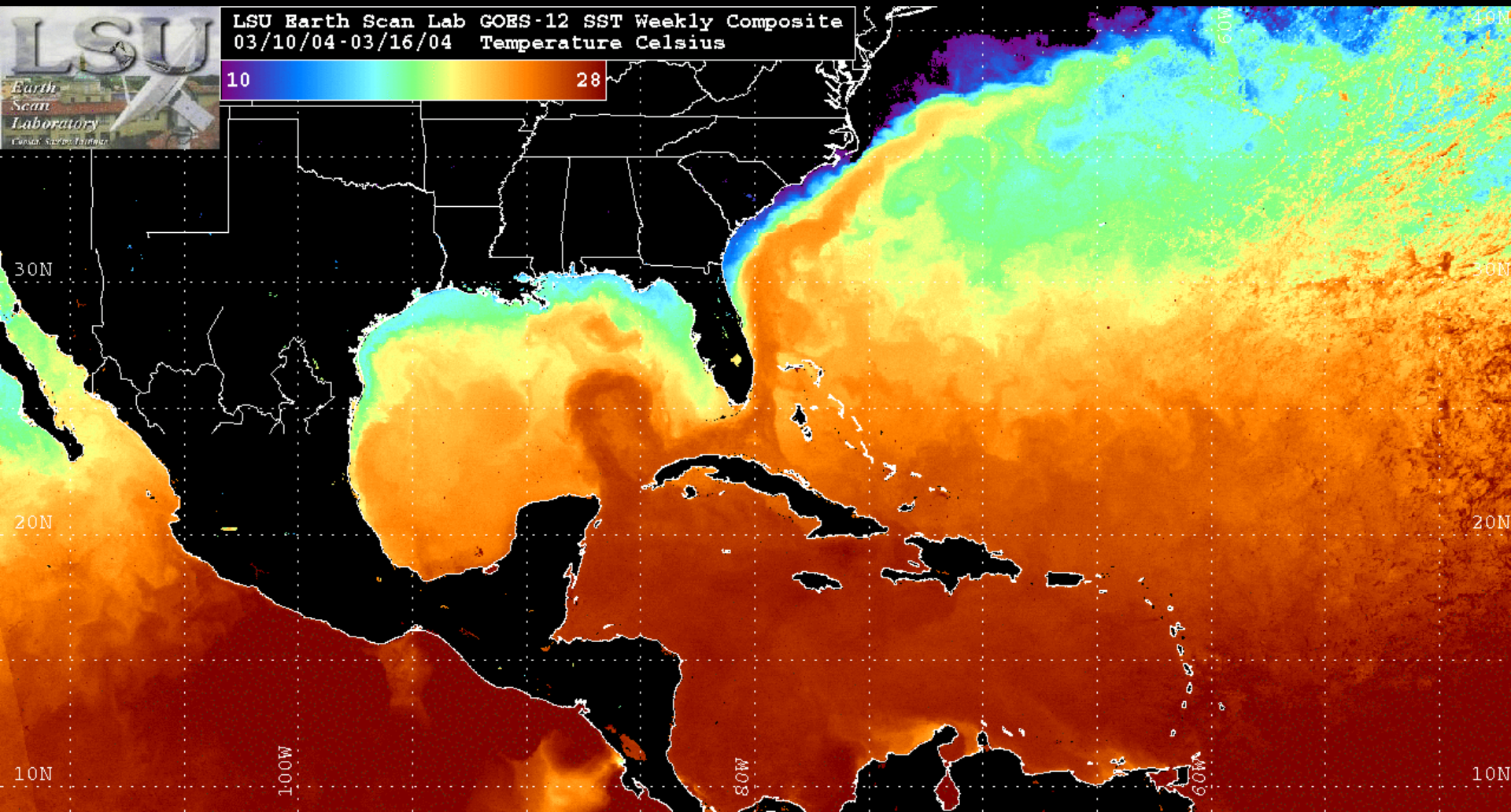


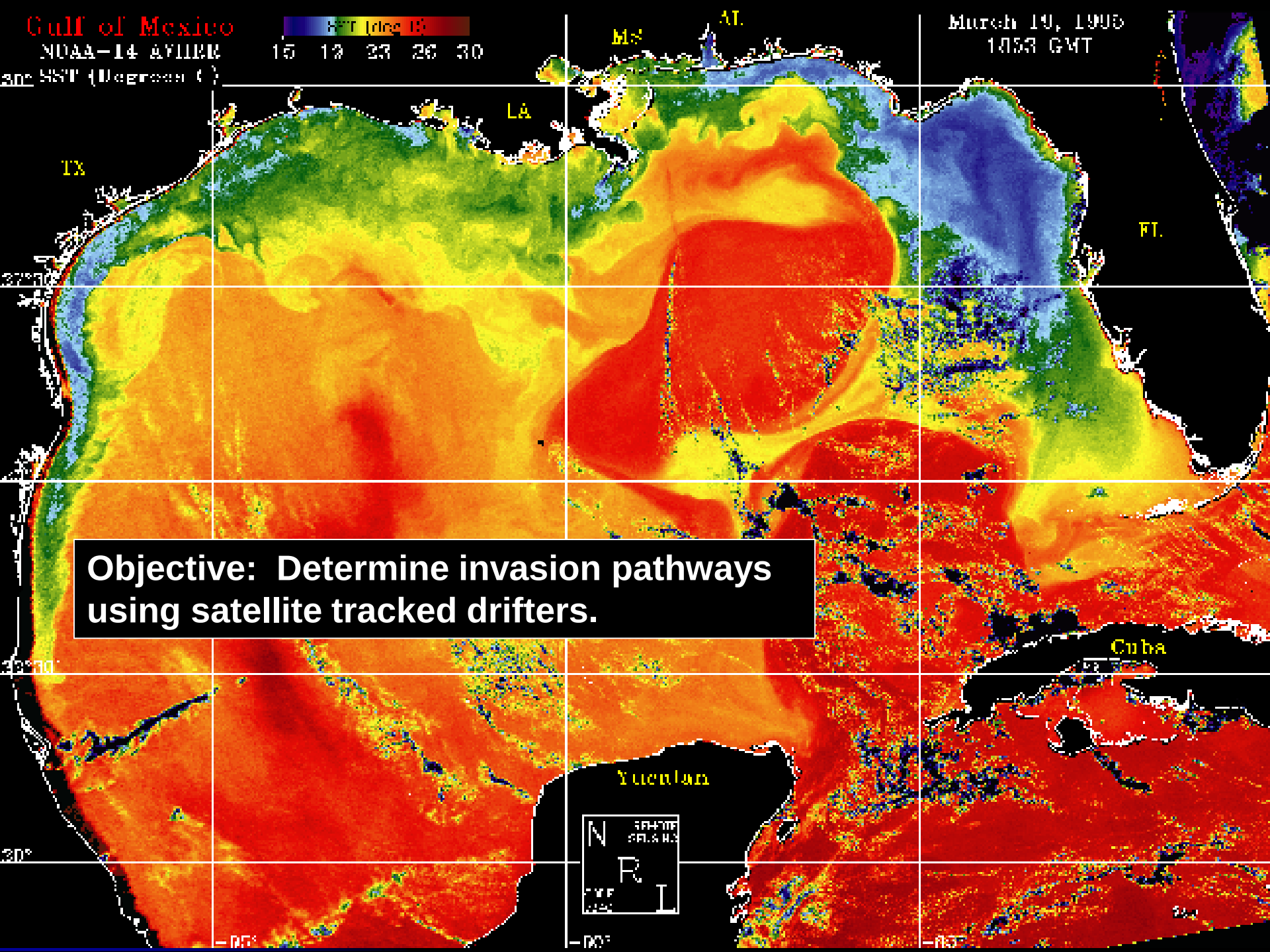
The Loop Current as a Vector for Connectivity of Invasive Species from the Western Atlantic