



**Western Region Technical Attachment  
No. 92-29  
September 8, 1992**

**A LOOK AT HURRICANE ANDREW  
THROUGH THE EYES OF A WSR-88D**

*[Editor's Note: Following are two dramatic accounts of Hurricane Andrew from offices equipped with WSR-88D. Although the offices were far removed from the center of the storm, the WSR-88D was still able to provide an accurate, detailed track of the hurricane. Also attached to this Technical Attachment is a color reflectivity image of Andrew from WFO Melbourne's WSR-88D (valid August 24 0820 UTC) just as the eye of the storm made landfall in southern Florida. Even though the eye was over 200 nm south of the radar, note the exceptional detail in the image. Consider the mass of water the radar beam had to penetrate to yield this detail, a testimony to the low attenuation of the WSR-88D. Because of increasing beam height with distance, the portions of the storm south of the eye are not visible in this image.]*

When Hurricane Andrew moved across southern Florida, it became the first hurricane to be observed by a National Weather Service WSR-88D in an operational setting. The Melbourne WSR-88D tracked the storm across Florida and into the Gulf of Mexico. The following narrative by MIC Bart Hagemeyer describes actions and observations of WSO Melbourne as seen by the WSR-88D.

**NATIONAL WEATHER SERVICE MELBOURNE WSR-88D  
AND HURRICANE ANDREW**

**Bart Hagemeyer  
(MIC, WSO Melbourne)**

Hurricane Andrew was the first tropical cyclone to be observed by a National Weather Service WSR-88D in the field (Hurricane Bob passed within range of the Paramax factory prototype WSR-88D at Bloomfield, CT in August 1991). Portions of Hurricane Andrew's circulation were observed on the Melbourne WSR-88D for over 24 consecutive hours on the 23rd and 24th of August 1992. Only the northern outer rainbands of Andrew fell within Doppler velocity range (124 nm), but we were surprised at how much detail about Andrew's structure was evident even at long range in reflectivity data.

The WSR-88D first detected a closed eye wall at about 10 pm EDT on 23 August when the eye was centered 215 nm southeast of Melbourne. It was rather easy to get a center fix with the "puck" (mouse) crosshairs on the Principal User Processor (PUP) video display, which gives an instantaneous readout of either latitude/longitude or direction/distance from the radar (or from any other specified point). In this way, quick, accurate radar fixes and calculations of movement were possible on zoomed-in images.

We were able to track the eye in relation to geography with great detail, and it became quite clear by looking at the WSR-88D data that people from north of Vero Beach to the Melbourne area (who were under a Hurricane Watch) would be spared any serious effects from Andrew, and we attempted to put them at ease by including this information in Hurricane Local Statements and radio and TV broadcasts.

Watching the eye make landfall well to our south on such detailed, zoomed-in map backgrounds made the storm a very personal experience for our staff as many of us knew the area in the path and people that lived there. The Homestead Air Force Base (HST) area, which was devastated by Andrew, was centered about right in the middle of the eye at 518 AM EDT on the 24th. A little earlier, the extreme northern edge of the eyewall passed over the National Hurricane Center, which is marked on our map backgrounds.

The WSR-88D performed well during the entire event. The National Hurricane Center, National Meteorological Center, and the National Severe Storms Forecast Center dialed into and used the radar during the event. After the Miami network radar was lost to Andrew's high winds, the WSR-88D data filled a critical gap as the eye continued toward the southwest Florida coast during the morning of the 24th.

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The Houston/Galveston WSR-88D was the second National Weather Service WSR-88D to observe a hurricane in an operational setting. The following narrative by MIC Bill Read describes actions and observations of WSO Houston/Galveston as the hurricane moved inland.

