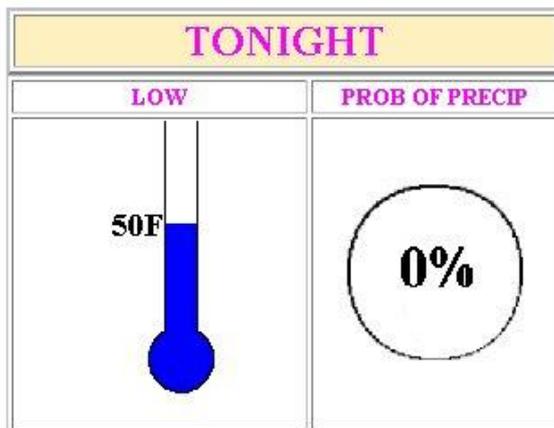
ISSUED 338 PM EDT TUE OCT 9 2001



Experimental

Click on column header for description.

WEEKLY QUICKCAST



TIME	Temp	Dew Point	Rel Hum	Sky	Wind Dir	Wind Spd
7PM	56F 	34F 	43%		 SW	10
10PM	53F 	38F 	57%		 SW	8
1AM	51F 	40F 	66%		 SW	5
4AM	50F 	41F 	71%		 SW	5



Experimental Weekly Quick Cast

 Your NATIONAL WEATHER SERVICE forecast for
NEW YORK (MANHATTAN) NY
 ISSUED 338 PM EDT TUE OCT 9 2001 

Experimental

[GO TO 3 HOURLY GRAPHICAL FORECAST](#)

	Min Temp	Max Temp	Midnight Sky	Midday Sky	Weather	Night PoP	Day PoP	Wind (mph)	Wind Dir	Max RH	Min RH
WEDNESDAY	50F 	70F 			 SUNNY	0% 	0% 	5 to 10	 SW	 71%	 44%
THURSDAY	56F 	72F 			 SUNNY	0% 	0% 	8 to 12	 SW	 80%	 61%
FRIDAY	60F 	72F 			 PARTLY CLOUDY	0% 	0% 				
SATURDAY	59F 	71F 			 MOSTLY CLOUDY	0% 	0% 				
SUNDAY	57F 	68F 			 MOSTLY CLOUDY	30% 	30% 				



Faxed Forecasts to 14 Agencies

- ◆ Unscheduled Forecasts
- ◆ Increased Short Term Forecasts
- ◆ Tropical Cyclone Products
- ◆ Hurrevac Track Forecasts



Short Term Forecast

SHORT TERM FORECAST

NATIONAL WEATHER SERVICE NEW YORK NY

1155 PM EDT THU SEP 13 2001

CTZ005-NJZ006-NYZ068-070>076-140600-

BRONX NY-HUDSON NJ-KINGS (BROOKLYN) NY-NEW YORK (MANHATTAN) NY-QUEENS NY-
RICHMOND (STATEN IS.) NY-SOUTHERN WESTCHESTER NY-

.NOW...

...SHOWERS AND THUNDERSTORMS HEADED TOWARD THE AREA...

A BAND OF SHOWERS AND THUNDERSTORMS WILL MOVE EAST ACROSS THE AREA BETWEEN MIDNIGHT AND 2 AM. ALTHOUGH MOST RAINFALL RATES WILL BE LESS THAN ONE QUARTER INCH PER HOUR...A FEW STORMS WILL PRODUCE RATES BETWEEN ONE HALF AND ONE INCH PER HOUR. HEAVIER DOWNPOURS WILL LEAD TO PONDING OF WATER IN POOR DRAINAGE AND LOW-LYING AREAS. A FEW STORMS WILL ALSO PRODUCE FREQUENT LIGHTNING STRIKES.

\$\$

GC



NOAA Weather Radio

- ◆ Main Command Posts Monitored
NOAA Weather Radio
- ◆ Several Regularly Scheduled Required
Weekly Tests (RWT) Were Canceled as per
Coordination with the NYC OEM



Meteorological Support

- ◆ Evaluated Citing of Supplemental Wind Sensors Around Ground Zero
 - 10 Sensors Provided by EPA and BLM (Bureau of Land Management) Placed on Different Structures and Elevations
 - Co-Located with EPA Sensors to Forecast Dispersion of Asbestos and Particles
- ◆ Provided Forecast Support for Smoke Plume Across Lower Manhattan and Staten Island



Plume Modeling

- ◆ Environmental Protection Agency
- ◆ NOAA HAZMAT
- ◆ NIST
- ◆ Others



Republican National Convention 8/27-9/3/04

- ◆ Host Site was Madison Square Garden (MSG)
- ◆ NWS formed 2 Teams
 - Internal at NWS Weather Forecast Office
 - External at NYC OEM in NYC





Republican National Convention 8/27-9/3/04

- ◆ Internal Team Led by Local WCM;
Composed of Meteorologists from other
NWS Offices
- ◆ Daily Coverage from 8 am until Midnight
- ◆ Coordinated Forecasts, including Basic HYSPLIT
- ◆ Briefings Conducted Twice Daily (AM and PM) via
Scheduled Power Point Presentations with External
Team, HPC, SPC, TPC, and “many” other Agencies