to the Gulf of Mexico

Donald R. Johnson

Harriet M. Perry

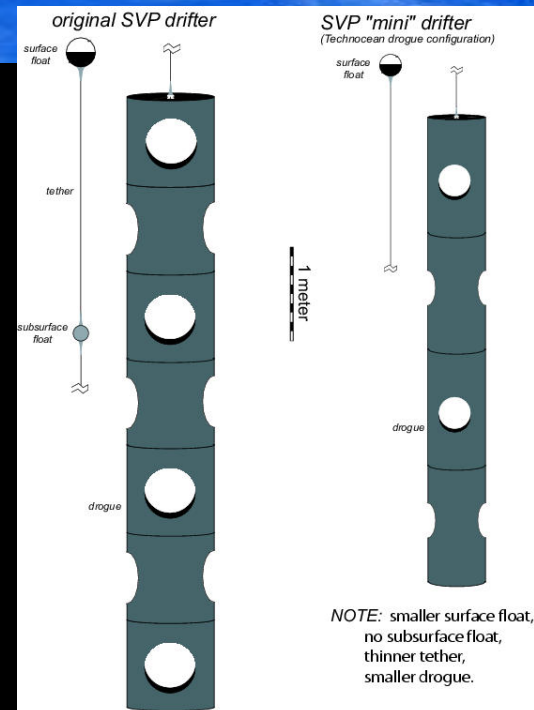
Gulf Coast Research Laboratory, University of Southern Mississippi

