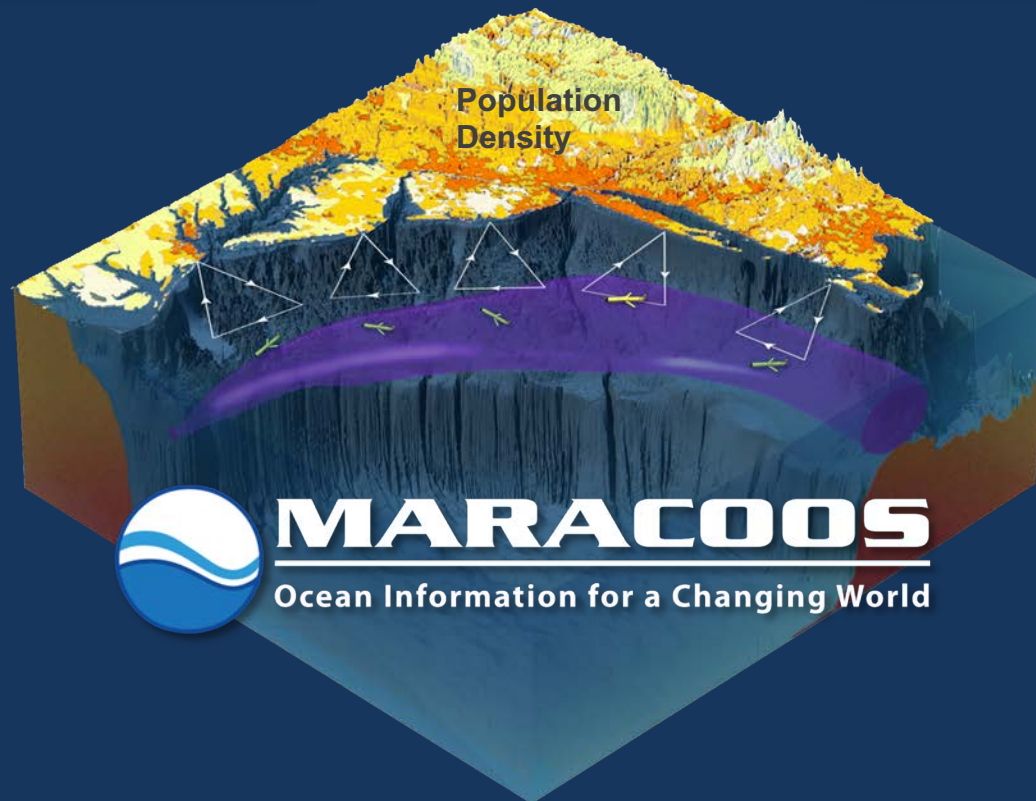
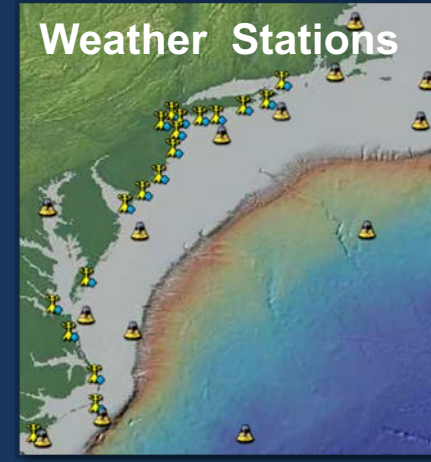
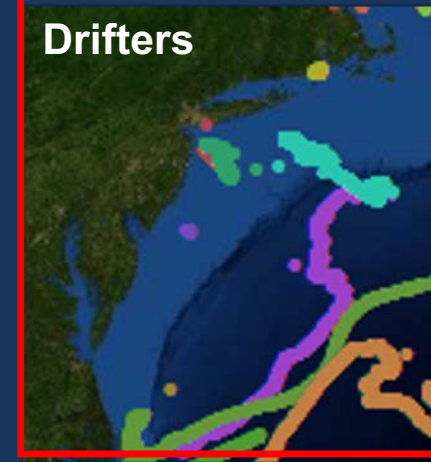
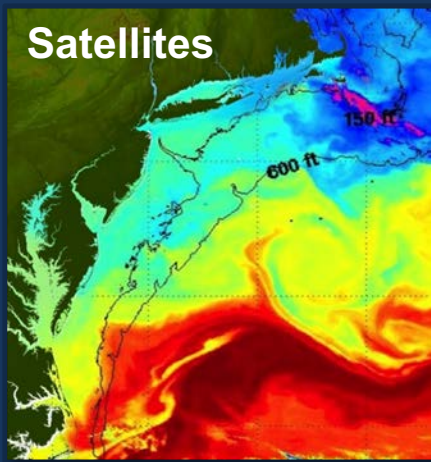


Mid Atlantic Drifter Program: Development of a Software Toolbox to Manage Drifter Data