EXPERIENCES WITH HURRICANE ANDREW AT  
WSO HOUSTON/GALVESTON WITH THE WSR-88D

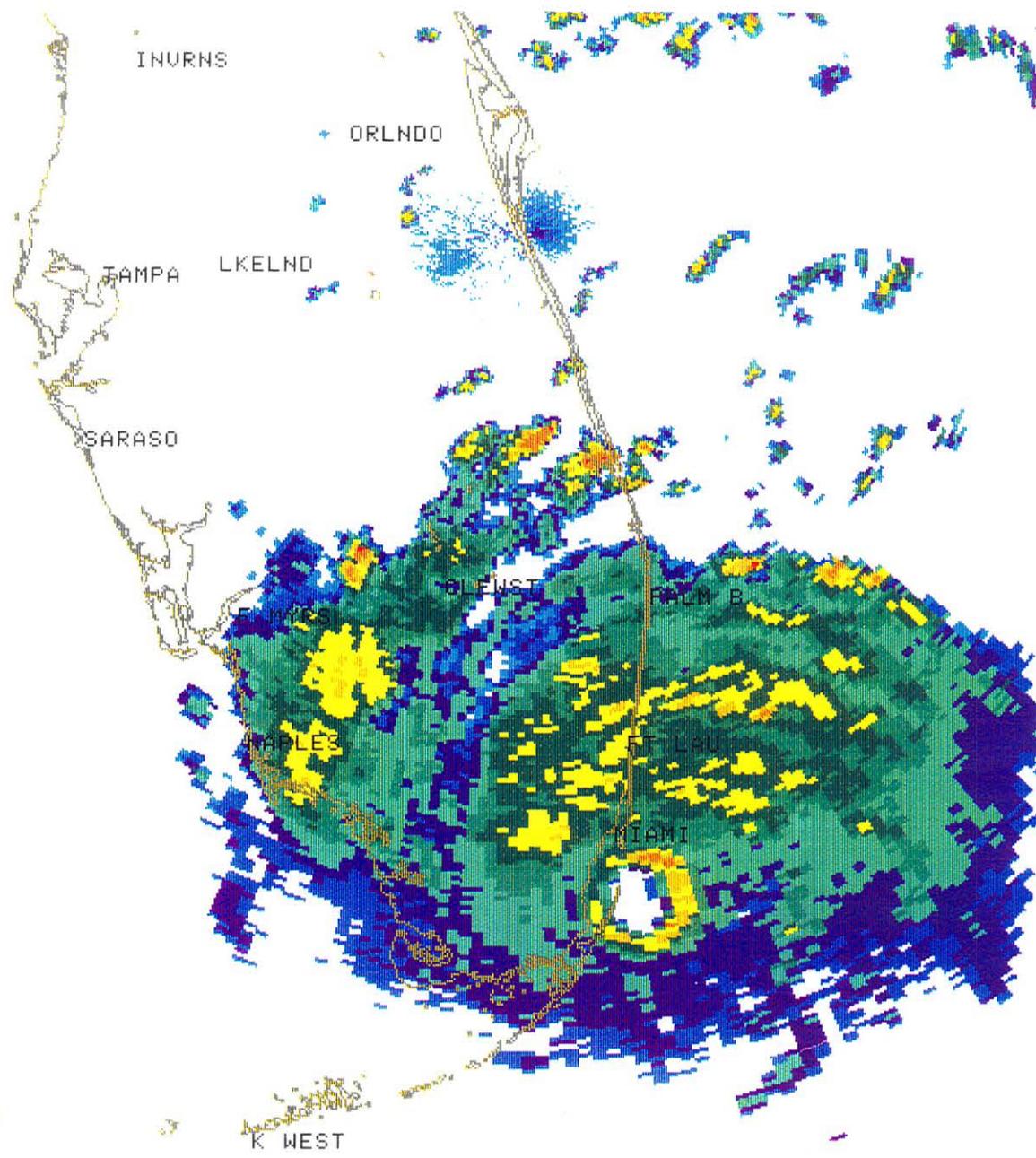
Bill Read  
(MIC, WSO Houston/Galveston)

Andrew went inland some 190 miles east of our WSR-88D. As such, coverage was limited to reflectivity data. However, even at that range, we were able to continuously fix the center and estimate storm movement out to beyond 200 nm.

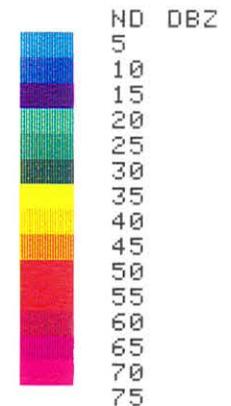
As the eye made contact with the coast, we were able to observe what appeared to be some filling, then reforming of the eye, which made it appear that Andrew had stalled. The latitude/longitude cursor function made center fixes very easy, while the cursor Home Define function made storm motion easy to define.

We were able to gain valuable external user exposure to the 88D capability for hurricanes. The Houston ABC affiliate, KTRK, and NBC affiliate, KPRC, maintained a reporter and camera crew in the office throughout the event. We went live from the PUP position several times as Andrew was making landfall.

We gained considerable insight as to the adequate staffing for NWSO type operations during the hurricane. We used a five-person rotation during the watch/warning phase of the storm, and this appeared to be about right. Two forecasters were used to alternate on the WSR-88D and two HMTs to keep the information flow to the users. The MIC, WCM, and SOO were rotated through the shifts to coordinate with the media and emergency managers. We overlapped at prime news media times to answer their needs. Feedback from the media and emergency managers has been very positive.



08/26/92 19:53  
 BASE REF 20 R  
 248 NM 1.1 NM RES  
 08/24/92 08:20  
 RDA:KMLB 28/06/46N  
 116 FT 80/39/14W  
 ELEV= 0.5 DEG  
 MODE A / 21  
 CNTR 188DEG 99NM  
 MAX= 52 DBZ



MAG=2X FL= 1 COM=1

TL 1 RATE= 1.0 SEC

002 R 1743 KHOU  
 PROD RCU: R OT  
 KHOU 1755 1.1 0.5  
 26/1807 CONNECTION  
 TIMEOUT LINE 3  
 HARDCOPY

HARDCOPY REQUEST  
 ACCEPTED