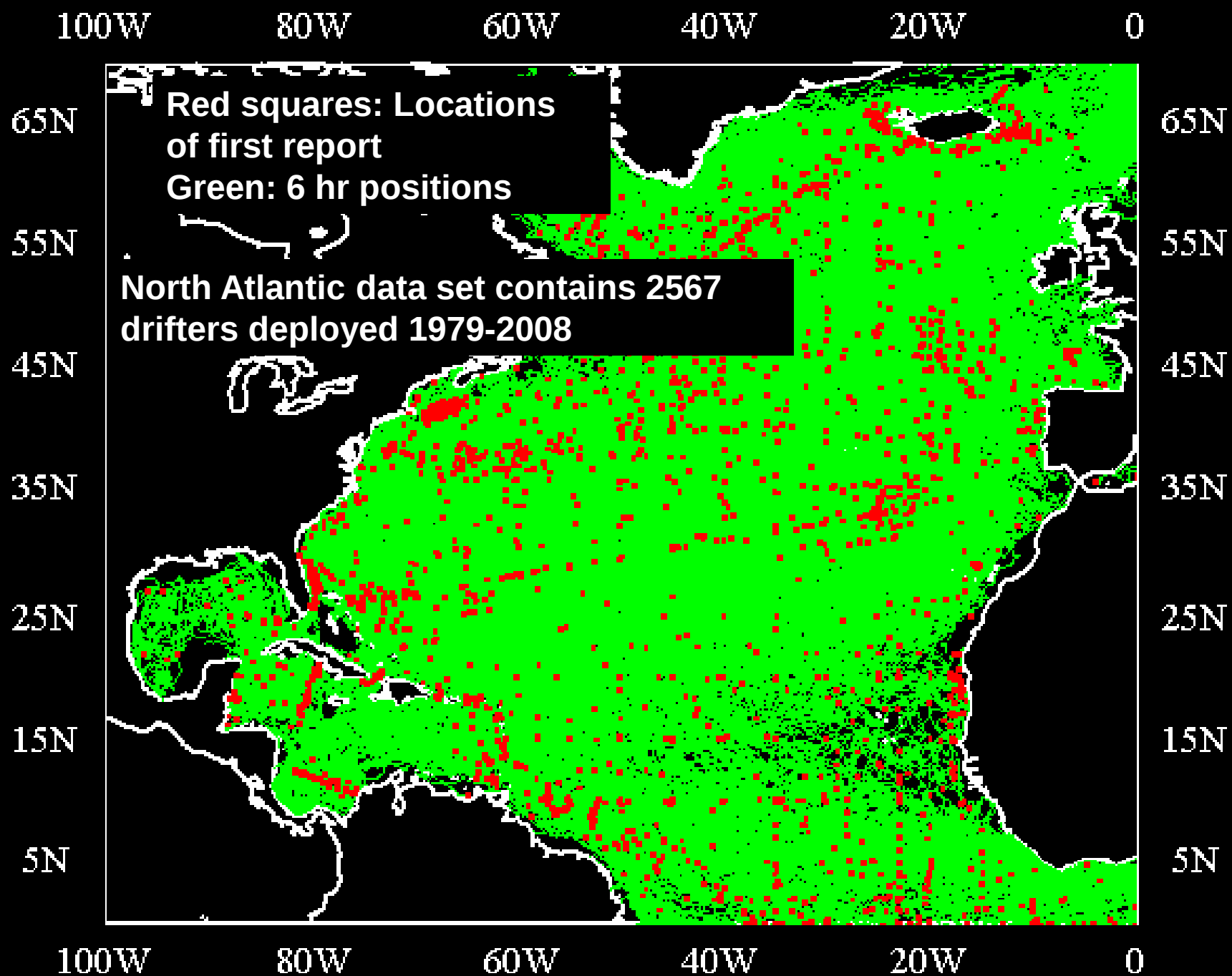




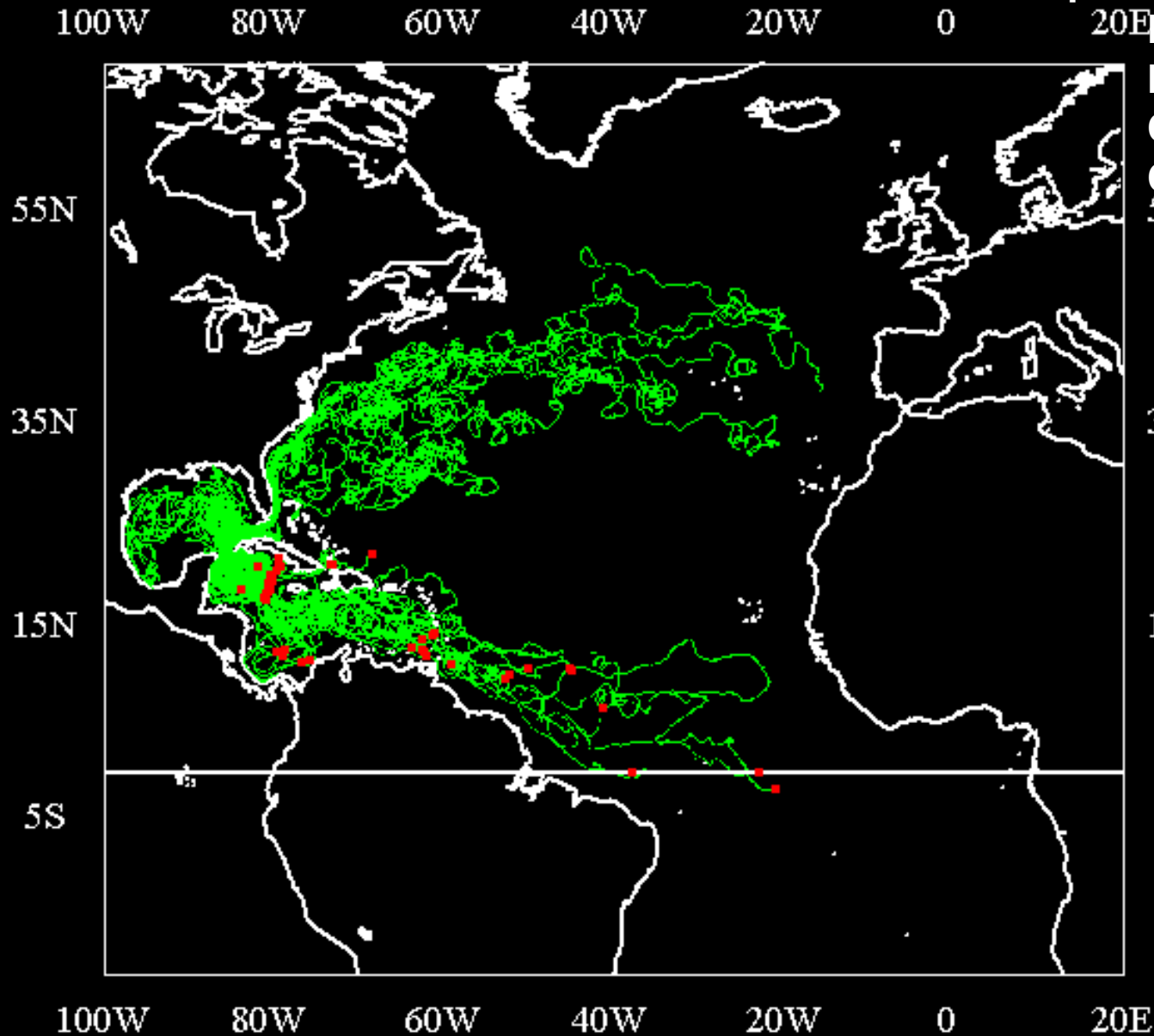


Global Drifter Program
Began in 1982 under World Climate Research Program
Data archived at NOAA/AOML