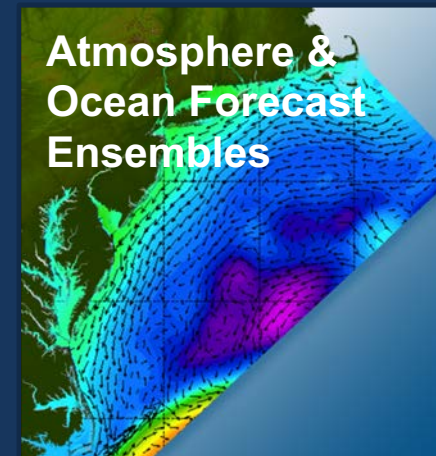


Dr. Hugh Roarty and
Ms. Laura Nazzaro





Powering Understanding and Prediction of the Mid-Atlantic Ocean and Coasts



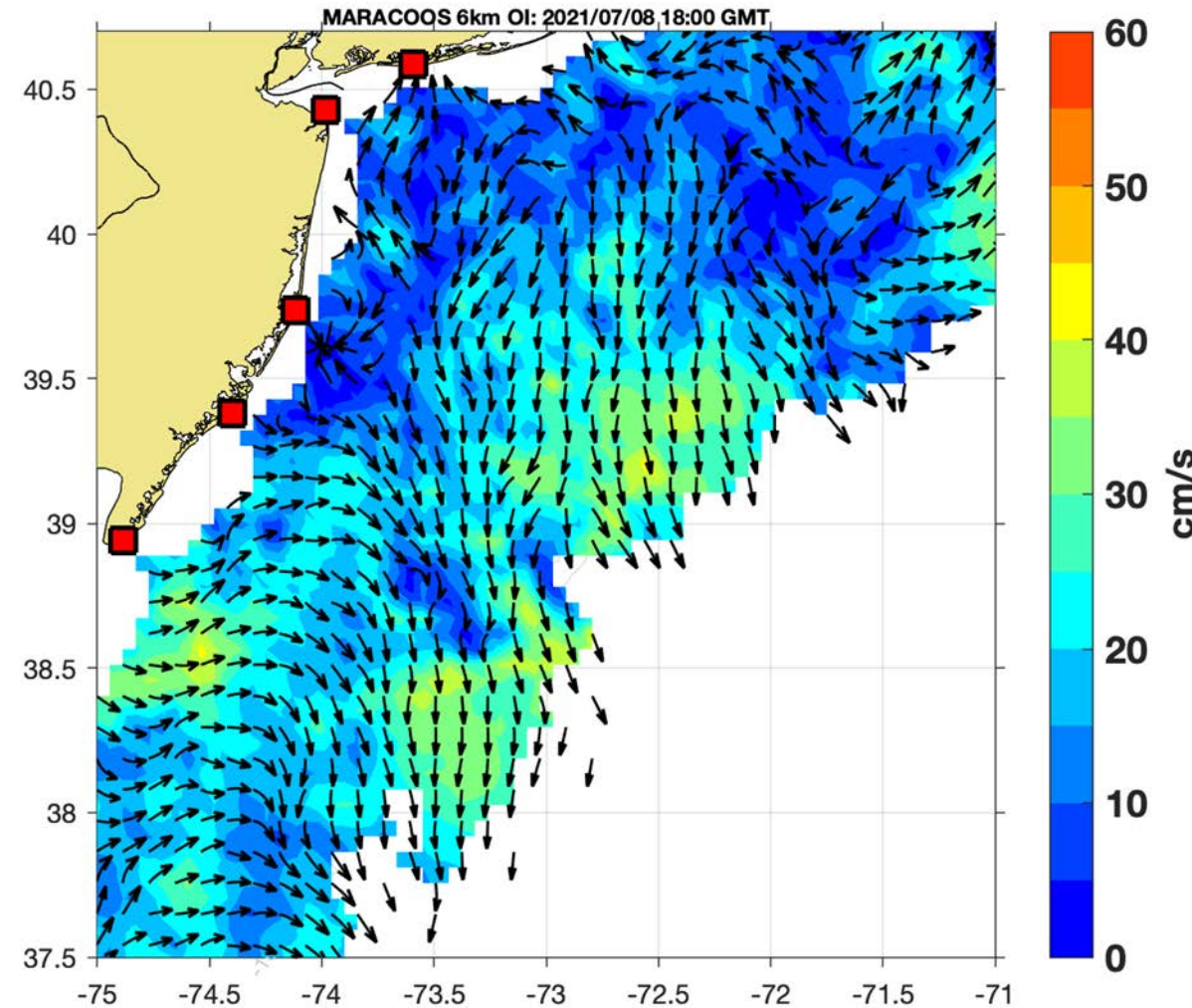
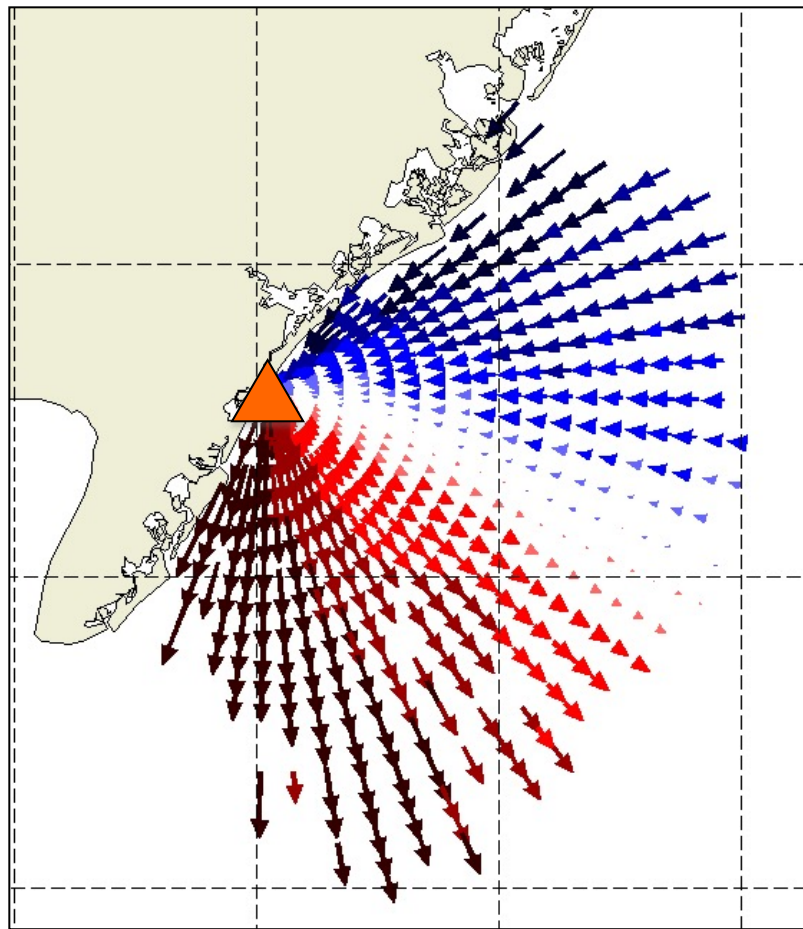
IOOS
Integrated Ocean Observing System



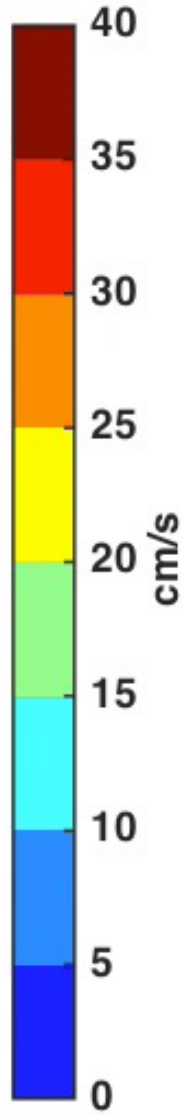
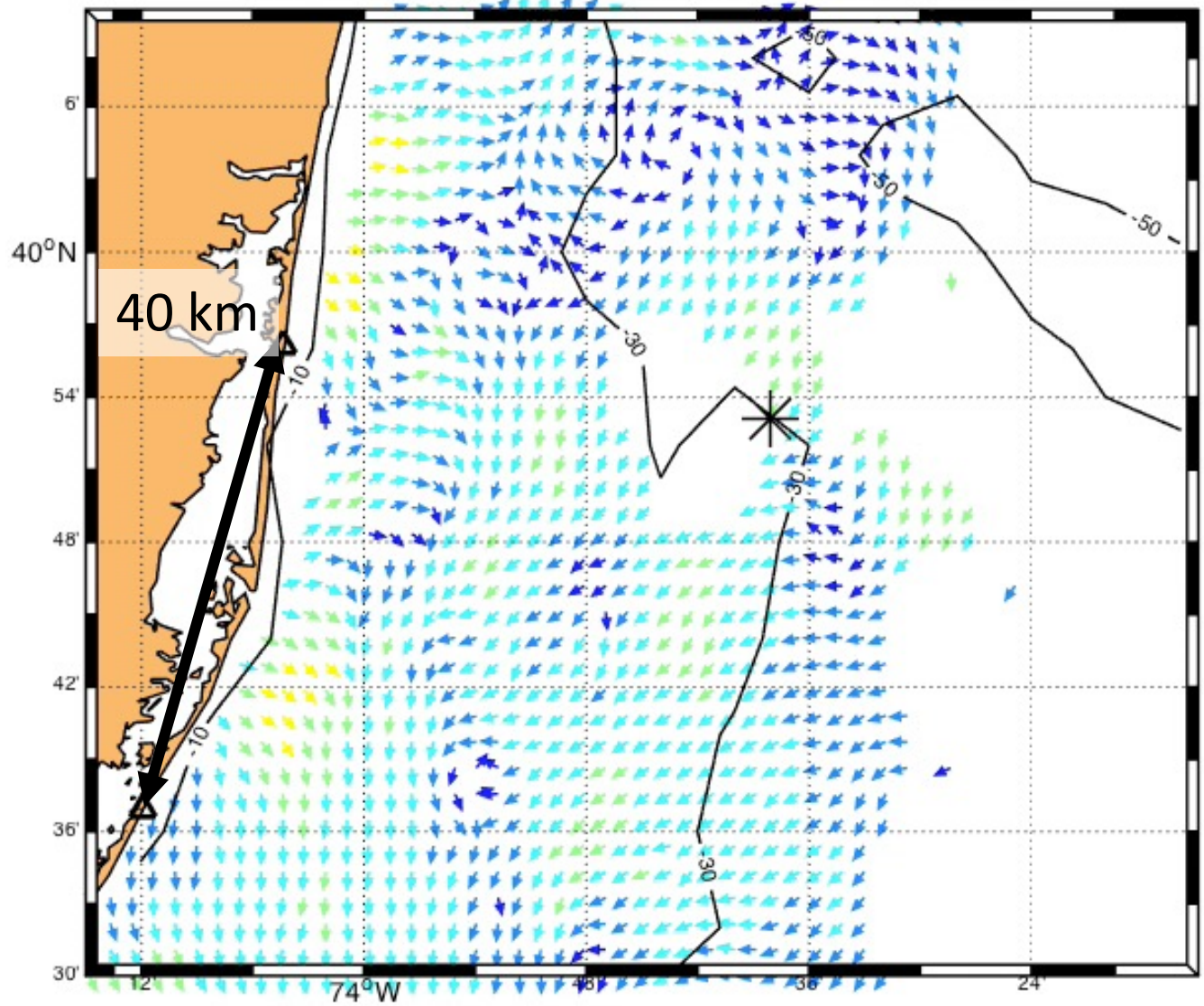
Hourly radial surface current measurements



