



THE WEATHER
COALITION

September 19, 2005

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Honorable Conrad C. Lautenbacher Jr. USN (Ret)
Under Secretary of Commerce for Oceans and Atmosphere
Administrator

National Oceanic and Atmospheric Administration
14th Street and Constitution Avenue NW
Washington, D.C. 20230

Dear Mr. Administrator:

The members of the Weather Coalition express their appreciation to the National Oceanic and Atmospheric Administration (NOAA) for the exceptional services provided by the National Weather Service to the nation with respect to Hurricane Katrina. From the storm's inception in the Atlantic, through landfalls in Florida and the Gulf Coast, to dissipation in the Northeast, the agency -- the Tropical Prediction Center in particular -- again showed how NOAA science, the global observing system, numerical forecast models and high-speed computers can serve our society well. While subsequent events brought catastrophe to New Orleans, NOAA agency monitoring and forecasts of this hurricane allowed many individuals and institutions to respond in timely and appropriate ways. We are certain that thousands of lives were saved as a result.

The members of the Coalition are extremely concerned that many NOAA environmental observing and data collection systems were negatively impacted by Hurricane Katrina during and after landfall. Not only were there losses of irreplaceable data for studying the landfall of a major hurricane, but response efforts were deprived of vital information in the immediate aftermath of the storm and recovery efforts impeded both on and off-shore. We are also concerned that specialized services provided by private sector meteorologists, which are important to many industrial firms and the media, rely on the data and information provided through NOAA. The loss of high resolution radar data from several locations and the failure of the surface observing systems to provide wind and precipitation data have been especially troublesome to both the private and academic sectors. The lack of such data greatly limited the services that could be provided to decision makers in all sectors and will impede research leading to new understanding of hurricanes at landfall. The slow return to normalcy in the observing systems has also created a very high-risk situation if another tropical cyclone were to threaten the north Gulf Coast.

The members of the Weather Coalition strongly encourage NOAA to take immediate steps to request supplemental funds to harden its environmental monitoring and supporting data transmission systems. These systems must be implemented in ways that eliminate single points of failure, have multiple paths of communication, and be sufficiently robust to operate under hurricane conditions. Even though these systems

% Cynthia Schmidt
P.O. Box 3000
Boulder, CO 80307-3000
303-497-2107

may be exposed to such conditions only during a small percentage of their service lives, these few moments are critical, as we have seen all too well, and must drive the design of these systems and the selection of their sensors.

Specifically, the Coalition recommends that around the Gulf and SE Atlantic coasts, NOAA ...

1. Harden the communications links to the WSR-88D Doppler Weather Surveillance Radars (NEXRAD), eliminating single points of failure and providing redundant communications paths to increase the chances that wide-bandwidth/high resolution (Level II) data will continue to flow to government, academic/research, and private sector entities through a hurricane landfall and its aftermath.
2. Complete the installation of similar communications to Terminal Doppler Weather Radars (TDWRs) to provide backup radars sending wide-bandwidth data to government, academic/research, and private sector entities. The Coalition notes that such a program is currently underway, but only a few connections have been made, the communications links have single points of failure, and the data are only going to local National Weather Service (NWS) forecast offices, not to the community at large.
3. Redesign and upgrade Automated Surface Observing System (ASOS) and rawinsonde sites so that they continue to function throughout severe weather events. This would include advanced software algorithms, backup power, on-site data storage, and hardened communications, again eliminating single points of failure. The instruments on ASOS should be selected to provide quality wind and precipitation data under the most adverse conditions likely to be encountered in a land-falling hurricane. Further, improvements should be made to ensure power and data transmission availability associated with Weather Forecast Offices and their ability to provide radiosonde observations (RAOBs) following severe weather events (RAOBs are the data messages from so-called "weather balloons;" they cannot be safely launched during hurricane-force winds, but their data are critical to accurate weather forecasting after hurricane passage -- and in advance of other severe weather events).
4. Implement a robust distributed-architecture information system to avoid single node failures whether through on-site storage, hardwired communication failures, or saturated regional access. Critical information must reach the right people in real time. Good design can use available communication bandwidth more effectively while implementing a fault-tolerant system.

In addition to the above, it is important to recognize that even the most hardened systems can fail in critical situations. The Weather Coalition also supports NOAA vigorously exploring alternatives such as airborne sensors to complement ground facilities in the event of local or regional failures.

Finally, we raise an important related issue that goes beyond the immediate need to repair and harden weather infrastructure impacted by Katrina. On the longer term, but of no less importance, is the need to recognize that the long-term plans for upgrading NOAA's satellites, including NPP, NPOESS, and GOES are in jeopardy. Satellites are the backbone of the global observing system and are essential for

Page 3 of 3
Vice Admiral Lautenbacher

maintaining and improving the forecasts of hurricanes and other high-impact weather for time periods beyond about a day. It is essential for the long-term health of weather forecasting and warnings that the issues with NOAA's satellite systems be resolved and the plans for NPP, NPOESS, and GOES proceed as planned.

The Weather Coalition is committed to working with NOAA and others in the federal government to ensure that the national environmental observing system provides the highest quality data in critical situations. Hardening and upgrading the elements of that system in the hurricane-prone regions of the nation is an essential first step in that direction. Ultimately, and in the near term, we need to address the system integrity as a whole to assure that the approach, built on existing capabilities, is both robust and can be implemented in a cost effective manner.

Thank you for your attention to this extremely critical matter. If funding for these activities can be requested immediately and provided through supplemental appropriations, we believe that more lives can be saved in the future and that the efforts to rebuild the Gulf Coast and the commerce of the entire country will benefit.

Sincerely,

Ray J. Ban
Executive Vice President
The Weather Channel

John T. Snow
Director, Oklahoma Weather Center
and Dean, College of Geosciences at
The University of Oklahoma

Co-Chairs of the Weather Coalition

cc: The Honorable Josh Bolten
The Honorable Carlos Gutierrez
BGen DL Johnson