2567 deployed
46 entered Gulf of Mexico
The principal pathway was via
North Equatorial Current



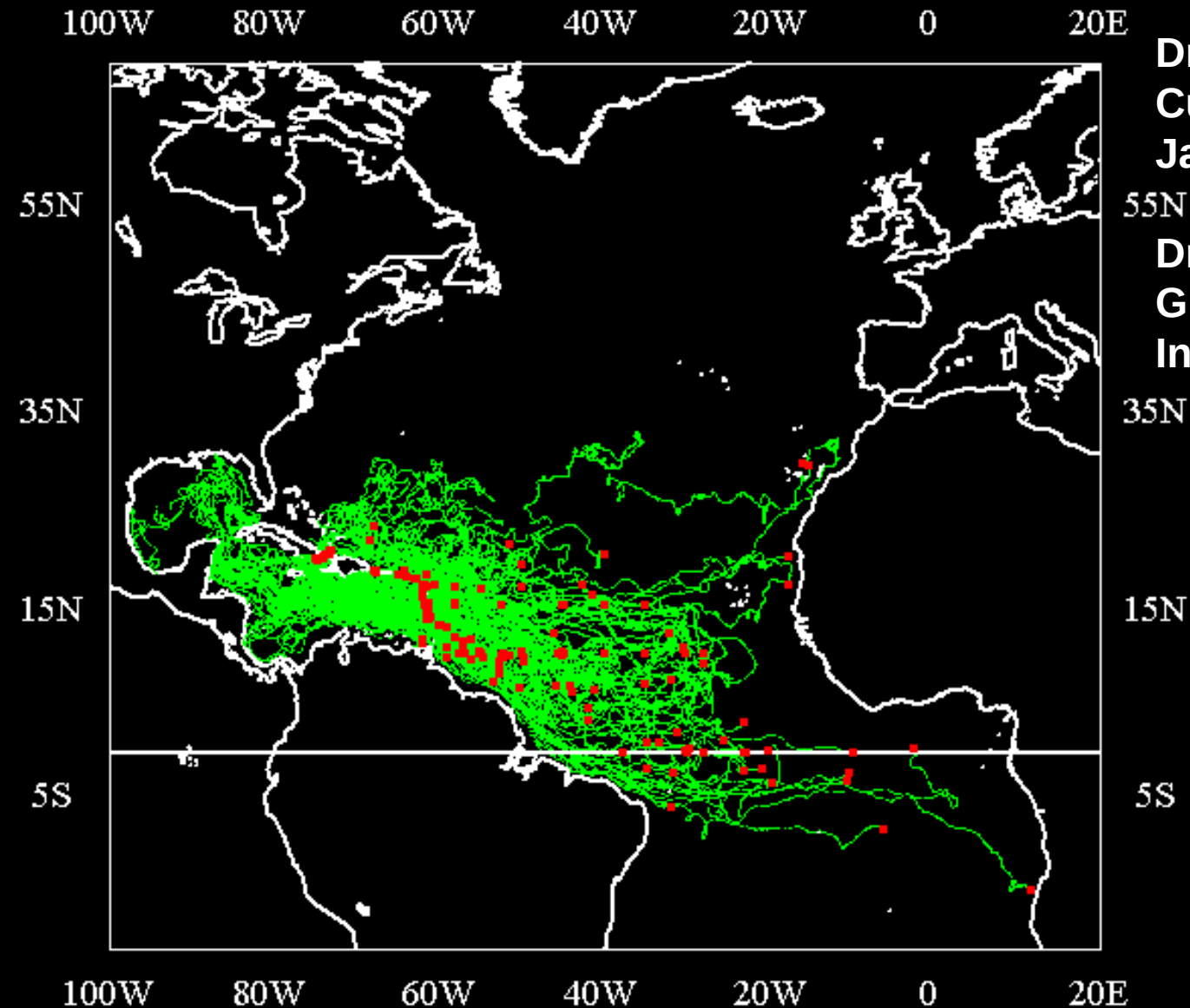
North Brazil Current
Guiana Current
Caribbean Current