Hourly total current measurements



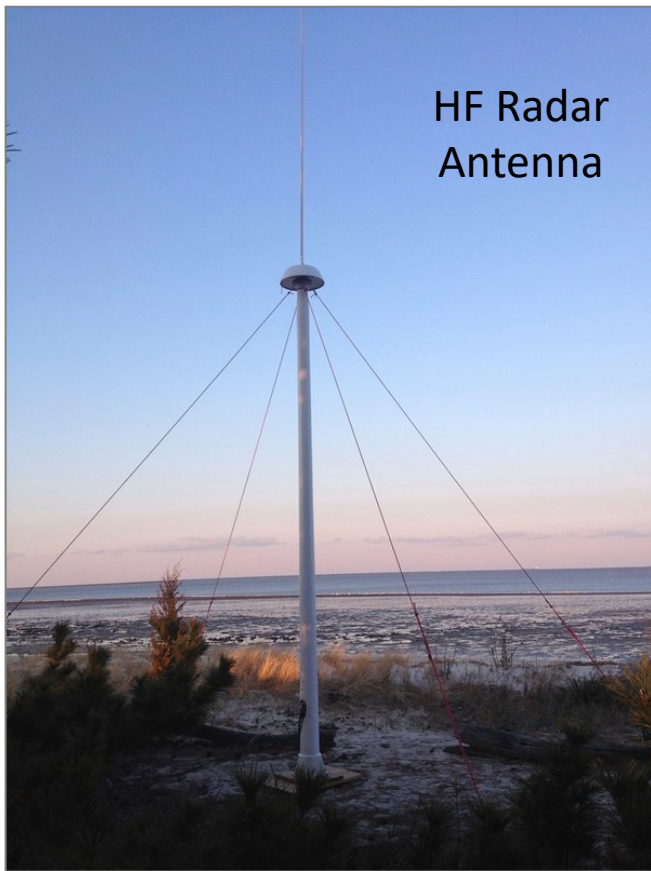
MARACOOS 2km 13MHz TUV OI: 2016/05/10 22:00 GMT+0.000



* In Situ Drifters

02/06/18

/Users/hroarty/Documents/MATLAB/HJR_Scripts/total_plots/hourly_vector_plot_wrapper_13.m

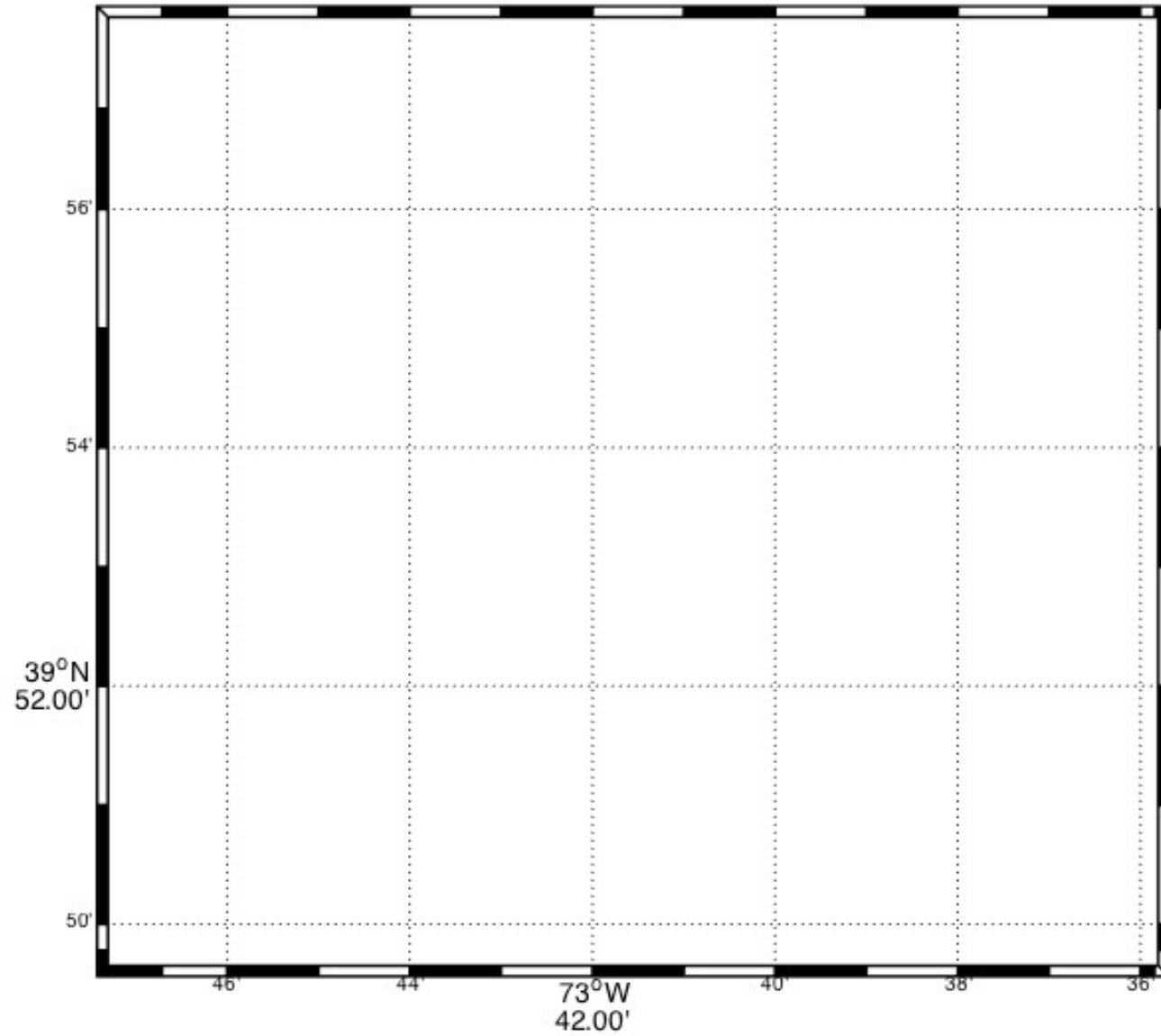


HF Radar
Antenna



Surface
Drifter

Particle Trajectories: 43340 Day 1
2016/05/10 22:00 Actual (black) Virtual (magenta)



06/01/18
plot_drifter_movie.m

HF Radar vs Drifters

GitHub navigation bar: Search or jump to..., Pull requests, Issues, Marketplace, Explore. User avatars and icons on the right.

Repository: Inazzaro / hfr-drifters. Watch: 1, Star: 0, Fork: 0.

Navigation: Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights.

0 Introduction

Laura Palamara Nazzaro edited this page on Sep 15, 2020 · 1 revision

Introduction

This toolbox uses drifter data in netcdf format, structured as in the cdl included as a [template](#). If the raw data is available in this format, [processDrifterFiles.m](#) will read the data in from that file and calculate locations and velocities at timestamps matching HF radar data, with the option to add them to a separate netcdf file.

The output from processDrifterFiles.m can be fed to [drifter2hfr.m](#) to collect HFR radials and/or totals data at matching locations and timestamps to the processed drifter data. This can be run multiple times for different datasets, for example to compare different levels of quality control.

Functions included in [stats_and_imagery](#) subdirectory generate statistics and imagery for one or more comparisons of drifter data paired with radial datasets, or drifter data paired with totals datasets.

Other requirements: [HFR-Progs \(https://github.com/rowg/hfrprogs\)](https://github.com/rowg/hfrprogs)