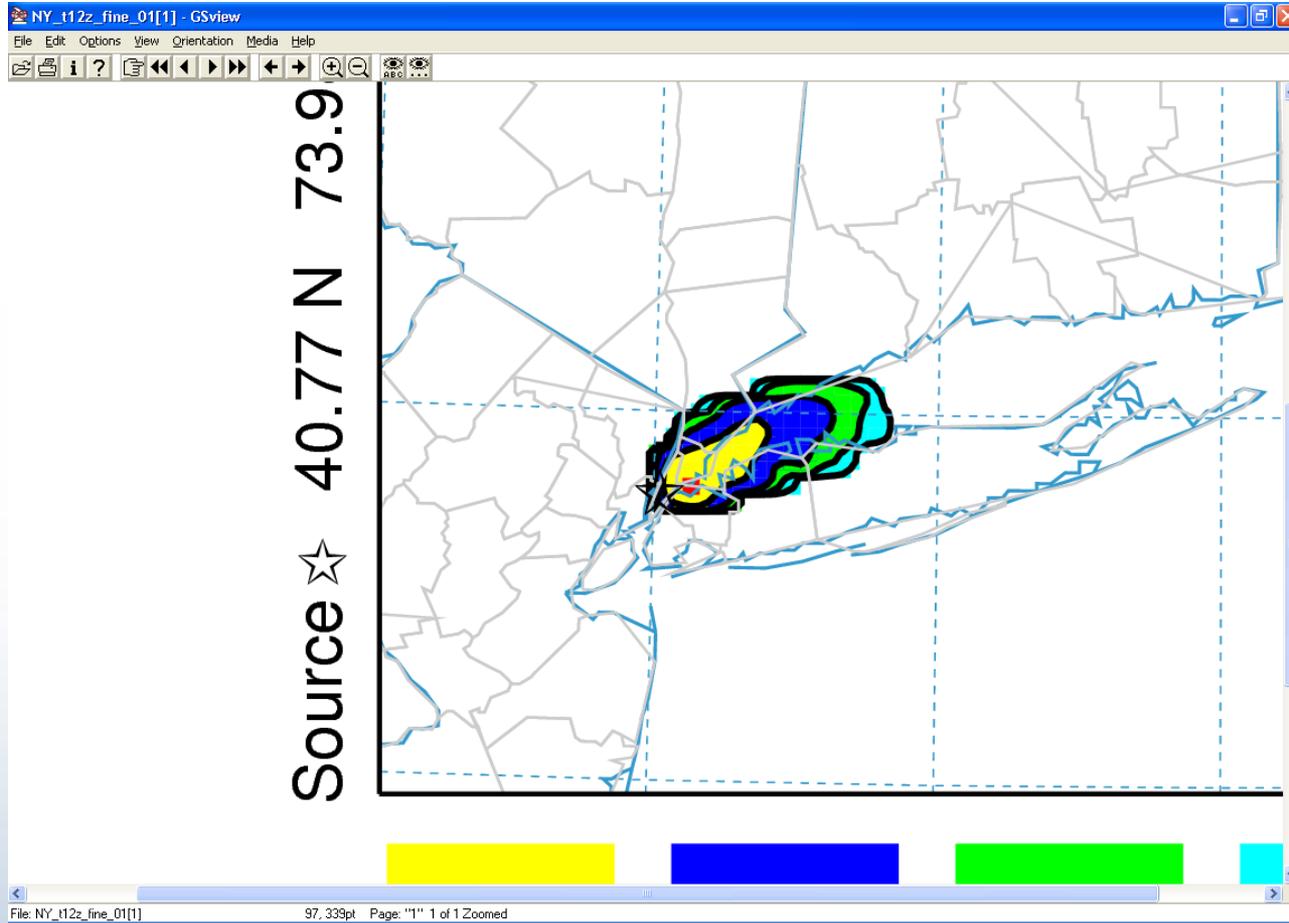


NWS WFO OKX
 Internal Weather Briefings
 Republican National Convention
 Date/Time: _____

- ◆ NOAA HSOC _____
- ◆ Homeland Security Operations Center
- ◆ NCEP SDM _____
- ◆ NCEP HPC _____
- ◆ NCEP SPC _____
- ◆ NCEP TPC _____
- ◆ NWS ERH ROC _____
- ◆ NWS CWSU ISP _____
- ◆ NOAA HAZMAT _____
- ◆ Ed Levine
- ◆ Air Force _____
- ◆ 15th/26th
- ◆ FEMA _____
- ◆ Reg. 2
- ◆ NARAC _____
- ◆ Navy _____
- ◆ Norfolk
- ◆ NorthCom _____
- ◆ NYS DEC _____
- ◆ NYSEMO _____
- ◆ NYC EOC _____