Red squares are
Starting locations

Drifters that came into Caribbean from outside

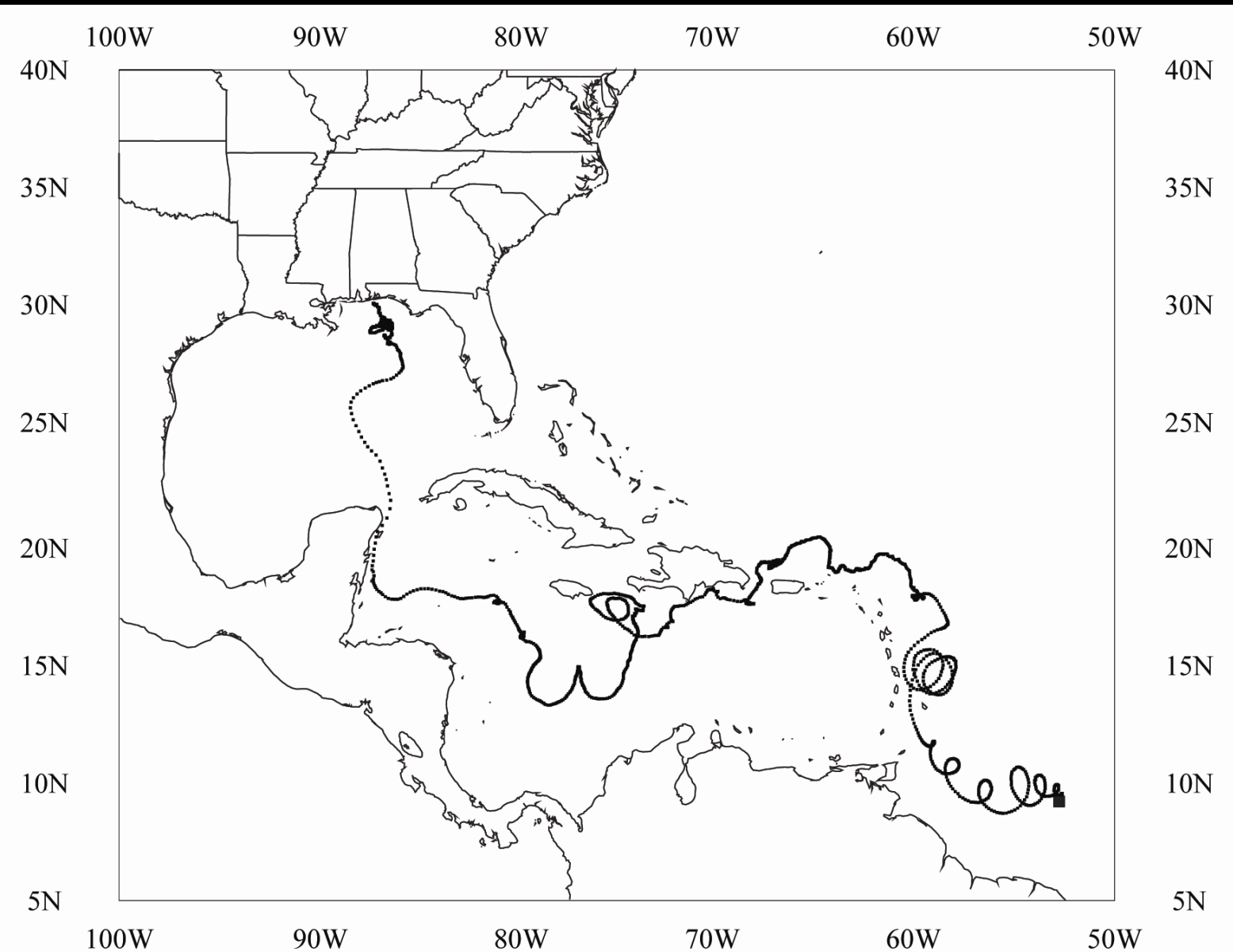
**Drifter from Benguela
Current grounded on
Jamaica in 617 days.**