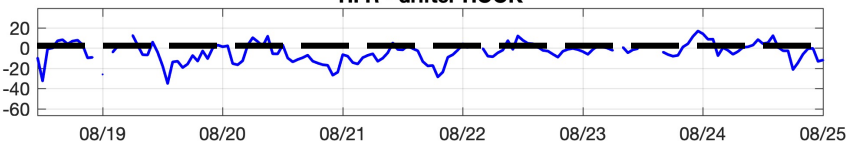
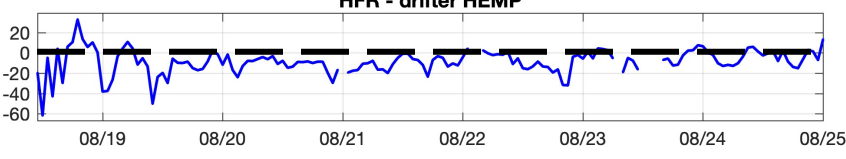
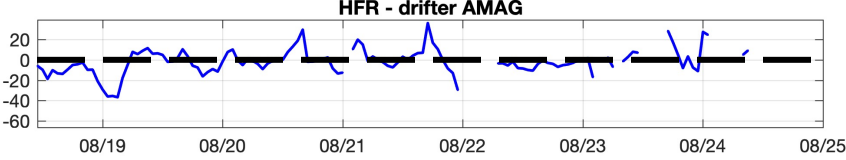
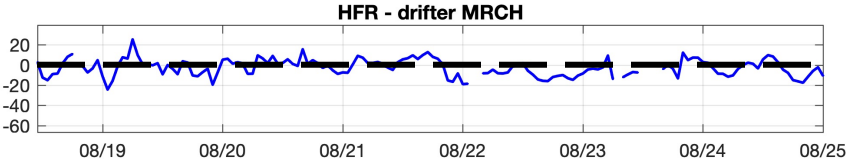
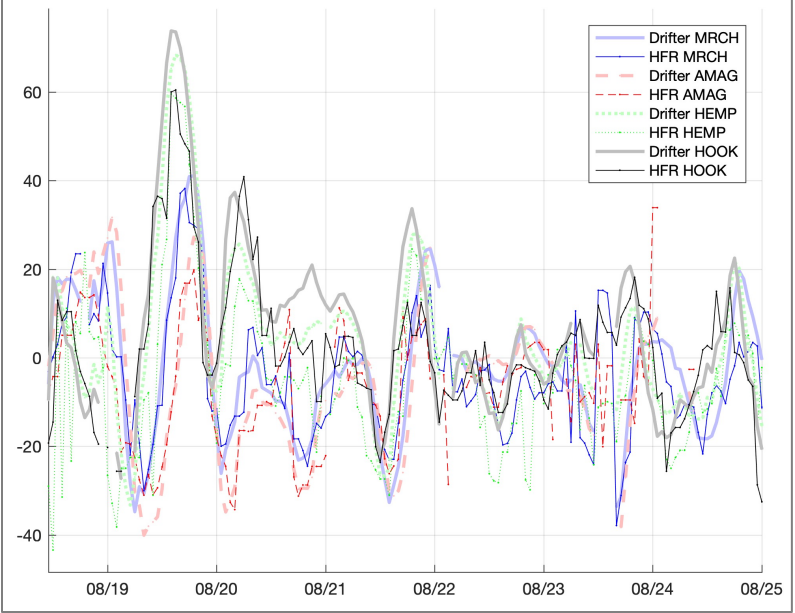
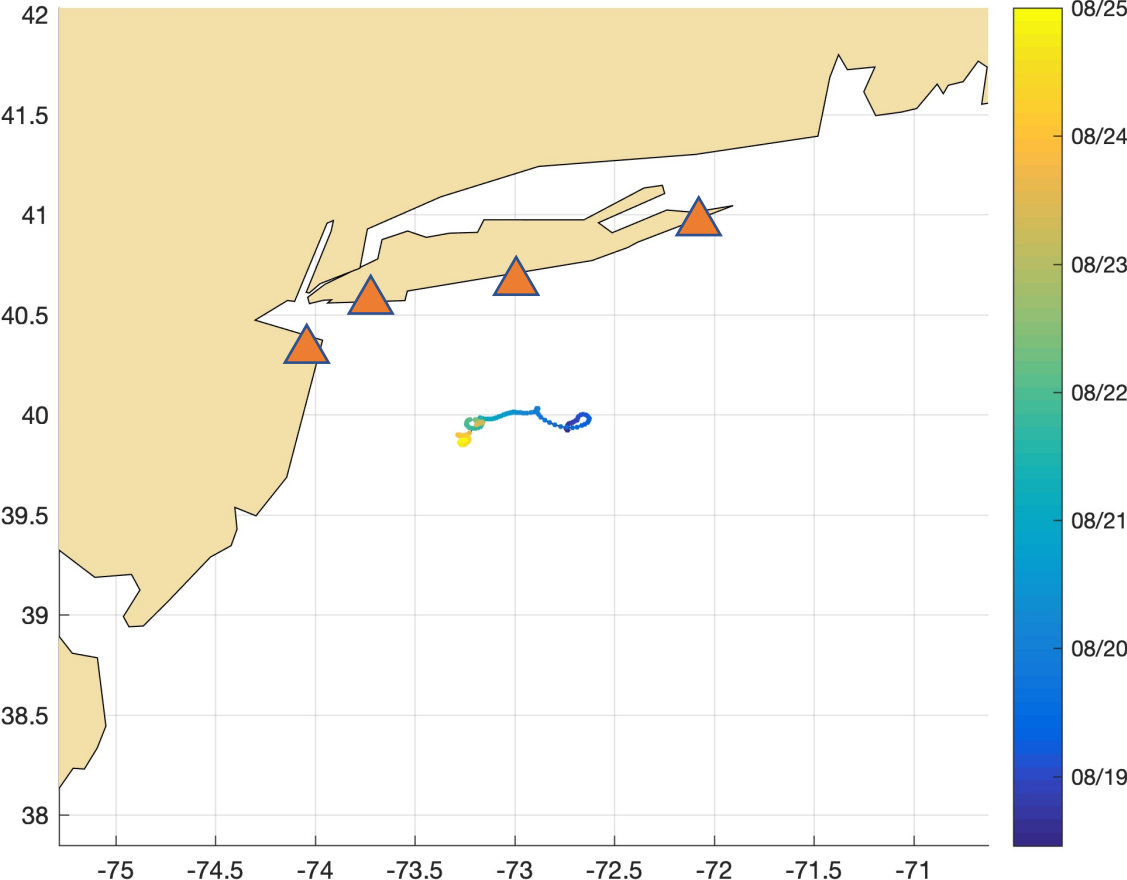
Pages 6

- Home
- 0 Introduction**
- 1 Processing Raw Drifter Data
- 2 Matching Drifter Data to HFR Data
- 3 Comparing Drifter Data to Radial Data
- 4 Comparing Drifter Data to Totals Data

