Particle Track Codes

This group of code was created in order to release and track virtual drifters through the CODAR field in Palmer Deep. Codes are currently configured for the 2020 field season data.

Starting with CODAR hourly averaged totals, here is the path to get to hourly relative particle density.

1. ‘create\_hourly\_largegrid\_cleaned.m’
   1. Input: CODAR data
   2. Defines grid of released particles
   3. Releases particles each hour and tracks their drifting positions for three days
   4. Output: saves hourly trajectory files
2. ‘save\_particle\_positions.m’
   1. Input: hourly trajectory files
   2. Finds every traj file with the same timestamp and saves the location of particle into a structure
   3. Output: particles\_all structure containing 2D data of particle location
3. ‘plot\_particles\_all\_RPD.m’
   1. Input: particles\_all structure
   2. Plots location of drifters at any hour
   3. Calculates and plots relative particle density as color map

Plotting ACROBAT data ontop of particles

1. ‘plot\_particles\_all\_ACRO\_CTD\_hourly.m’
   1. Loops through each hour in a hard-coded range and plot particle location beneath mixed density variable calculated from acrobat data
2. ‘plot\_particles\_all\_ACRO\_ECO\_hourly.m’
   1. Loops through each hour in a hard-coded range and plot particle location beneath integrated chlorophill variable calculated from acrobat data