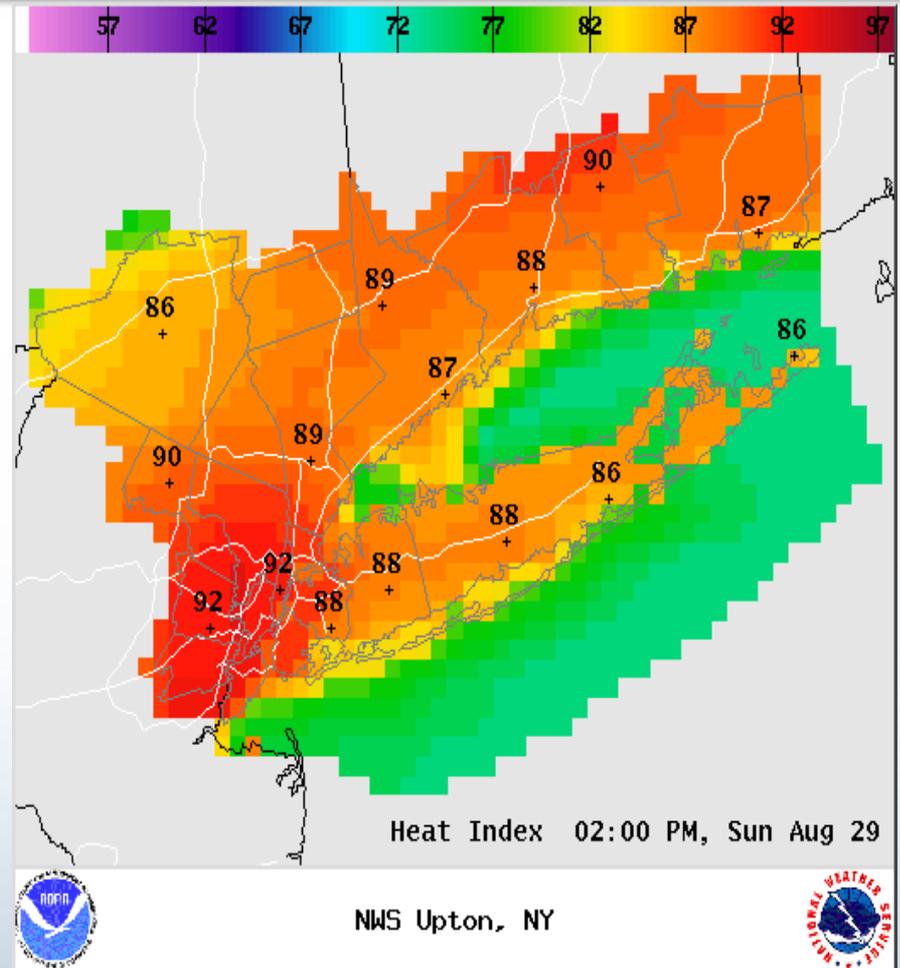
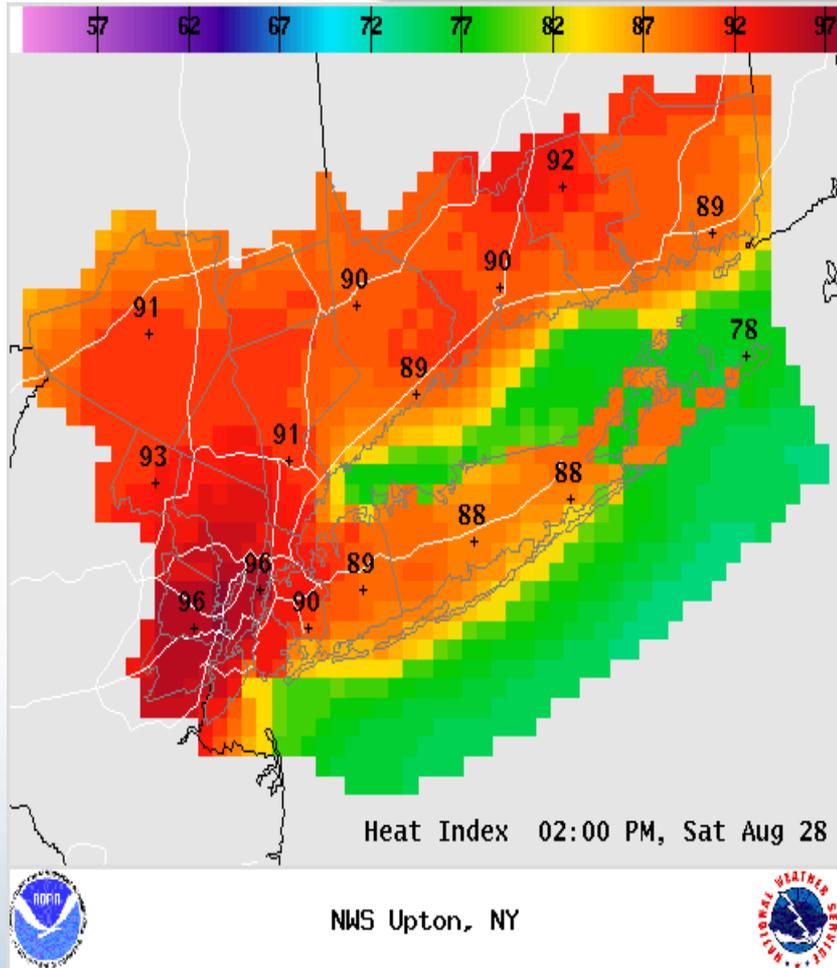
**Short Term HYSPLIT Forecast 8/27/04 @ 3 pm
8 AM "TEST" Release for Madison Square Garden
Forecast for 8/28/04: 8 am – 11 am**