**Drifter from Canaries
Grounded near Cozumel
In 534 days.**



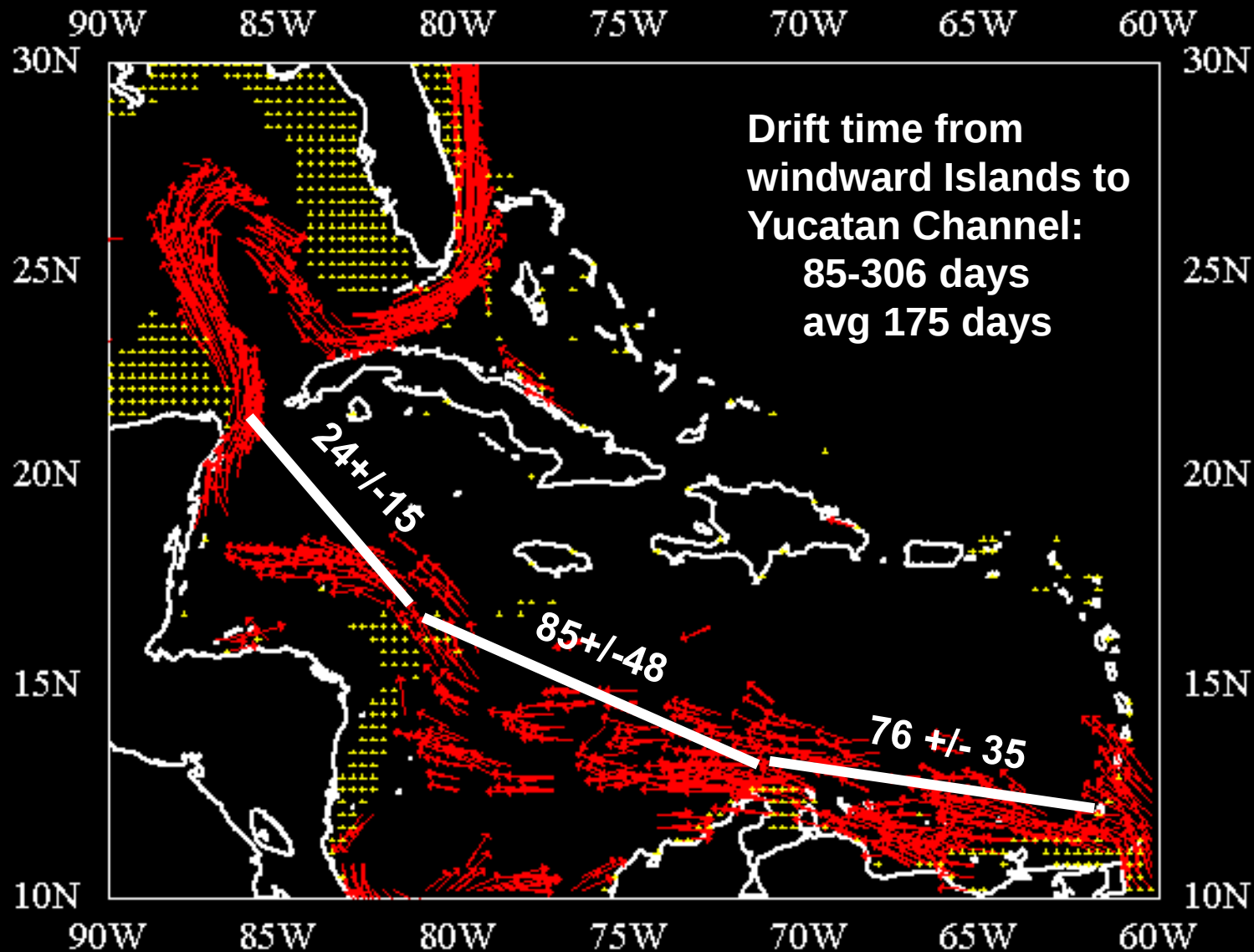
Drifter 9815989

**9 days to cross basin
30 days in DeSoto Canyon
Reached 20 m depth on 8 May 2000 in west Florida**

