

Mission Summary

980921I1 Hurricane Georges

Synoptic Flow Experiment

Scientific Crew (43RF)

Chief Scientist	Michael Black
Radar/Doppler Scientist	Peter Dodge
GPS Dropsonde	P. Dodge/M. Black
Workstation	Peter Dodge

Aircraft Crew (43RF)

Pilots	McKim, Tennesen
Flight Director	Jack Parrish
Navigators	Strong, O'Mara
Systems Engineer	Terry Lynch
AVAPS Operator	Jeff Smith

Mission Briefing:

A three-aircraft synoptic flow experiment (NOAA-42,43, and the G-IV) was planned for 21 September 1998. NOAA-43 would depart Barbados at 1730 UTC and fly west in the Caribbean Sea along 15° N to 80° W, north to 17° N, northeast to the windward passage, then through the Bahamas dropping a total of 13 GPS sondes before landing in Opa-Locka airport near Miami, Florida. The target of interest was an upper-level low-pressure that was several hundred km to the west of Hurricane Georges and was moving to the west. This feature might be an important feature that was and could continue to influence the steering of Georges. The hurricane was a category 3 storm, heading WNW near the Virgin Islands and for expected landfall on eastern Puerto Rico sometime during the flight. NOAA-42 was to depart Barbados at 1500 UTC, fly NW to Georges and perform a figure 4 pattern at 10 k ft, dropping GPS sondes in and around the eyewall, before flying the synoptic pattern to the northwest of Georges and landing at Opa-Locka. The G-IV, taking off from Bermuda at 1730 UTC, was to sample the environment to the north and northwest of Georges and also land in Miami.

Mission Synopsis:

Takeoff from Barbados was at 1740 UTC, the first GPS drop was at 1901, about 300 miles to the northwest of Barbados and ~250 nmi to the south of Georges. The belly radar was able to track the eye of Georges as it traversed the Virgin Islands. The cyclonic flow around Georges extended westward to about 70° W where the sondes observed light (<15 kts) from 500 mb to the surface (Figs. 1 and 2). Further west the flow was from the east or northeast at all altitudes until we reached 80° W where the influence of the upper-level low was evident with winds from the south and southeast. This low was further west than was forecast and, hence our flight track only sampled the eastern edge (Fig. 1). While passing through the windward passage between Haiti and Cuba, the storm's influence was seen in the sonde observations with flow from the north. In the southern Bahamas, the mid- and lower tropospheric winds were once again light from the east-northeast. We landed at Opa Locka at 0205 UTC 22 September with the anticipation of future reconnaissance flights as Georges neared Cuba and, possibly, landfall research flights along the Florida and/or Gulf of Mexico coastlines.

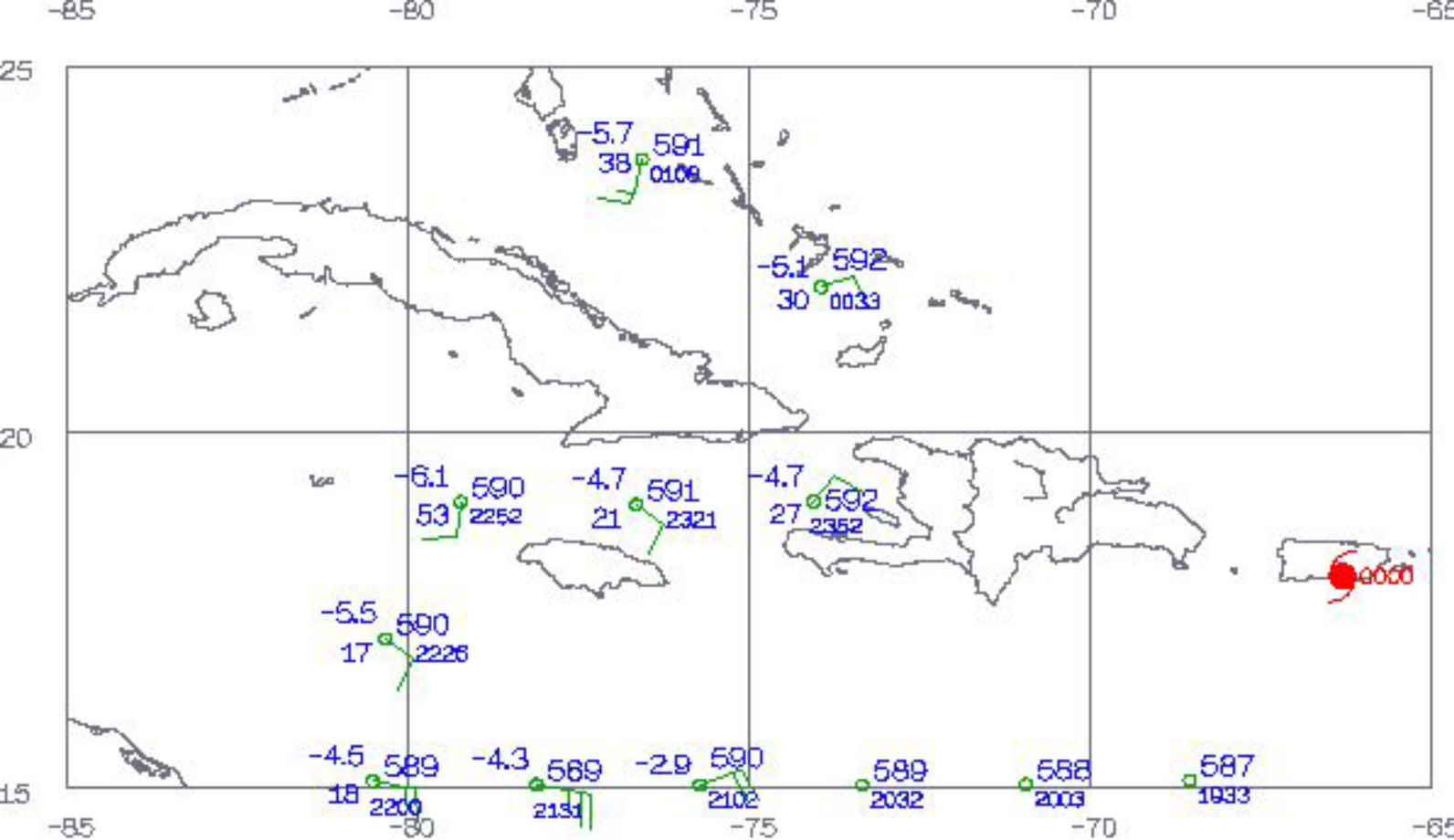
Evaluation:

The three aircraft, synoptic-flow experiment provided important information from flight-level and GPS sonde observations in and around the periphery of Georges. The flights were conducted a few days before a potential landfall in the SE United States, including Florida. A westward extension of NOAA-43's flight track would have better defined the circulation around the upper-level low pressure system to the west of Georges.

Problems:

The GPS AVAPS system was not receiving data from the aircraft HAPS system at the beginning of the flight. AOC crew replaced a cable and the system was running properly before the first scheduled drop. The radar and flight-level systems worked flawlessly. All 13 GPS sondes acquired winds and PTH and the data were transmitted via the ASDL system to NOAA operations.

Michael Black
November 17, 1998

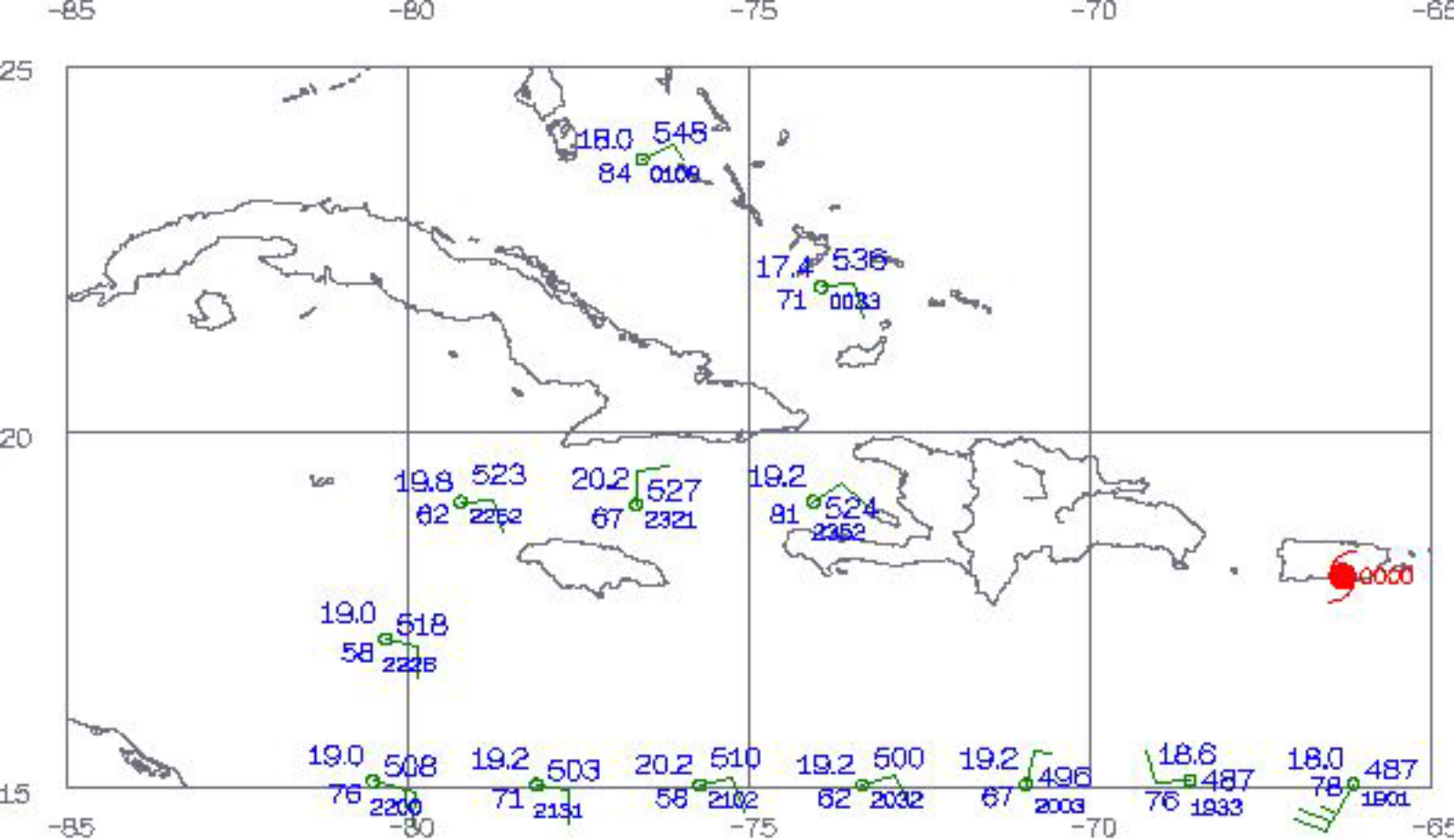


25 GEORGES

500 mb

20 Date: 980921
Time: 18-30 UTC

15 STORM RELATIVE



25 GEORGES

850 mb

20 Date: 980921
Time: 18-30 UTC

15 STORM RELATIVE