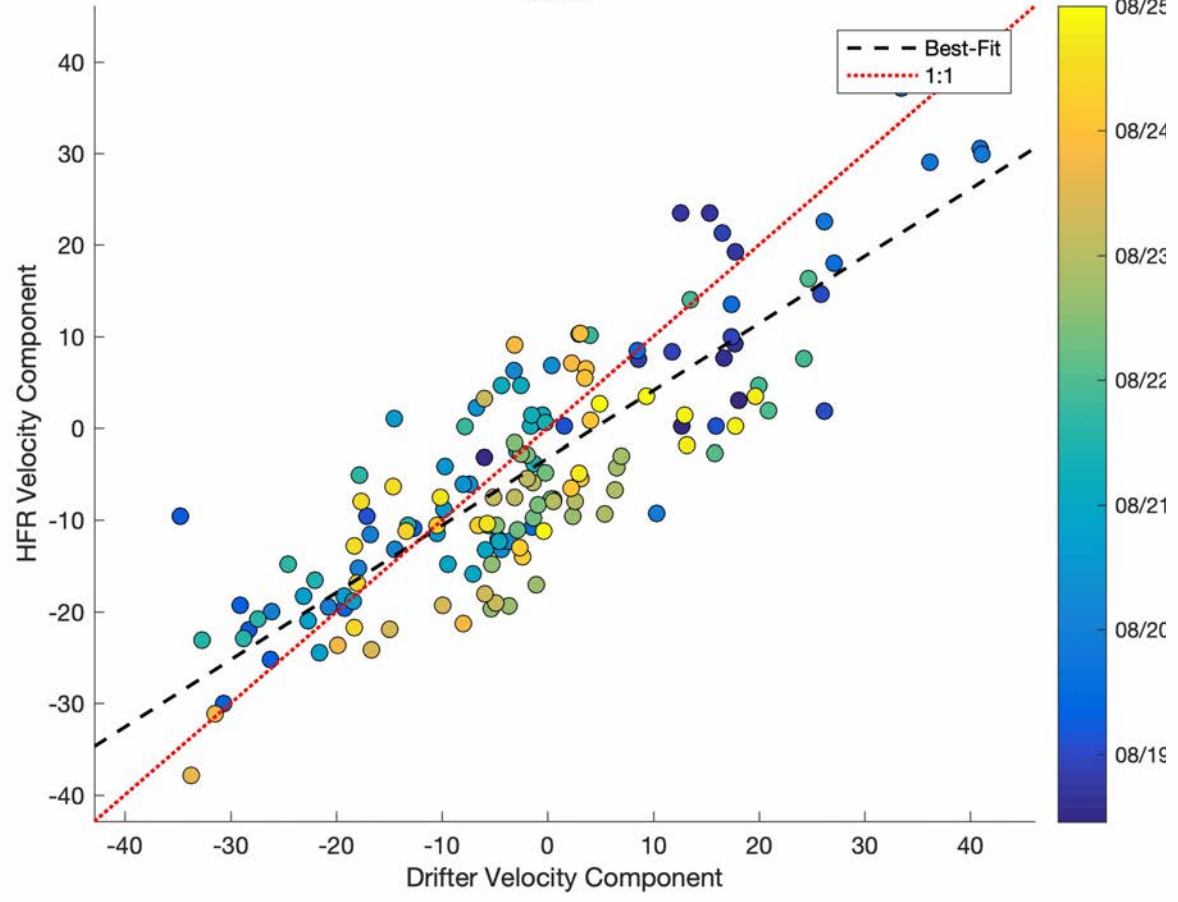
Clone this wiki locally

<https://github.com/Inazzaro/hfr-drifters/wiki/0-Introduction>

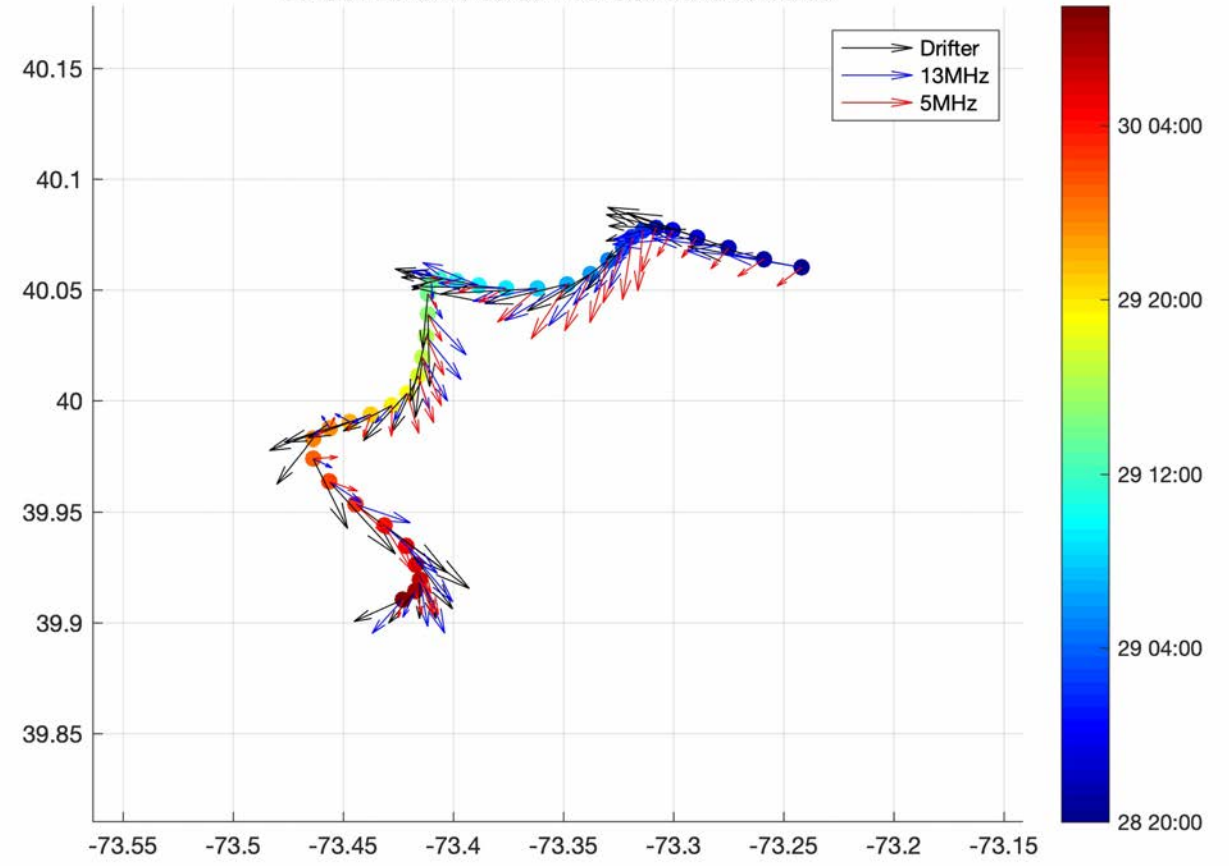
Radial Drifter Comparisons



MRCH



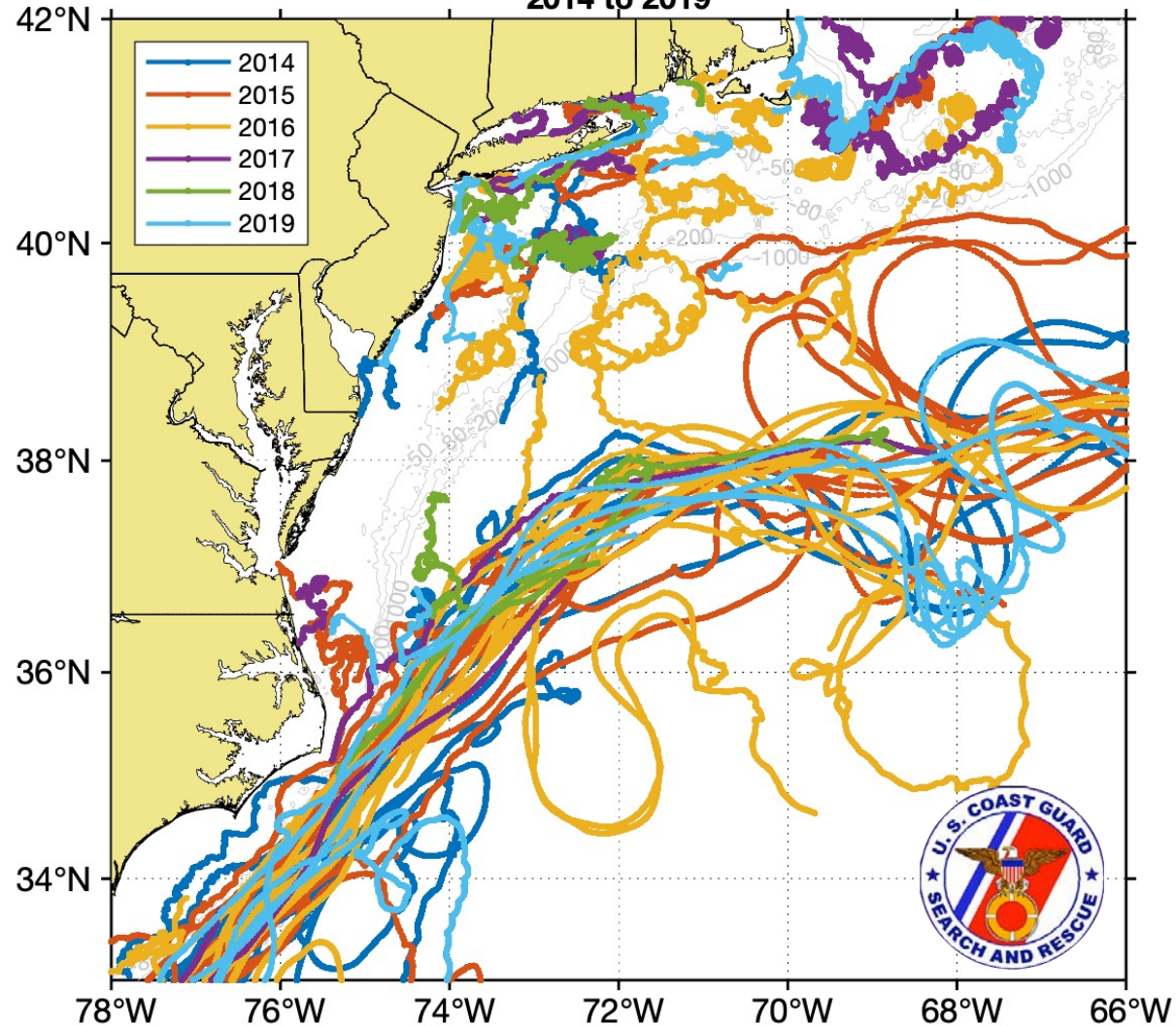
28-Oct-2019 20:00:00 - 30-Oct-2019 09:30:00



