A Quick Guide to the SOCCOM Data Visualization

The SOCCOM data visualization can easily create the two types of plots most frequently used by introductory or advanced oceanographers: **time-series and depth profiles.** This guide will offer a step-by-step description of how to make these plots and interact with the SOCCOM data set.

Accessing the visualization. The visualization is available to the public at http://soccom.princeton.edu/soccomviz.php, or by visiting the SOCCOM website: http://soccom.princeton.edu/, selecting "Observations" –> "Float Data" –> "SOCCOM Data - SOCCOMViz". The landing page is depicted in Figure 1.

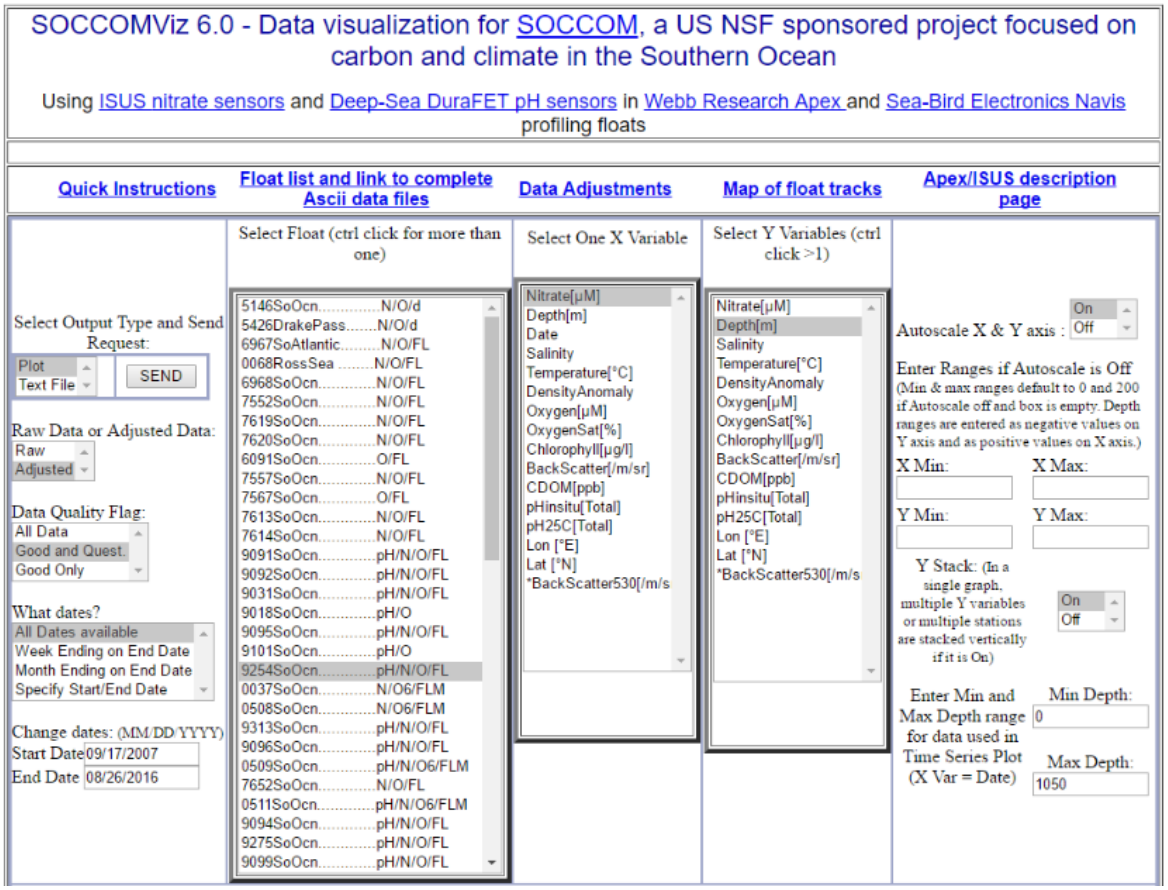

Figure 1. Input fields for the SOCCOM data visualization.