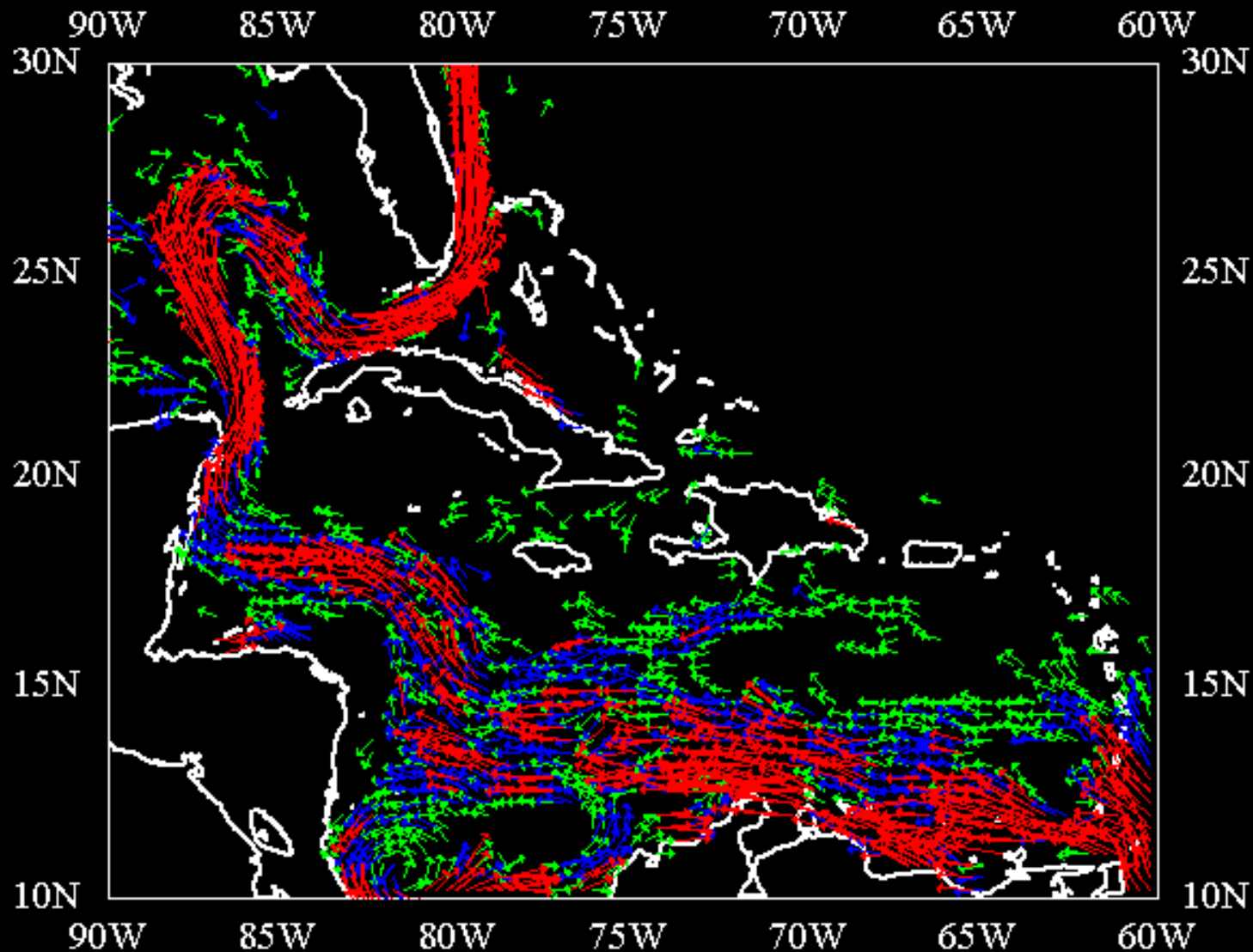


Depths ≤ 200 m

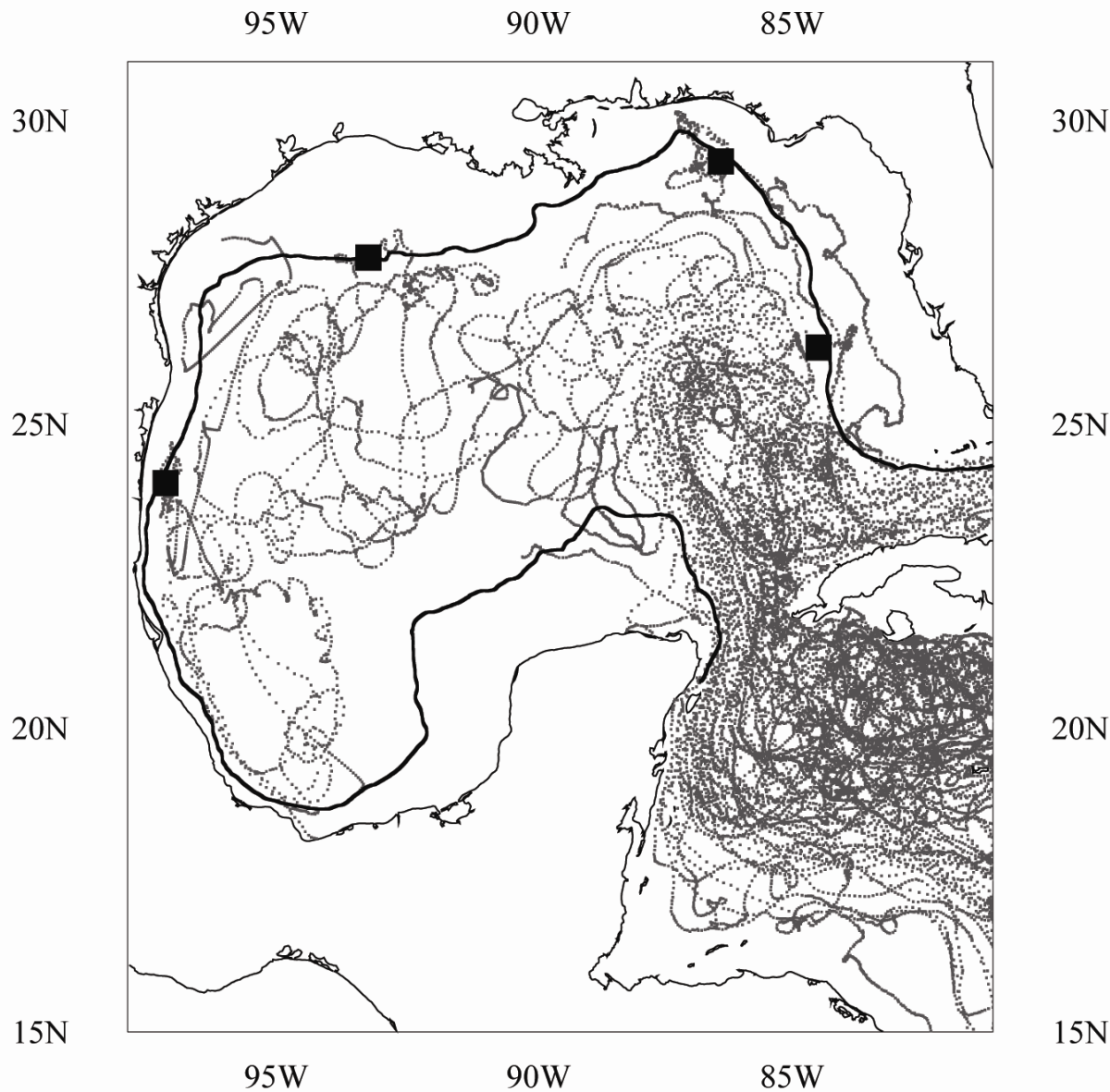
Currents from drifters. Gridded and optimally interpolated (decorrelation at 20 km).
Plot ≥ 40 cm/s