Yellow = 1.0E-13, Blue = 1.0E-14, Green = 1.0E-15, Teal = 1.0E-16



Maximum Heat Index Forecasts 2 pm Saturday and Sunday



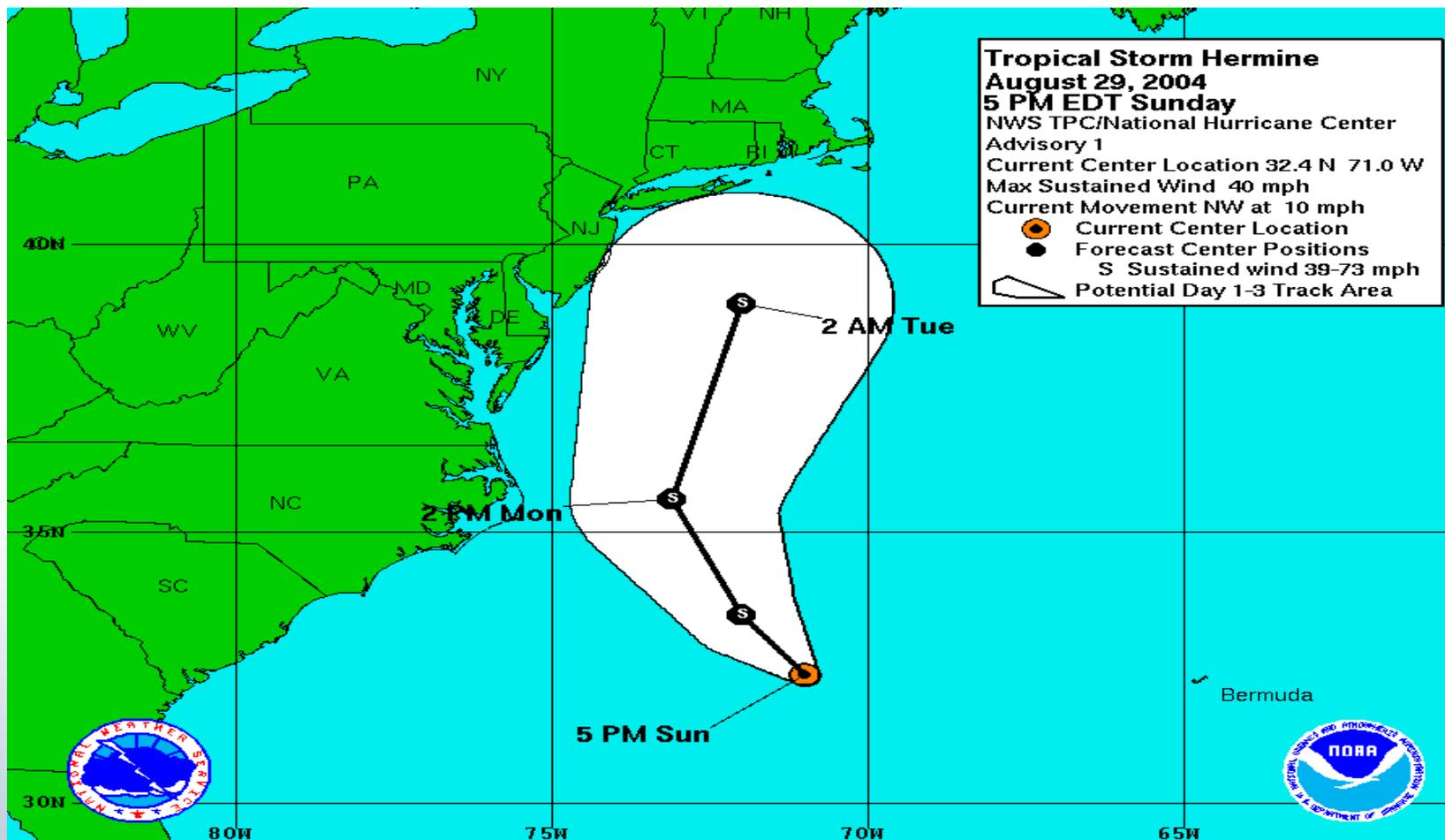


Tropical Forecast

- ◆ Tropical Prediction Center (TPC) is Monitoring 3 Systems:
- ◆ 1 – Tropical Storm Hermine
- ◆ 2 – Tropical Storm Gaston
- ◆ 3 – Hurricane Frances