Interacting with the data. To create a simple plot, choose "Output Type" – "Plot". You can choose between "Raw" or "Adjusted" data: "Adjusted" is recommended, and simply means that the data has been corrected for various measuring errors. More information is available by clicking "Data Adjustments". For data quality, you can choose between "All Data", "Good and Questionable", or "Good Only". If you're making a time-series to examine seasonality, you will likely want to choose "All Dates Available". For depth profiles, you should experiment with the dates — your profile might look messy if you pick too large a range of dates. You can select from any of the available SOCCOM floats, or you can control-click multiple

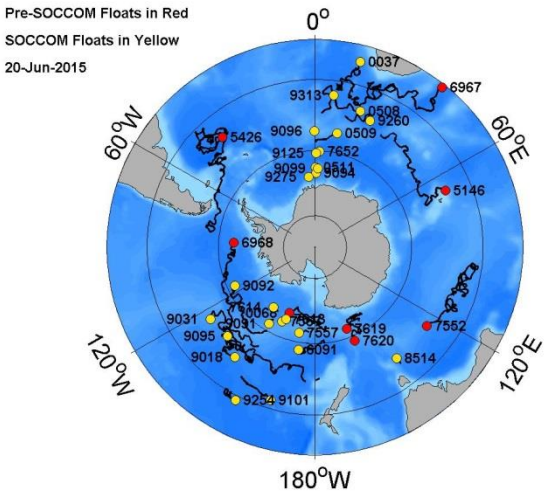

Figure 2. Map of float tracks in the Southern Ocean.

floats to create multiple plots. This menu also includes information on which floats have which data available: "N" means float has a nitrate sensor, "O" means it has an oxygen sensor, etc. Clicking "Map of Float Tracks" displays an image of the Southern Ocean with each float's location and past trajectory, as in Figure 2. When you have selected your X Variable and Y Variable (see below), clicking "SEND" will create the graph in a new tab on your browser.

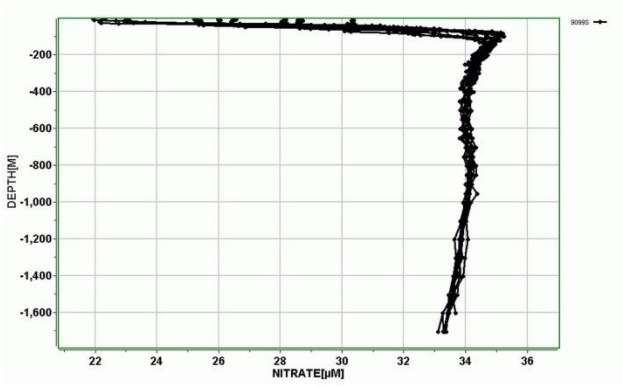

Figure 3. Sample depth profile of nitrate.

Making a depth profile. Depth profiles are extremely useful for oceanographic research, and display how temperature, salinity, nutrients, or other factors vary throughout the water column. The SOCCOM floats are designed to collect data at different depths, enabling this type of analysis. To create a depth profile, simply choose the float or floats you want to examine, choose nitrate, salinity, temperature, or some other field as the "X Variable" and choose "depth" as the "Y Variable". For example, Figure 2 shows a nitrate depth profile. Why is the nitrate depleted at the surface but not at depth? Try selecting different floats — is the nitrate profile generally the same? Why might it change for different locations in the Southern Ocean?

Making a time-series. A time-series of chlorophyll, nitrate, or other variables shows how ocean properties change with seasonality or longer timescales. To create a time-series, choose a float or multiple floats, and choose "Date" as the "X Variable". Then select the desired "Y Variable": interesting choices might be chlorophyll or nitrate. Figure 3 shows a chlorophyll time-series. Note that chlorophyll peaks for this particular float around December-January — summer. Why might this be? Can you create a nitrate time-series to see how nutrients might be changing with season?

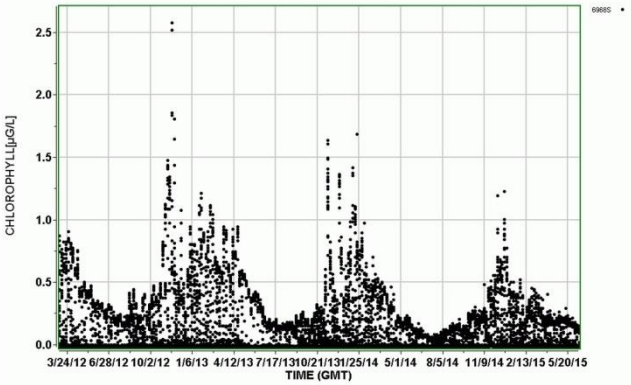

Figure 4. Sample time-series of chlorophyll.