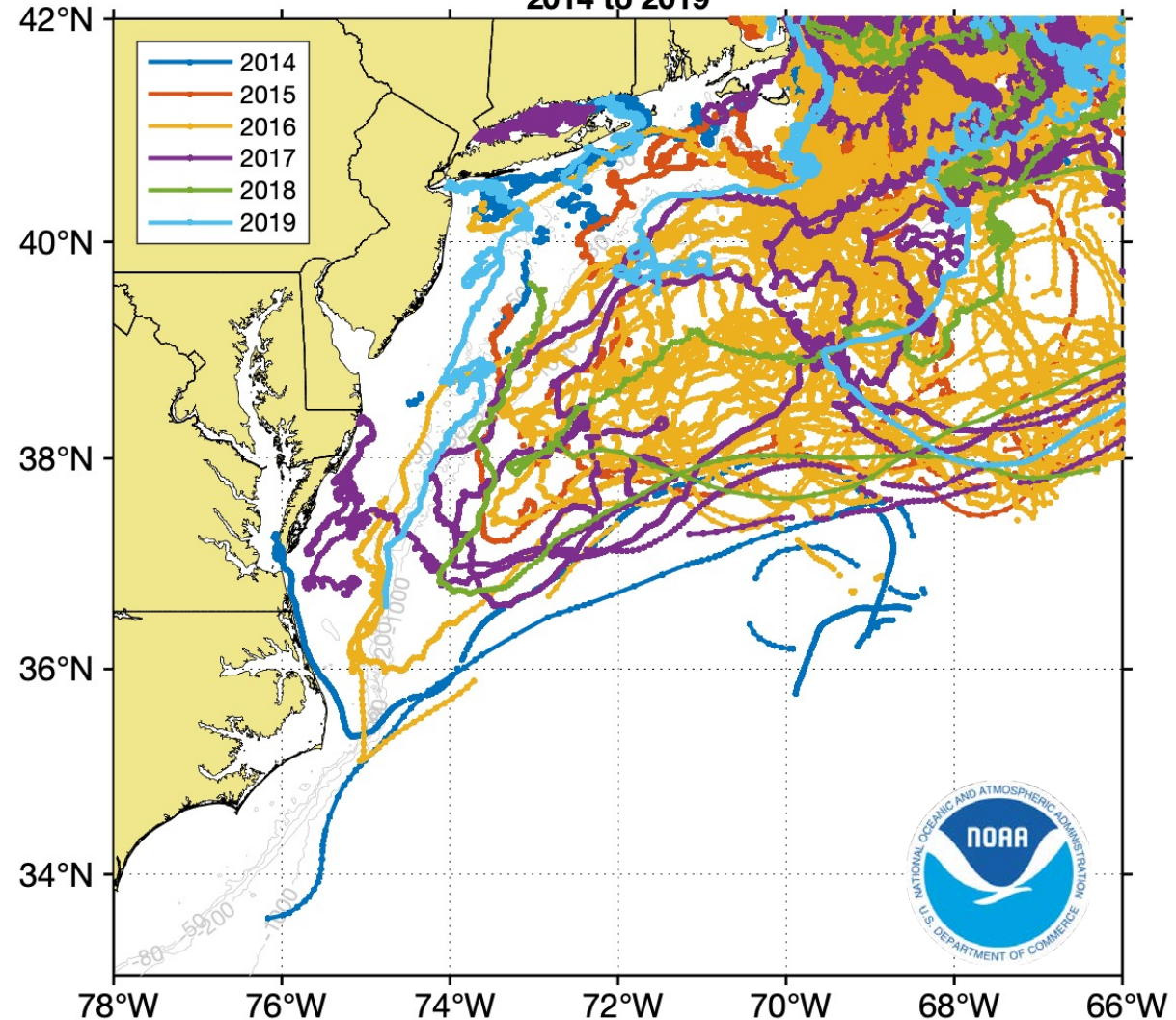
Drifter Data Sets

Regional Drifter Data Sets

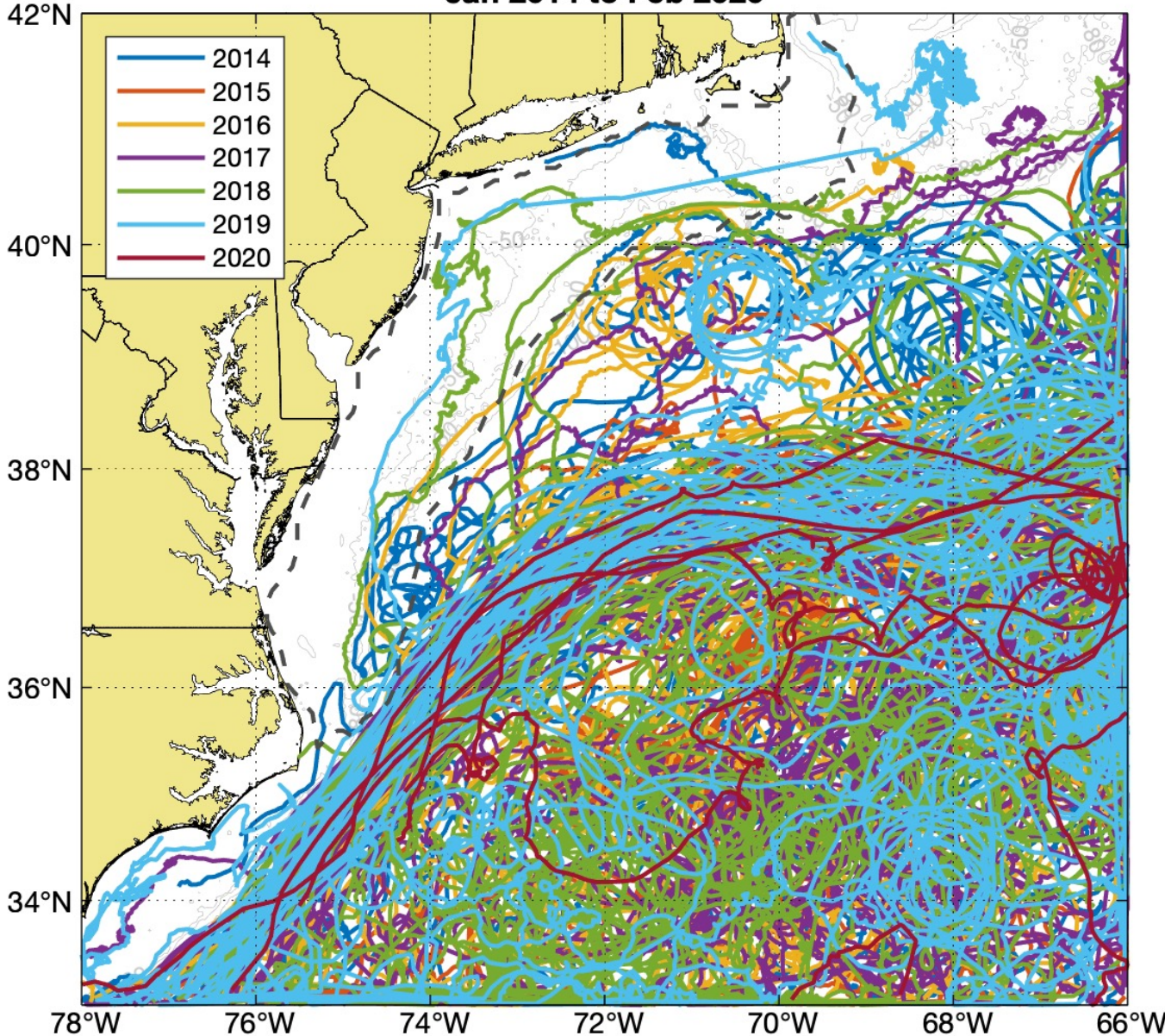
SLDMB Drifters
2014 to 2019



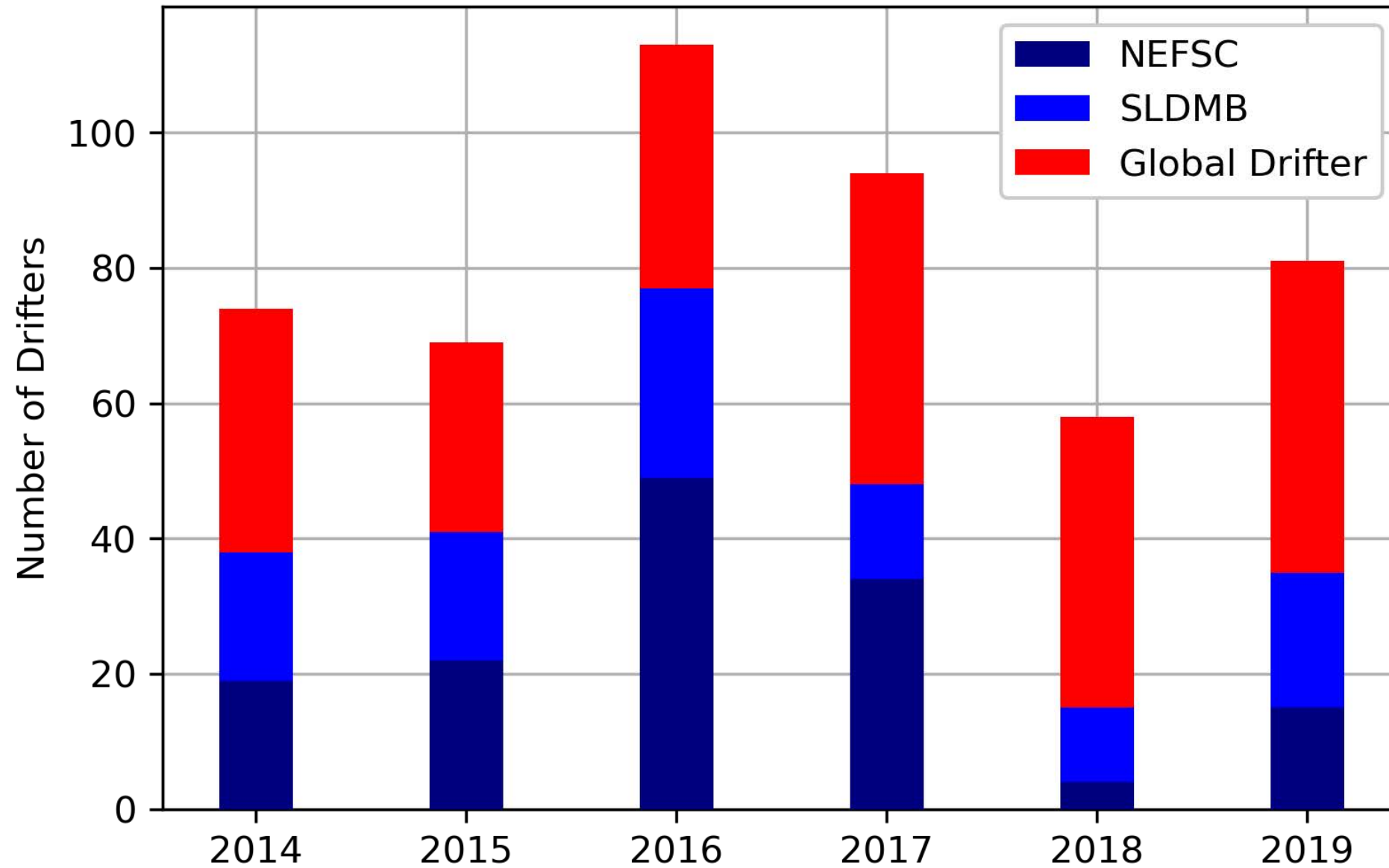
NEFSC Drifters