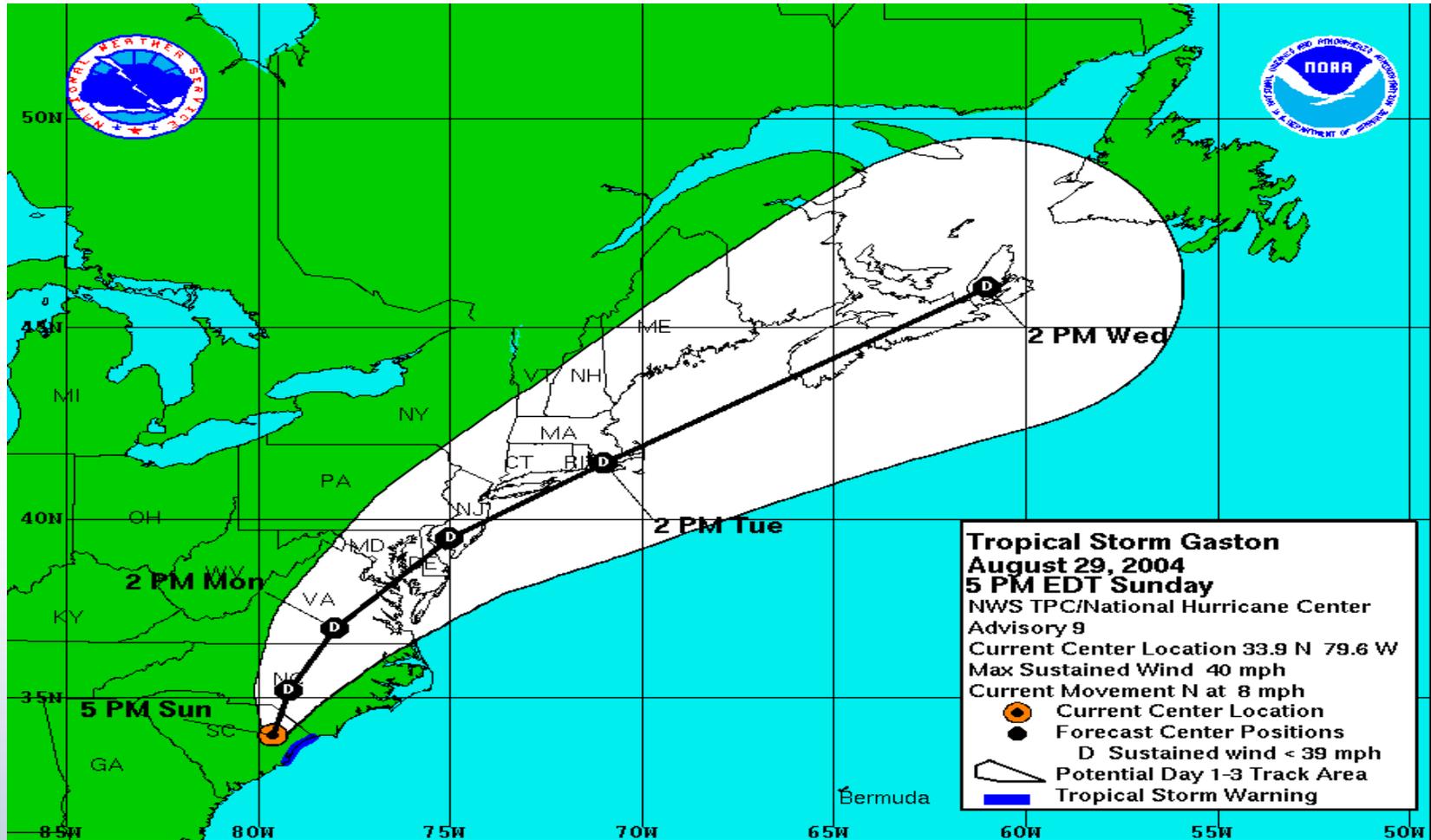


1 – Tropical Storm Hermine 5 pm Update





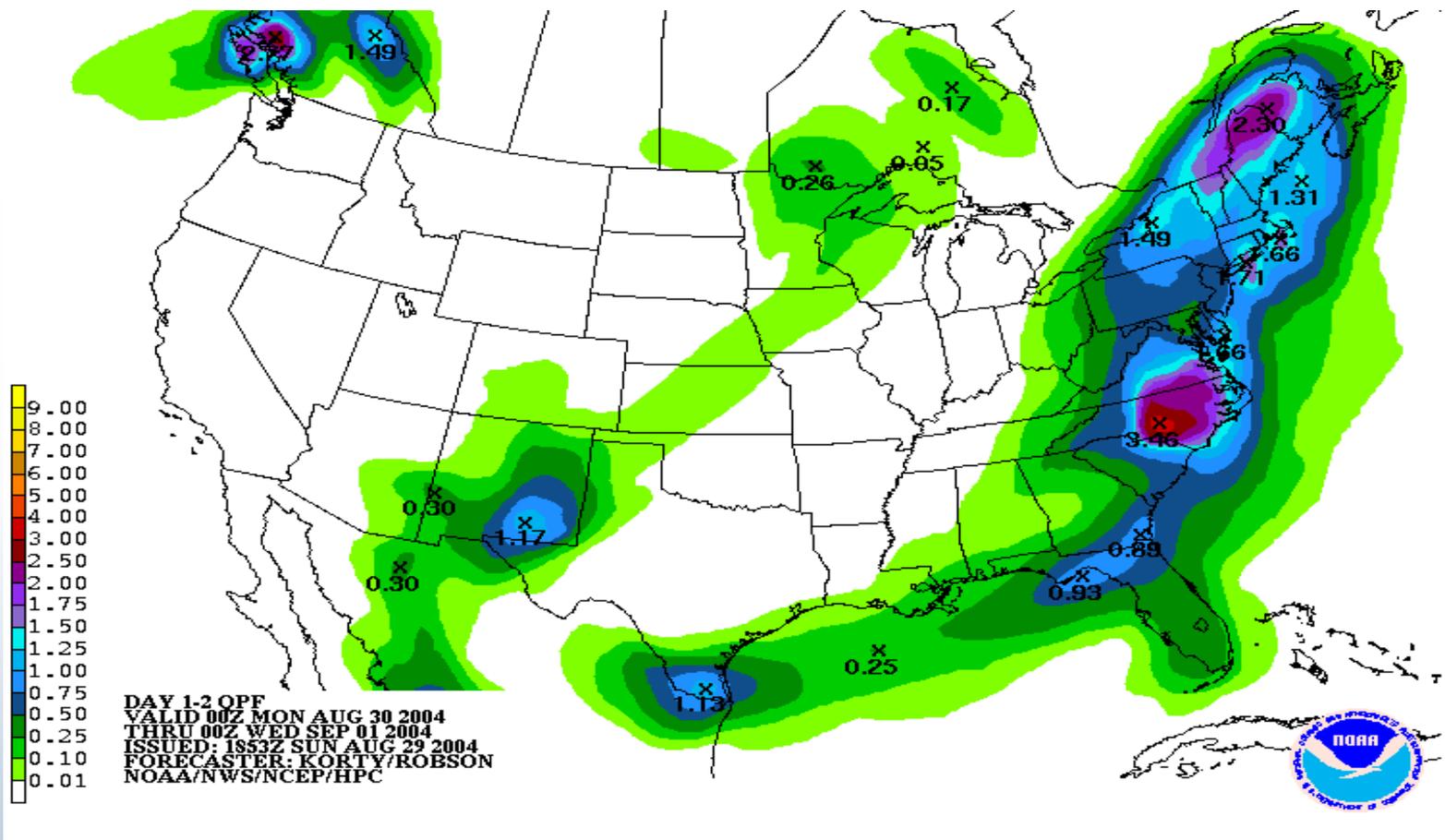
2 – Tropical Storm Gaston 5 pm Update





48 Hour Rainfall Forecast

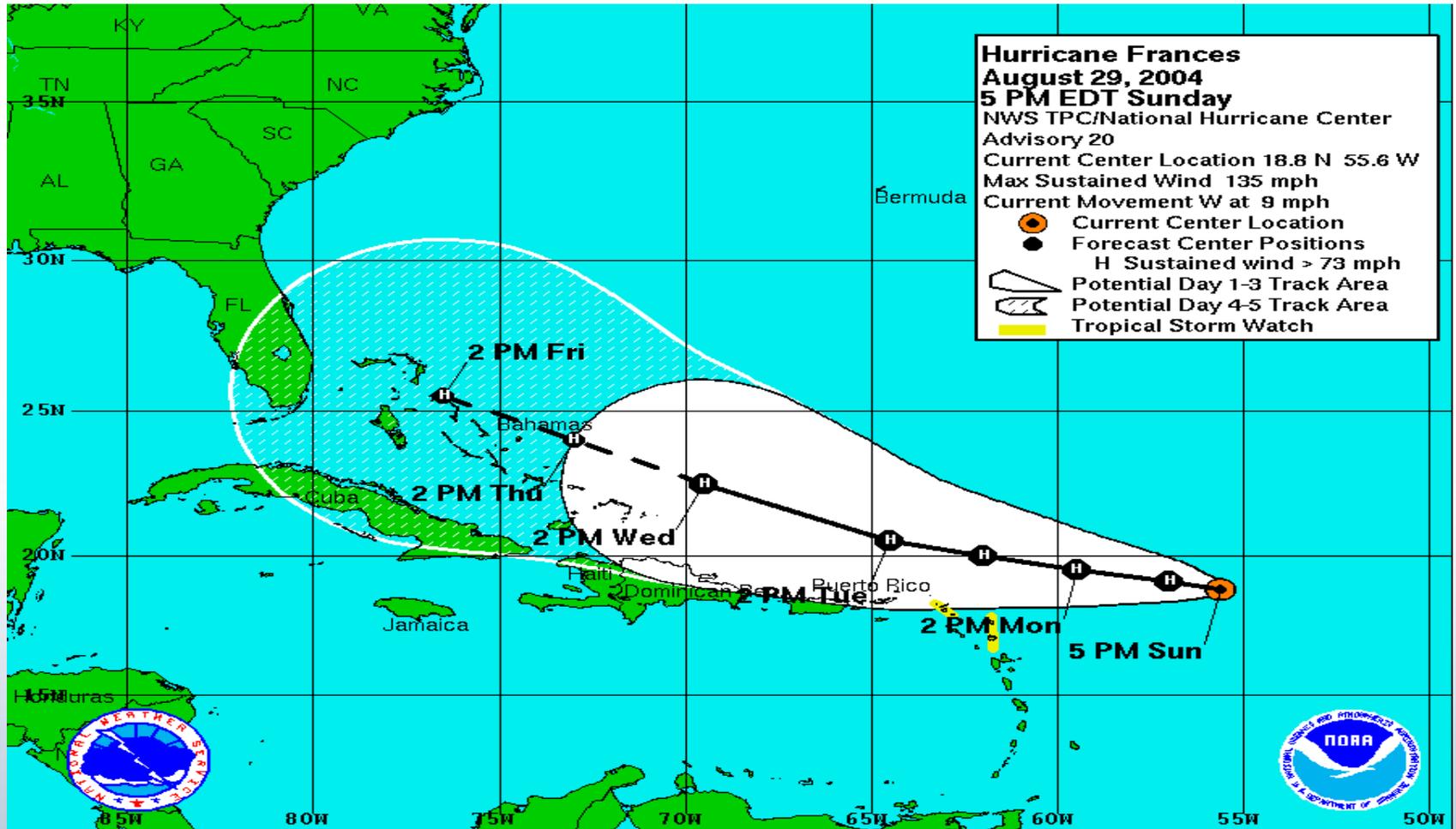
8 pm Sun – 8 pm Tue
Up to Around 1 inch for NYC





3 – Hurricane Frances

5 pm Update





Republican National Convention 8/27-9/3/04

- ◆ External Team Led by NYC OEM;
Composed of NWS MIC, IMET, and
Support Emergency Managers
- ◆ NWS Daily Coverage from 8 am until Midnight
- ◆ Detailed Transport and Dispersion Models Run and
Interpreted by External Agencies (NARAC/IMAAC)
- ◆ Coordinated Forecast Updates with Internal Team





***OEM MOBILE DATA CENTER AT THE RNC
ON "COMMAND POST ROW"***



NYC OEM Watch Command



Photo by NYC OEM



OEM Emergency Operations Center



Photo by NYC OEM



Republican National Convention 8/27-9/3/04

◆ NYC OEM Concerns

- Local Airports (TAFs: JFK, LGA, EWR)
- Local Marine Terminals (Battery Park)
- Excessive Heat for Potential Civil Unrest
- Potential for Thunderstorms
- Potential for Flooding
- Potential for Tropical Systems
- Potential for Dirty Bombs





Support for Annual Thanksgiving Day Parades





About the Parade

- ◆ More than 2.5 million people line streets of Mid-Town Manhattan
- ◆ More than 10,000 Parade Participants
- ◆ Parade 9 am – Noon; Millions of Extra People 6 am – 3 pm



Aiming for a Safer Parade

With a forecast of sustained winds up to 22 miles per hour and gusts up to 35, today's Macy's Thanksgiving Day Parade may look quite different from past parades. New safety guidelines — including a narrower pathway for balloons, more wind monitoring and a policy to bring balloons lower in high winds — were put in place after two spectators were injured last year when a tether pulled off a light fixture, which crashed to the ground.



The width of the **envelope**, or flight passageway, in which the giant balloons are allowed to operate will be reduced to 56 feet from 62.

Tethers will be shortened in locations where winds are high, bringing balloons closer and closer to the ground with higher winds. When sustained winds are above 23 miles per hour or gusts are above 34 miles per hour, balloons are to be grounded.

Street lamps and other obstructions will be removed from within the "envelope."