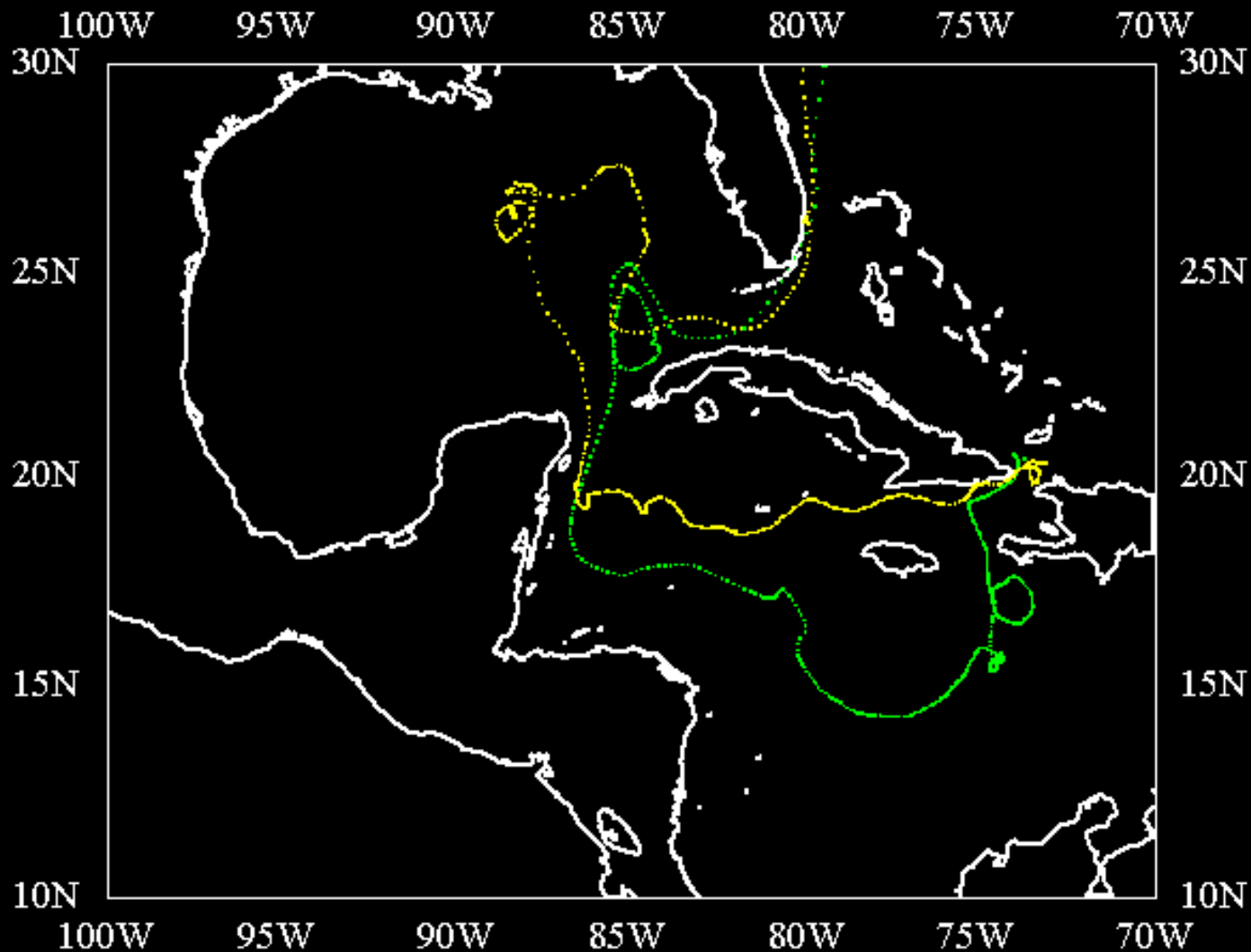
≥ 40 cm/s **red**
30-40 cm/s **blue**
20-30 cm/s **green**



46 entered GOM
45 in water depths < 1000 m
16 in water depths < 200 m
9 in water depths < 100 m



**Two drifters deployed in
Windward Passage 72 and 84 days
to enter GOM**



Summary

- Principal pathway into the Gulf of Mexico through the Caribbean is from the western equatorial region of the Atlantic
- Of 2567 drifters deployed in the North Atlantic, 46 entered the GOM (1.8%)
- Of 46 drifters that entered the GOM, 16 crossed 200 m isobath, but only 4 crossed the basin. However, one of the 4 associated with a non-indigenous invasion.