2014 to 2019



NOAA Global Drifters Jan 2014 to Feb 2020

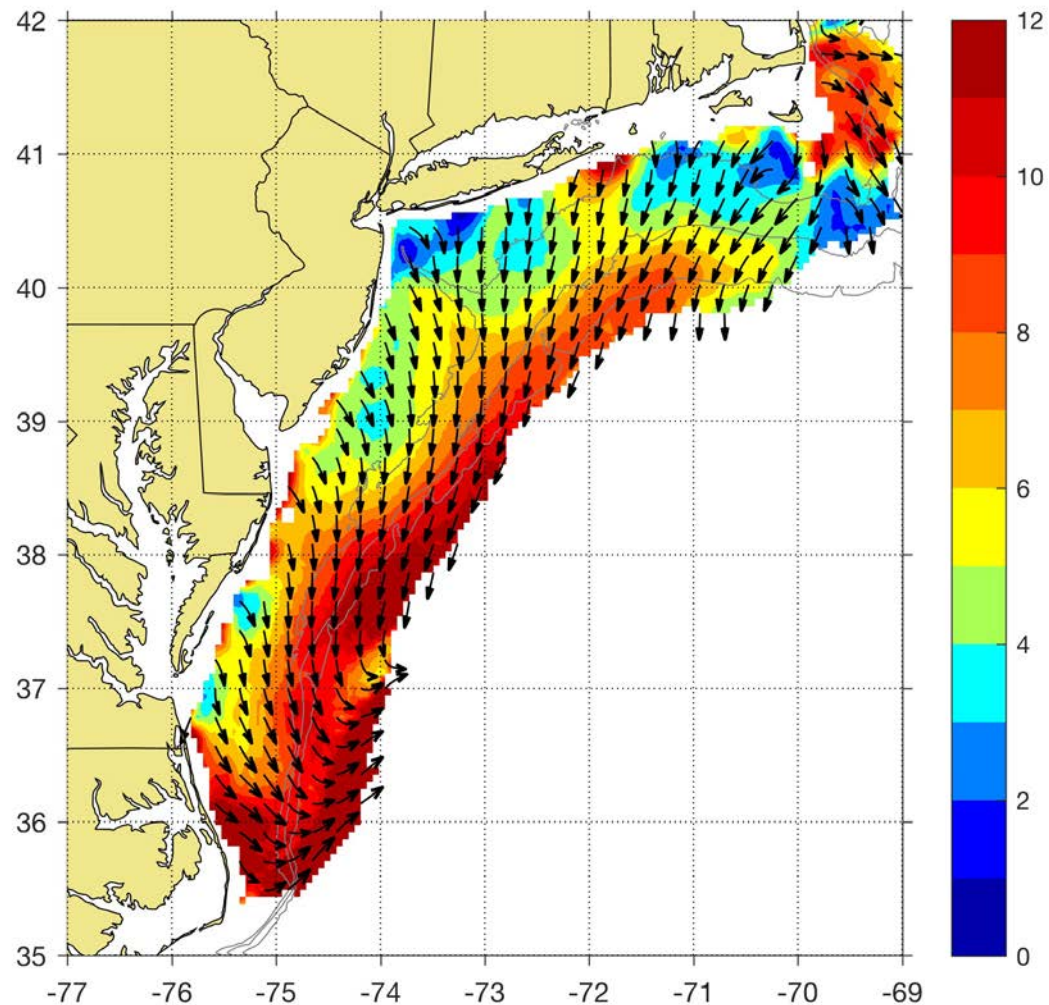


Drifters By Year



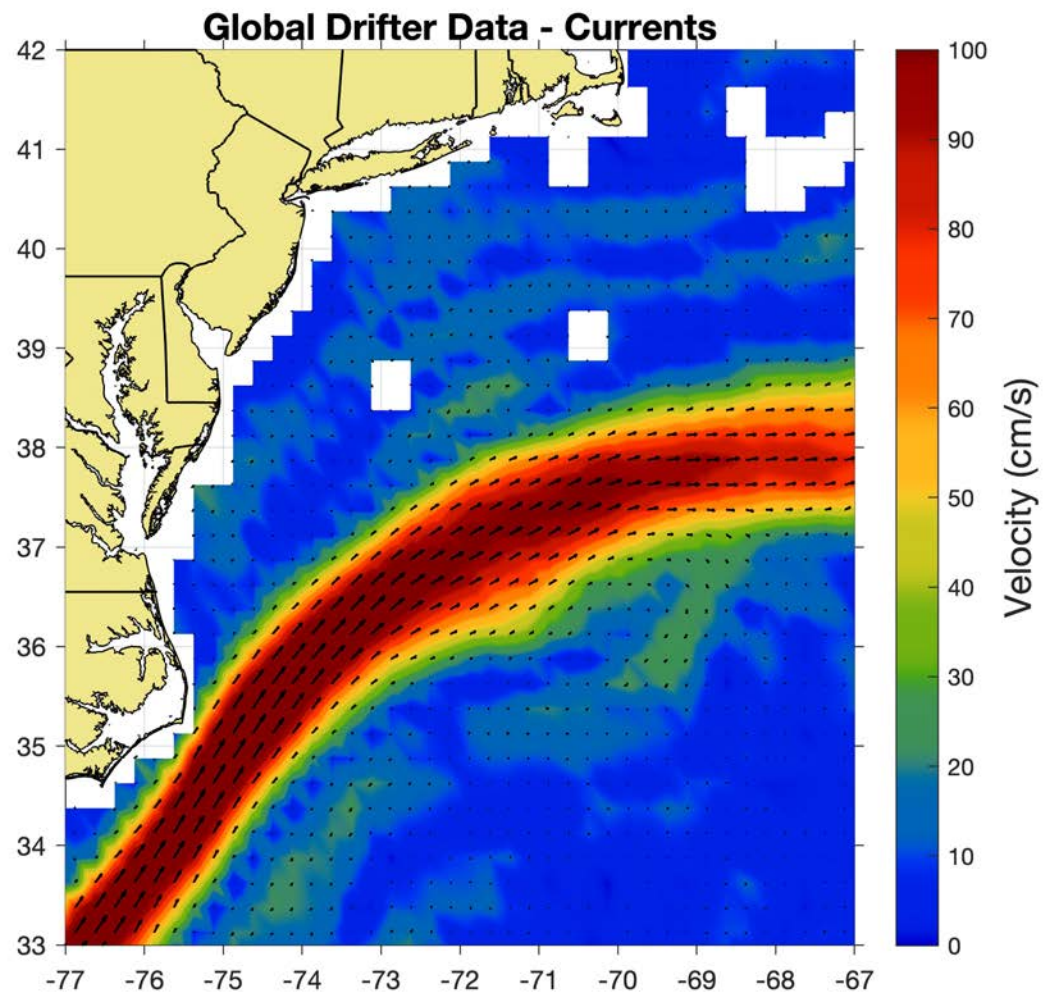
Mid Atlantic Surface Current Climatology