The New York Times; photograph by Keith Bedford/Reuters

<http://www.nytimes.com/2006/11/23/nyregion/23parade.html>



In this photo provided by the United States Potato Board, handlers struggle to move the Healthy Mr. Potato Head balloon when it is hit with a gust of wind while going through New York City's Columbus Circle during the annual Macy's Thanksgiving Day Parade. (AP Photo)



NYC OEM Requirements

- ◆ Wind Speeds Along Parade Route
 - How “high” should balloons fly?
 - How many balloon handlers are needed?
 - Criteria for Lowering Balloons:
Sustained speeds at least 23;
Gusts to 34 mph





NYC OEM Requirements

- ◆ Supplemental Wind Sensor Network (7 Sensors) Along Parade Route
- ◆ Private Contractor Installs and Maintains Sensors for Macy's
- ◆ NWS interprets web based data in conjunction with all other information and provides short term wind forecasts for NYC OEM



Macy's Thanksgiving Day Parade 2007: 1 - 77th ASOS

Select

ASOS

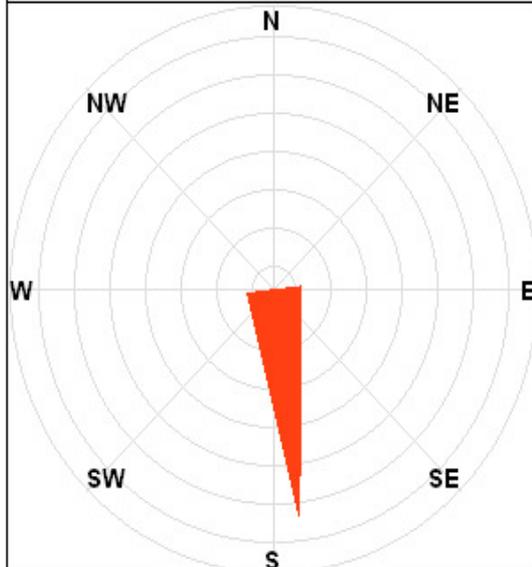
77th Street and Central Park West

1-800-214-6642
www.pinnacle-wireless.com

Current Wind Speed mph

6.4

Current Wind Direction



173.1

Gust mph

0.0

2008-11-24 16:57



Weather Data is updated every 1 minute

Driven by Vista Data Vision



Macy's Thanksgiving Day Parade 2007: 1 - 77th

Select

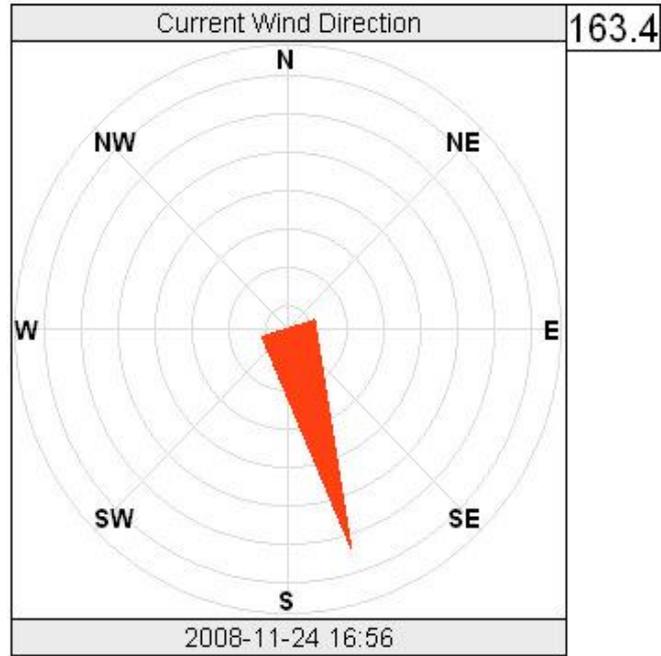
- 1 - 77th
- 1 - 77th ASOS

1-800-214-6642
www.pinnacle-wireless.com

77th Street and Central Park West

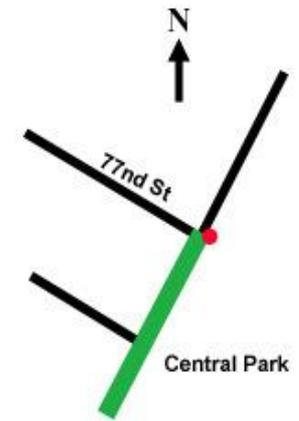
Current Wind Speed mph

5.7



Max 3 Second Wind Gust Over Past Hour mph

12.0



Weather Data is updated every 1 minute

Driven by Vista Data Vision

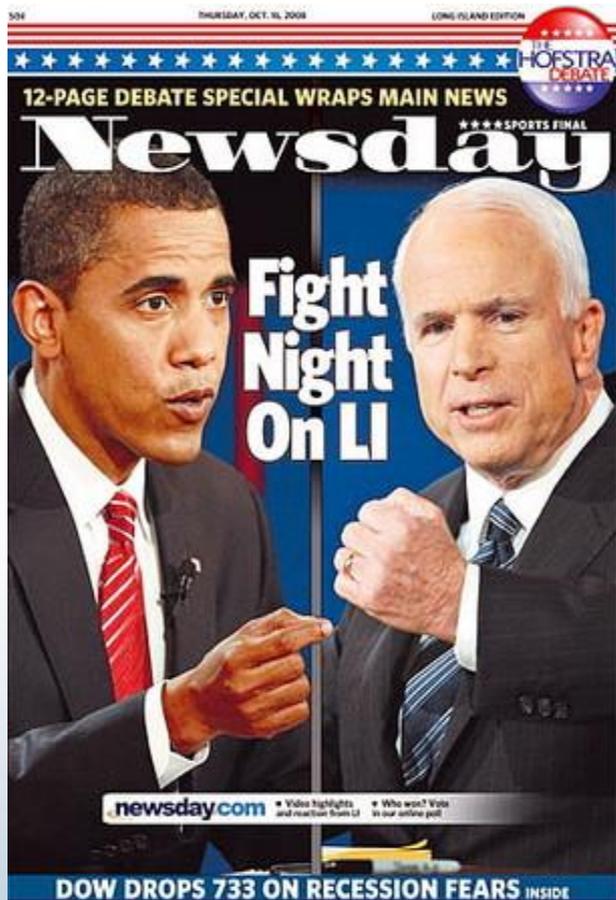


NWS Support

- ◆ NWS Tour is 6 am – 2 pm in NYC OEM Mobile Command Bus
- ◆ First Interagency Briefing @ 7 am
- ◆ NWS Uses Lap Top to Support Operations



