

## USWRP Hurricane Landfall Goals

1. Reduce landfall track and intensity forecast errors by 20%.
2. Increase warning lead time to and beyond 24 h with 95% confidence without increasing the present 3 to 1 over-warning.
3. Make skillful forecasts of 34-kt and hurricane force (64-kt) radii out to 48 h with 95% confidence.
4. Extend quantitative precipitation forecasts to 3 days and improve skill of day-3 forecasts of inland flooding.

For more information about USWRP please visit:

[www.mmm.ucar.edu/uswrp](http://www.mmm.ucar.edu/uswrp)



Homestead, FL - destruction after Hurricane Andrew in 1992, the most costly hurricane in US history



NOAA's WP-3D aircraft



US Air Force Reserve's C-130 aircraft



NASA's DC-8 aircraft



NOAA's Gulfstream IV jet aircraft



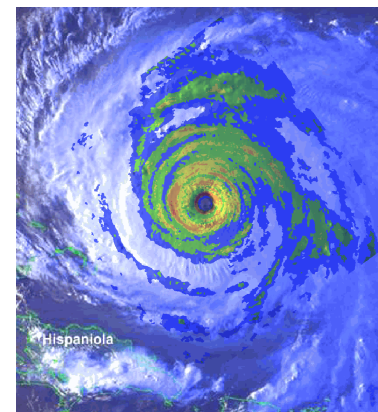
NASA's ER-2 aircraft

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## NOAA's HURRICANE RESEARCH DIVISION

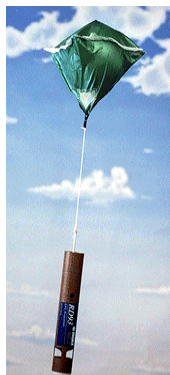


## *Hurricane Research Field Program for the 2001 Atlantic Season*

*US Weather Research  
Program (USWRP)  
Hurricane Landfall  
Experiment 2001—HaL2001*

*NASA's 4th Convection  
and Moisture Experiment  
(CAMEX-4)*

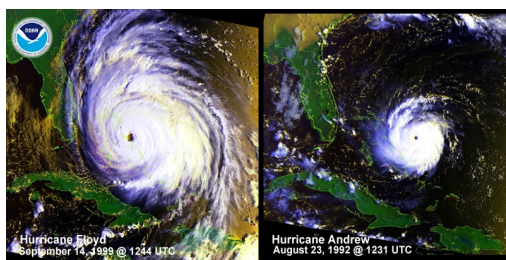
# Hurricane Research 2001



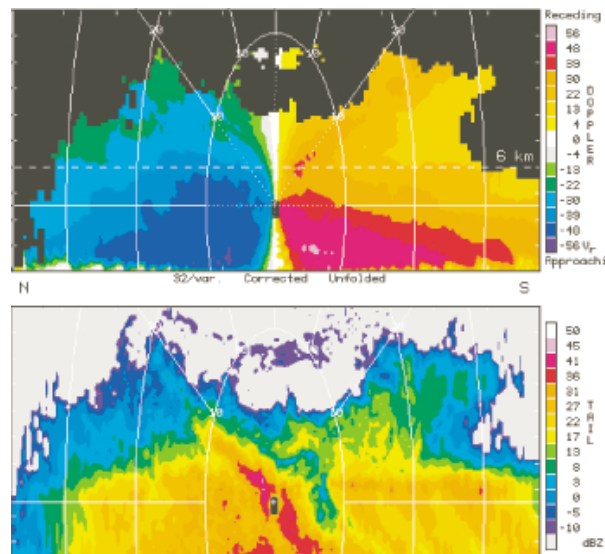
This year NOAA's annual hurricane field program coincides with NASA's 4th Convection and Moisture Experiment (CAMEX-4), and both efforts comprise the US Weather Research Program's (USWRP) Hurricane Landfall Experiment, 2001.

The main objectives of the USWRP experiments are:

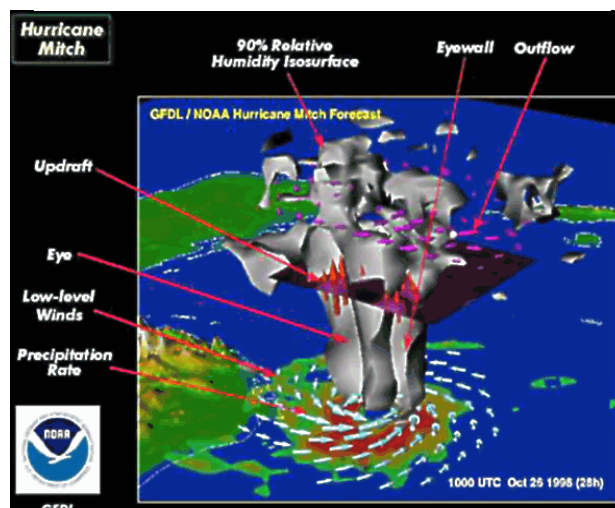
1. Capture two complete snapshots of a tropical cyclone, mapping storm structure out to 1000 km from the center, from the top of the troposphere to 200 m below the ocean surface, for use in modeling of processes related to intensification;
2. Collect observations of storm structure, especially microphysics and motion, particularly near landfall; and
3. Collect observations useful in studies of extra-tropical transition.



Visual comparison of Floyd (left) and Andrew (right).



Doppler radar images showing vertical cross section of Doppler winds (top) and rain intensity (bottom) in the eye-wall of Hugo - NOAA's WP-3D tail Doppler.



Cross section of a hurricane showing inflow at the ocean surface and outflow in the upper troposphere, as well as surface wind speeds and rain rate. A similar yet detailed dissection is the ultimate goal of USWRP this season. Graphic created by NOAA's Geophysical Fluid Dynamics Laboratory.

## The Players:

- NOAA will have 150 flight hours on both WP-3D aircraft and over 200 hours for operational surveillance missions on the G-IV aircraft.
- NASA is planning to have 100 hours available each on their DC-8 and ER-2 aircraft.
- Air Force Reserve will have operational reconnaissance and surveillance missions on their WC-130 aircraft.
- Environment Canada's Atmospheric Environment Service (AES) and Institute for Aerospace Research (IAR) Convair 580 aircraft will provide 25 hours for extra-tropical transition flights near Canada.

## Technology:

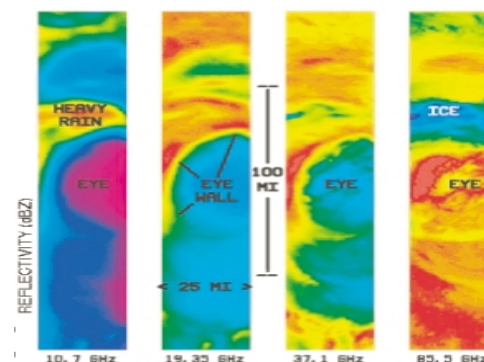
The combined technology in use this season includes: new model expendable dropwindsondes, AXBTs, AXCPs and buoys; Remote Sensors such as C-band and Doppler radar, radiometers, and lasers; and *in-situ* wind, pressure, temperature and microphysics.

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[www.aoml.noaa.gov/hrd/HFP2001/index2.html](http://www.aoml.noaa.gov/hrd/HFP2001/index2.html)



Radiometer data showing precipitation from Bonnie, NASA's ER-2 aircraft.