MARACOOS HFR Surface Current 2007-2016



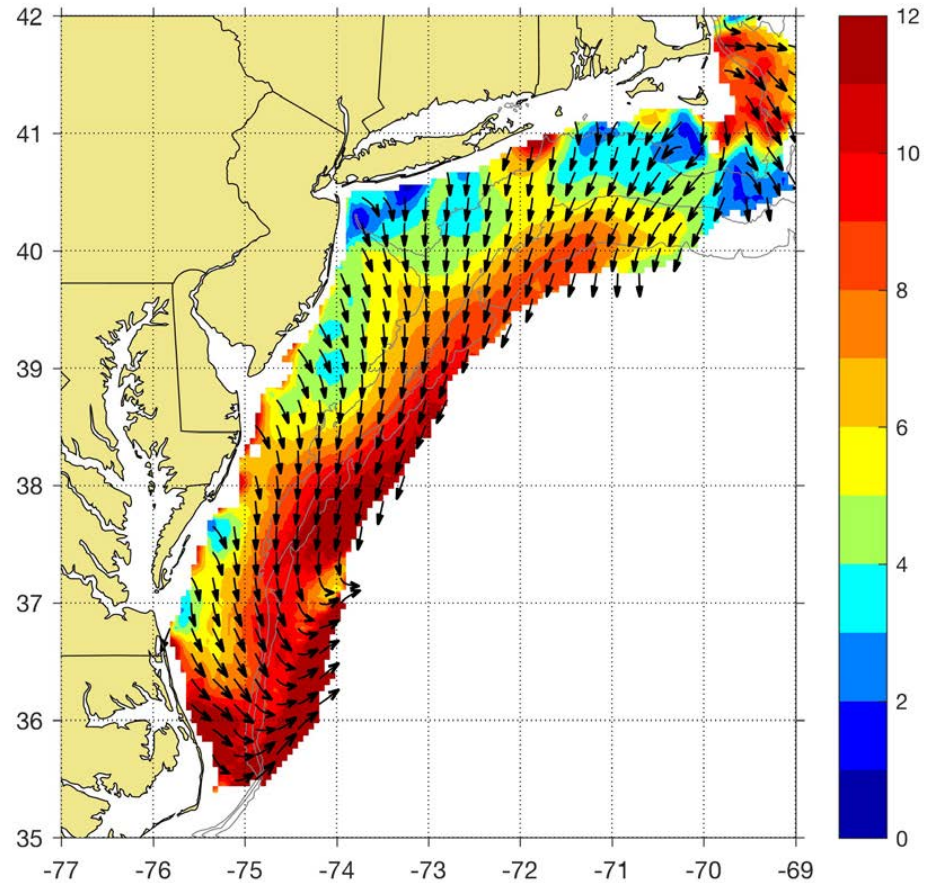
[Roarty, H. et al. "Annual and seasonal surface circulation over the Mid-Atlantic Bight Continental Shelf derived from a decade of High Frequency Radar observations." *Journal of Geophysical Research: Oceans* 125, no. 11 \(2020\): e2020JC016368.](#)

Northwest Atlantic Surface Currents 1979-2015



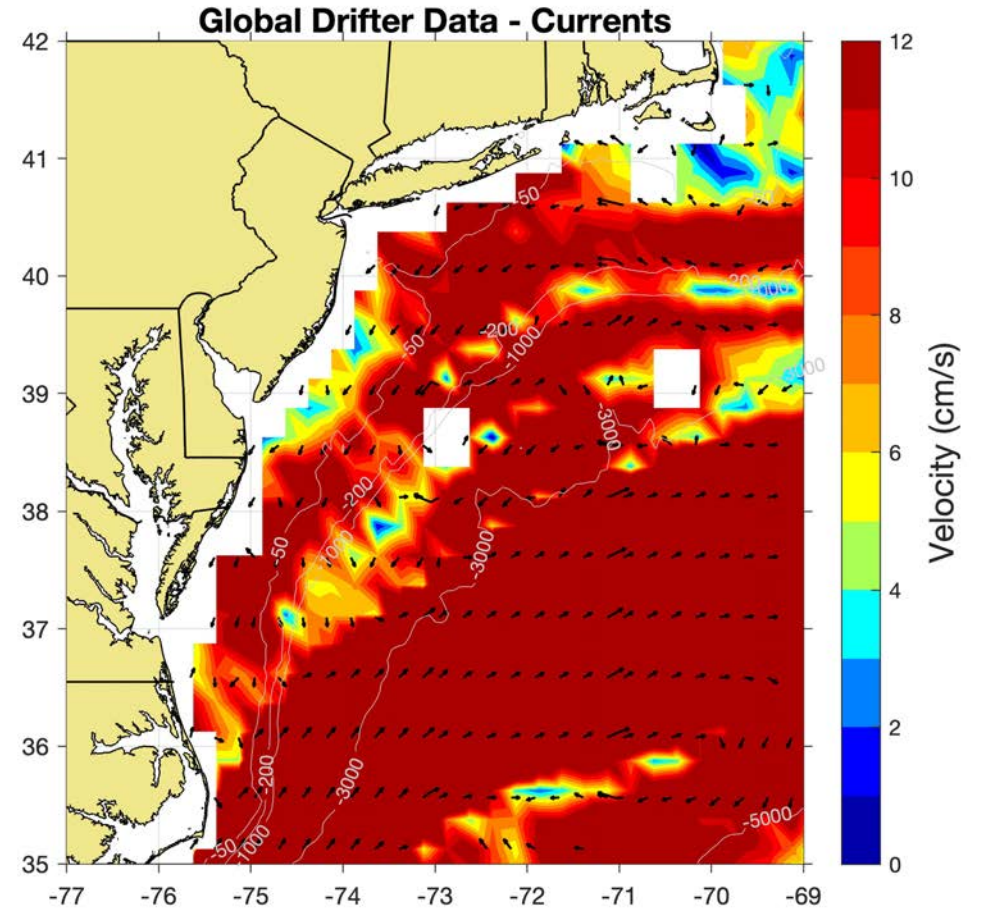
[Laurindo, L., A. Mariano, and R. Lumpkin, 2017: An improved near-surface velocity climatology for the global ocean from drifter observations *Deep-Sea Res. I*, 124, pp.73-92, doi:10.1016/j.dsr.2017.04.009.](#)

MARACOOS HFR Surface Current 2007-2016



[Roarty, H. et al. "Annual and seasonal surface circulation over the Mid-Atlantic Bight Continental Shelf derived from a decade of High Frequency Radar observations." *Journal of Geophysical Research: Oceans* 125, no. 11 \(2020\): e2020JC016368.](#)

MARACOOS HFR Surface Current 1979-2015



[Laurindo, L., A. Mariano, and R. Lumpkin, 2017: An improved near-surface velocity climatology for the global ocean from drifter observations *Deep-Sea Res. I*, 124, pp.73-92, doi:10.1016/j.dsr.2017.04.009.](#)

Conclusions

- A software toolbox has been developed to quality control and store drifter data in a NetCDF file for easy retrieval and sharing.
- Regional drifter data sources from the US Coast Guard and NOAA fisheries can double the amount of drifter data compared to the NOAA Global Drifter Program.
- These regional drifter data sets can also help fill in measurements near the coast which make them excellent validation sources for HFR.
- The downscaling of the drifter derived climatology of Global near surface currents highlighted some issues, which hopefully can be improved by utilizing regional drifter data sets.

Mid Atlantic Drifter Program: Development of a Software Toolbox to Manage Drifter Data



Thank You