2008 Presidential Debate – Oct 15, 2008



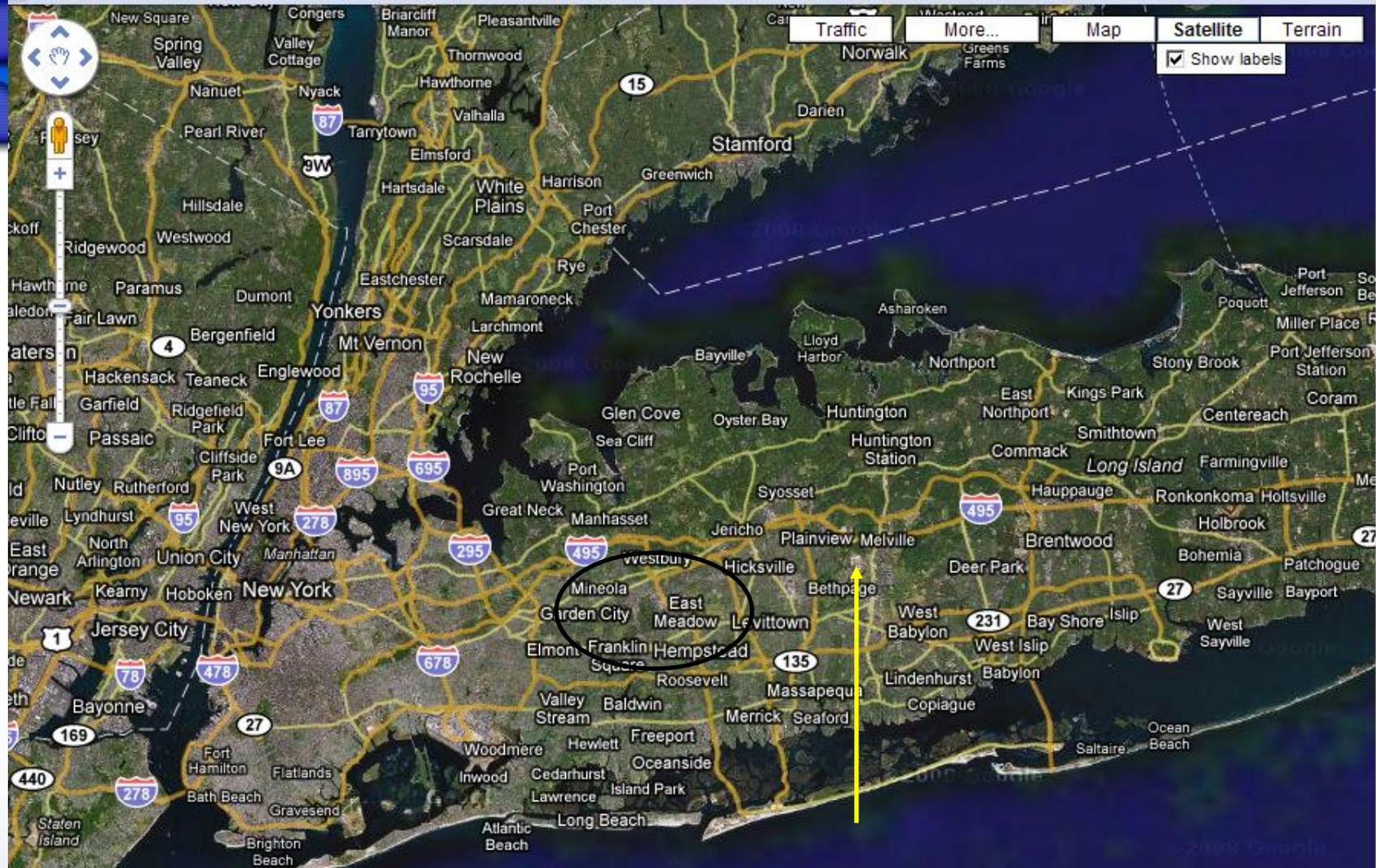
- Only about 1100 in attendance at the arena
- Over 15,000 within ½ mile of the arena



WFO OKX

New York City





Farmingdale Airport

Nassau County Office of Emergency Management – East Meadow Correctional Center

Hofstra University





Charles Lindbergh Blvd

Charles Lindbergh Blvd

Colonial Rd

Colonial Rd

David S. Mack Auditorium





Charles Lindbergh Blvd

Charles Lindbergh Blvd

Colonial Rd

Colonial Rd

NO PARKING!!



200 ft 100 m



Rain/Drizzle becomes a much larger security issue:
15,000 people is one issue
15,000 people with Rain Coats and umbrellas is another

NO PARKING!!





- Provide consistent weather support to the EOC in terms of public impact (rain/temps/wind)
- Provide HAZMAT/Emergency response forecast information (HYSPLIT)

• Coordinate with NY TRACON in maintaining secure airspace around Republic Airport (KFRG) where dignitaries were landing.

• NY TRACON





Best Practices

- ◆ Maintain relationships already in place and continue to foster new ones
- ◆ Develop a “standard” for ERH Decision Support Services Teams
- ◆ Planning to host a sub-regional All-Hazards Workshop Fall 2009



Thanks!

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