

**Mission Summary**  
**980824H1 Hurricane Bonnie**  
**Modified Air-Sea Interaction Experiment**

Scientific Crew (42RF)

Chief Scientist	Michael Black
Radar/Doppler Scientist	Frank Marks
Cloud Physics	Sim Aberson
GPS Dropsonde	Stan Goldenberg
Workstation	Paul Leighton
AXBT	Joe Cione

Aircraft Crew (42RF)

Pilots	Phillippsborn, Taggart, O'Mara
Flight Director	Stan Czyzyk
Navigators	Rathbern
Systems Engineer	Bast
AVAPS Operators	Jim Barr, McMillan

*Mission Briefing:*

Hurricane Bonnie was forecast to be a minimum Category 1 storm near the southeastern Bahamas and HRD decided to fly a modified air-sea interaction experiment with both NOAA P-3 aircraft. The purpose of the experiment was to map the inner-core winds and upper ocean temperatures with GPS dropsondes and AXBTs. N42RF would fly a rotating figure-4 pattern at 15,000 ft with 100 nm radial legs. N43RF would fly the same pattern, trailing N42RF at 5 kft providing backup sonde and AXBT coverage.

*Mission Synopsis:*

Takeoff from MacDill AFB was at 1834 UTC and N42RF flew to the initial point of the figure 4 at 2020 UTC, 199 nm to the northwest of the eye. We performed the first figure four pattern first heading east through the eye at 2039, then after an upwind leg to the NE, where we encountered a strong rainband, we flew SW through the eye at 2206 and finished 100 nm to the SW of Bonnie's center at 2228 UTC. The second figure 4 started 100 nm south of Bonnie's center and finished on the west side with modifications to the proposed track because of time constraints. After exiting the eye at 2314 UTC and heading 100 nm north, we tracked downwind to a point 100 nm NNW of the center before heading to the SE hitting the eye at 0009 UTC. We turned in the eye, heading east 100 nm, then downwind to 100 nm NE of the eye before penetrating the eye for the last time at 0019 UTC then heading westbound back to Mac Dill, landing at 0314 UTC.

*Evaluation:*

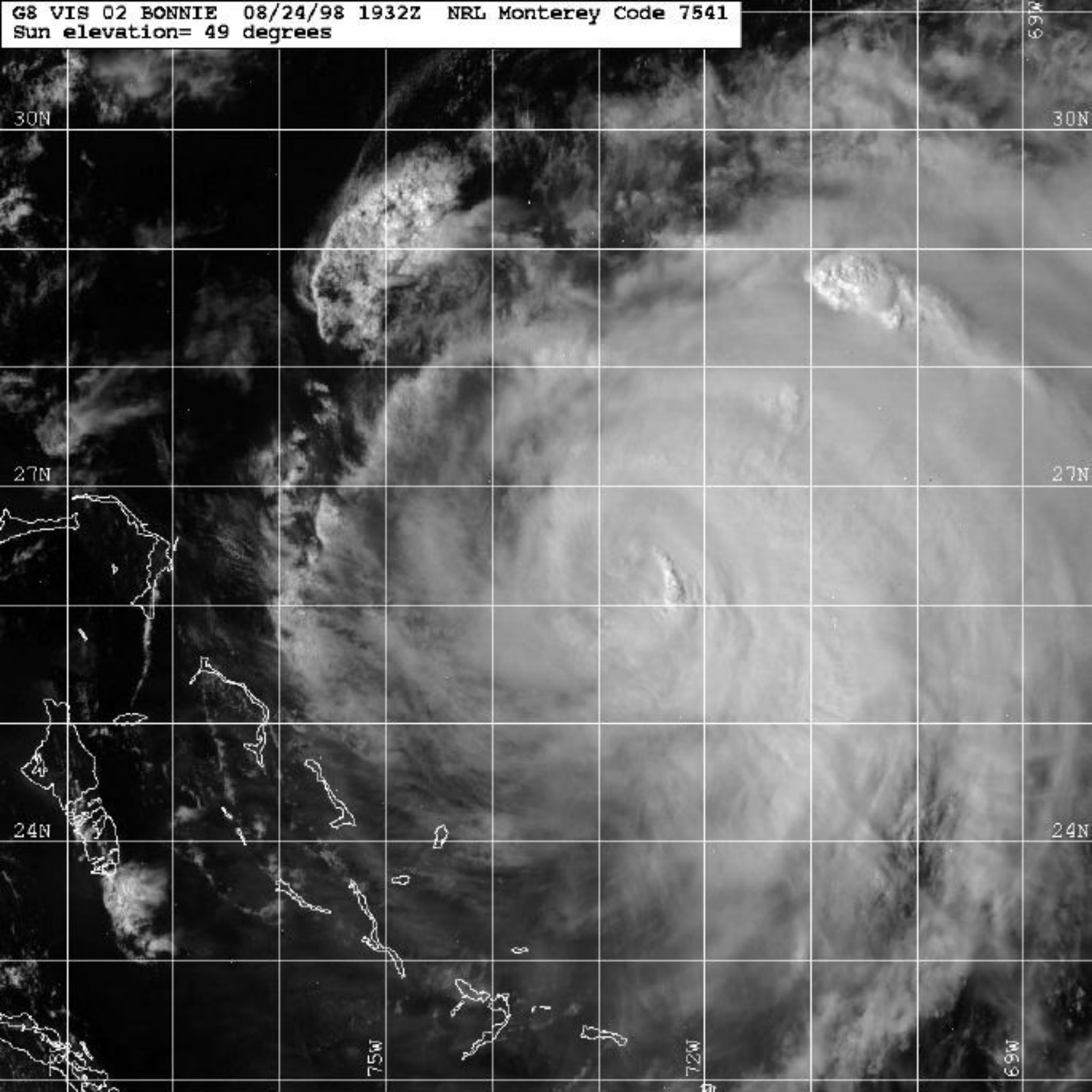
Flight-level winds were near 100 kts in the east and northeast eyewall and 90 kts in the west and southwest side which was devoid of convection. The minimum central pressure was near 963 (+/- 2 mb) throughout the flight as measured by eye drops at 2040, 0009, and 0120 UTC. AXBT's and GPS sondes were deployed at the 100 nm endpoints of the radial legs and uniformly around the storm in the eyewall and/or radius of maximum wind. Bonnie was an extremely asymmetrical storm with the eyewall (weakly convective) and rainbands located exclusively on the east side of the storm. The AXBTs and sondes performed well with a success rate of over 80%. A total of 16 AXBTs were deployed and the data that they transmitted showed strong cooling on the east side of the storm with sea surface temperatures ranging from 28° C on the west and south side to as cool as 25° C on the east side. The wind data from ~ 32 GPS dropsondes will be invaluable to determine the forcing on the ocean that was responsible for the cooling.

*Problems:*

The radar system went down for two brief periods, but not during any critical times, otherwise the equipment and crew performed well.

Michael Black

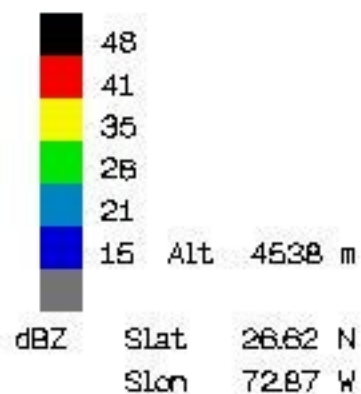
G8 VIS 02 BONNIE 08/24/98 1932Z NRL Monterey Code 7541  
Sun elevation= 49 degrees



980824h1

BONNIE

225518 Z to  
233044 Z



360 X 360 km

produced by  
HRD / AOC